FIRE, RESCUE, EMERGENCY MEDICAL SERVICES AND COMMUNITY RISK REDUCTION MASTER PLAN

PUBLIC HEARING DRAFT

JULY 22, 2015

PREFACE

The purpose of this *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* is to set a forward-thinking, rational, and attainable blueprint for the continued delivery of effective and efficient fire, rescue, emergency medical services, special operations, and community risk reduction services. The Plan guides the Montgomery County Fire and Rescue Service (MCFRS) in how best it can meet the needs and expectations of its customers and address the overall fire-rescue related risk present in the County.

The primary focus of the *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* is our external customers - the residents and business owners of Montgomery County and visitors to the County. Other external customers to which this Master Plan is focused include MCFRS' partners, including County departments and agencies, municipalities located in Montgomery County, private sector emergency service organizations and utilities serving the County, and State and federal departments/agencies. Internal customers of the MCFRS to which this Plan is also focused include the career and volunteer service providers, Local [Volunteer] Fire-Rescue Departments (LFRDs), Fire and Emergency Service Commission (FESC), International Association of Fire Fighters (IAFF) – Local 1664, Montgomery County Volunteer Fire and Rescue Association (MCVFRA), and fire-rescue resource groups that support the MCFRS.

Considering that some readers of this Master Plan may not be familiar with the MCFRS, readers are encouraged to review the Acronyms and Glossary sections before reading Sections 1-6.

This Master Plan can also be viewed in its entirety at the following web site: www.mcfrs.org.

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ACKNOWLEDGEMENTS

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Fire and Emergency Service Commission:
Chairman Kevin Maloney
Commissioners: Anita Powell, Ronald Ogens, Tony Coleman, Raymond Sanchez, Russell
    Dawson, Michael Kelley

International Association of Fire Fighters – Local 1664:
Jeff Buddle, President

Montgomery County Volunteer Fire Rescue Association:
Marcine Goodloe, President
Eric Bernard, Executive Director

Regional Service Centers and Citizen Advisory Boards:
Regional Service Center Directors: Catherine Matthews, Kenneth Hartman, Ana Lopez van
    Balen, Jewru Bandeh, Reemberto Rodriguez
Citizen Advisory Boards (Five CABs associated with the five Regional Service Centers)

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APPENDICES

ACRONYMS

AED	Automated external defibrillator
AFRA	ALS first responder apparatus
ALARF	Advance Land Acquisition Revolving Fund
ALS	Advanced life support
BATF	Bureau of Alcohol, Tobacco, Firearms and Explosives
BLS	Basic life support
CAD	Computer aided dispatch [system]
CAFS	Compressed-air foam system
CERT	Community Emergency Response Team
CFAI	Commission on Fire Accreditation International
CIP	Capital Improvements Program
CAAHEP	Commission on Accreditation of Allied Health Education Programs
COAEMSP	Committee of Accreditation of Educational Programs for the Emergency Medical Services Professions
COMAR	Code of Maryland Administrative Regulations
CPAT	Candidate Physical Ability Training
CPR	Cardio-pulmonary resuscitation
CPSE	Center for Public Safety Excellence
CRT-I	Cardiac Rescue Technician - Intermediate
ECC	Emergency Communications Center
EOC	Emergency Operations Center
EMG	Emergency Management Group
EMS	Emergency medical services
EMST	Emergency medical services transport [fee]
EMT	Emergency Medical Technician
EPCR	Electronic Patient Care Reporting
ERF	Effective response force
FEMA	Federal Emergency Management Agency
FESC	Fire and Emergency Services Commission
FROMS	Fire-Rescue Occupational Medical Section
FRTA	Fire-Rescue Training Academy
GIS	Geographic Information System
IAFF	International Association of Fire Fighters (Local 1664)
ICS	Incident Command System
IECS	Integrated Emergency Command Structure
LFRD	Local Fire and Rescue Department
MCFRS	Montgomery County Fire and Rescue Service

MCI	Mass casualty incident
MCP	Montgomery County Police
MCPS	Montgomery County Public Schools
MCVFRA	Montgomery County Volunteer Fire and Rescue Association
MEMA	Maryland Emergency Management Agency
MFRI	Maryland Fire and Rescue Institute
MIEMSS	Maryland Institute for Emergency Medical Services Systems
MOSH	Maryland Occupational Safety and Health
M-NCPPC	Maryland-National Capital Park and Planning Commission
MWCOG	Metro Washington Council of Governments
NBFSPQ	National Board on Fire Service Professional Qualifications
NCR	National Capital Region
NFPA	National Fire Protection Association
NIMS	National Incident Management System
OEMHS	Office of Emergency Management and Homeland Security
OSHA	Occupational Safety and Health Administration
PIC	Personal injury collision
PIO	Public Information Officer
PSAP	Public Safety Access Point
PSCC	Public Safety Communications Center
PSHQ	Public Safety Headquarters
PSSM	Public Safety Systems Modernization [Project]
PSTA	Public Safety Training Academy
RMS	Record management system
RRATS	River Rescue and Tactical Services [Team]
STEMI	ST-segment Elevation Myocardial Infarction
UASI	Urban Area Security Initiative
US&R	Urban search and rescue
WMD	Weapons of mass destruction

GLOSSARY

Acceptable (or Unprotected) Risk - That risk which the jurisdiction (e.g., Montgomery County) is willing to accept rather than provide the extraordinary amount of resources and programs required to eliminate, or nearly eliminate, all fire/rescue-related risk throughout the jurisdiction.

Accreditation - A comprehensive self-assessment and evaluation model that enables organizations to examine past, current, and future service levels and internal performance and compare them to industry best-practices for the purpose of improved service delivery. [Source: CFAI]

Accredited Agency Status – The status awarded to a fire-rescue agency that has successfully completed the requirements for accreditation and has been granted that status by the Board of Directors overseeing the process. To obtain Accredited Agency Status by the Commission for Fire Accreditation International, a fire-rescue agency must be granted that status by the CFAI Board of Directors.

Advanced Life Support (ALS) – Advanced-level emergency medical services including the administering of controlled life-saving drugs; electrical therapy including defibrillation; advanced airway management including orotracheal and nasotracheal intubation; intravenous maintenance therapy, and other advanced-level life support services.

Aerial Unit - A vehicle equipped with an aerial ladder, elevating platform, aerial ladder platform, or water tower that is designed and equipped to support fire fighting and rescue operations by positioning and providing access for personnel, supporting the vertical movement of equipment, providing continuous egress, and discharging water from positions elevated from the ground. MCFRS deploys ladder trucks (e.g., tractor-drawn aerials, rear-mount aerials) and aerial towers.

AFRA - Advanced life support First Responder Apparatus is any MCFRS unit other than an ambulance, medic unit or ALS chase unit that has a paramedic and an ALS Kit on board. The ALS provider(s) on board an AFRA can initiate ALS service to a patient having a life-threatening condition prior to arrival of an ALS transport unit.

ALS Provider –Firefighter or EMS-provider trained and certified as an Paramedic or Cardiac Rescue Technician-Intermediate (CRT-I).

ALS Unit – A fire-rescue vehicle equipped with an ALS Kit and staffed by at least one ALS provider. An ALS unit may or may not have patient transport capabilities. Examples: medic unit, paramedic engine, paramedic truck, paramedic rescue squad, ALS chase unit, EMS Duty Officer.

ALS Chase Unit – A fire-rescue unit (e.g., SUV) staffed by an ALS provider (occasionally two ALS providers) capable of providing advanced life support care but lacking patient transport capability.

Ambulance - An emergency medical service unit that is equipped and staffed to provide basic life support services, including patient transport. An ambulance is staffed by a minimum of two personnel minimally trained at the EMT level.

Apparatus - Fire-rescue vehicle(s) used for emergency response.

Basic Life Support (BLS) – Basic-level emergency medical services including patient assessment; airway management; cardiopulmonary resuscitation (CPR); rescue breathing; use of automated external defibrillators (AEDs); treatment of contusions, puncture wounds, broken bones, sprains and strains; spinal immobilization; child delivery; and similar basic-level life support.

Brush Truck – A fire suppression unit specially equipped for fighting fires in brush, woodlands, grasslands, and croplands. Brush trucks are typically all-wheel drive pickup trucks equipped with a small water tank, small diameter hose, and equipment for suppressing fires in terrain that larger apparatus cannot navigate.

Cardiac Rescue Technician - Intermediate (CRT-I)[1] – The State certification given to EMS providers who meet the minimum requirements for providing an intermediate level of emergency medical services within the State of Maryland. Skills required of personnel certified at the CRT-I level include all EMT skills, plus intravenous fluid administration, medication administration, external jugular cannulation, intraosseous cannulation, decompression thoracostomy, combitube, EKG monitoring, defibrillation/cardioversion, and endotracheal intubation. To become licensed at the CRT-I level, personnel must successfully complete the State's CRT-I curriculum and written licensing exam.

Compressed-air foam (CAF) – Fire suppression foam consisting of Class A foam solution, water and compressed air. CAF suppresses fire through cooling action and by cutting off the oxygen supply to the fire. CAF results in very little runoff and water damage and is effective in suppressing fires in structures, vehicles, brush, woods, and

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[1] The National Registry is phasing out its sponsorship of the EMT-I level, and the State did not adopt the national scope of practice for the newer Advanced EMT but instead adopted this higher level CRT-I.

Class A debris, but is not effective in suppressing flammable liquid fires (which require Class B foam).

Compressed-air foam system (CAFS) – The system attached to the pump on board a pumper to produce compressed-air foam. Compressed-air foam is produced at the pump by mixing Class A foam solution, compressed air, and a small percentage (by volume) of water.

Computer Aided Dispatch (CAD) – A computerized system used by public safety agencies for emergency call processing and dispatch, tracking of unit status, call status maintenance, and for recording event-related notes. CAD is used by call-takers and dispatchers at emergency communications centers as well as by field personnel utilizing mobile data computers in apparatus.

Effective Response Force (ERF) – The minimum amount of staffing and equipment that must reach a specific emergency location within a maximum prescribed travel time. [Ref. Fire & Emergency Service Self-Assessment Manual, CFAI]

Electronic Patient Care Reporting (EPCR) – A pre-hospital patient care data collection and reporting application which allows for the generation of quick, complete, real-time patient care reports in the field during EMS incidents. Use of EPCR by public Fire-Rescue and EMS agencies is mandated by the State of Maryland.

Emergency – An event that has resulted in, or has the potential to cause, casualties and/or property damage. Examples include fires, explosions, medical incidents, severe weather, vehicle collisions, hazardous materials releases, structural collapse, and acts of terrorism.

Emergency Management Group (EMG) – The EMG is composed of the heads of each County department, designated senior staff of each department, and designated representatives of the County's municipalities, MCPS, Montgomery College, public utilities, and non-profit public safety/disaster services organizations. The EMG is convened under the direction of the County's Chief Administrative Officer to advise the County Executive on the County's capability to respond to disasters; to recommend improvements in emergency management planning, mitigation, response and recovery capabilities; to enhance that capability through improvements to the infrastructure, through training and exercises; and to respond to emergencies as needed.

Emergency Medical Services – Pre-hospital emergency medical assessment, care and transport services for patients with illnesses, injuries and other acute medical conditions, typically provided by public fire-rescue or EMS departments and/or private EMS companies operating exclusively or jointly to provide these services. In Montgomery County, EMS services – both basic and advanced level, including transport – are provided to the public by the MCFRS.

Emergency Medical Services Transport (EMST) Fee – Beginning January 1, 2013, the Emergency Medical Transport Insurance Reimbursement Law authorizes MCFRS to seek reimbursement for EMS transports from private health insurance companies, Medicare and Medicaid. Per Montgomery County Executive Regulation 15-12, the reimbursement schedule varies depending upon the level of service provided (i.e., basic life support, advanced life support, specialty care transport), plus a mileage fee.

Emergency Medical Technician (EMT): The State certification given to EMS providers who meet the minimum requirements for providing basic life support services within the State of Maryland. Skills required of personnel certified at the EMT level include patient assessment, control and bandaging of bleeding, shock management, fracture management, CPR, oxygen administration, medical emergency management, patient-assisted and certain other life-saving medications, spinal immobilization, patient movement and transport. EMT-certified personnel must successfully complete the State's EMT course and a field evaluation, and pass a series of State-issued written and practical tests[2] to receive the State's EMT certification. All MCFRS personnel whose names appear on the IECS List are State-certified at the minimum skill level of EMT.

EMS Unit - A vehicle designed to provide emergency medical services and, with the exception of an ALS chase unit, patient transport.

Engine (or Pumper) - Fire apparatus with a permanently mounted fire pump of at least 1000 GPM capacity, water tank of at least 500 gallons, and hose body whose primary purpose is fire suppression.

Engine-Tanker - A unit that combines the features of both an engine and a small-capacity tanker. Engine-tankers typically carry 1500-2000 gallons of water.

Fire and Emergency Services Commission (FESC) – A body composed of seven commissioners appointed by the County Executive and confirmed by the County Council. Three FESC members represent the public, two members are uniformed career employees of MCFRS, and two members represent the volunteer fire and rescue departments in the County. Chapter 21 of the County Code charges the FESC with recommending how the County can achieve and maintain effective, efficient, and equitable fire-rescue services and improve the policy, planning, and regulatory framework for all fire-rescue operations. The FESC has the authority to approve policies and regulations proposed by the Fire Chief. The FESC may also advise the Fire Chief, County Executive, and County Council on fire-rescue policies, standards, procedures, plans, programs, and related matters.

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[2] The State has adopted the national scope of practice standard for EMT.

First-Due Area – The area surrounding a fire-rescue station whose boundary is the halfway point between that station and surrounding stations. One or more fire-rescue units, as appropriate, are considered "first-due" from that station to incidents occurring within the station's first-due area, unless the appropriate unit(s) is/are unavailable due to being committed to another incident or held in an uncontrolled status within the CAD System.

First Responder Unit – Any fire-rescue unit (e.g., engine, aerial unit, rescue squad, brush unit, tanker) that is staffed with at least one EMT, a BLS Kit, and an AED. A first responder unit is dispatched on certain EMS incidents to begin patient assessment and care when the closest EMS unit has a greater distance to travel.

Flashover – The stage in the development of a fire within a closed space or room in which all exposed surfaces reach ignition temperature simultaneously and fire spreads instantaneously throughout the space/room with flames appearing on all surfaces.

Hazardous material ("hazmat") - Any substance or material posing a threat to health and the environment [EPA definition]. Hazmats are classified as flammable/combustible liquids, compressed gases, corrosives, poisons/toxic materials, oxidizers, flammable solids, etiologic (biological) agents, cryogenics, and radioactive materials.

Hazmat Team – MCFRS' specialty team that responds to incidents involving hazardous materials, destructive devices, and weapons of mass destruction; working in coordination with the MCFRS Bomb Squad when appropriate. The Hazmat Team is composed of specialized apparatus and equipment and specially trained personnel assigned to Stations 7, 20, 25 and 28.

Integrated Emergency Command Structure (IECS) – The operational chain of command and rank structure that integrates all fire and rescue services personnel, both career and volunteer, who have met the applicable training, experience, certification, and credentialing requirements. An IECS List is published periodically listing all certified fire and rescue service personnel in Montgomery County who are qualified to comprise minimum staffing on fire-rescue apparatus.

Incident (fire-rescue) – An emergency event of a nature and scope requiring the services of fire-rescue and/or EMS personnel.

Insurance Services Office (ISO) - A company providing underwriting, risk management, legal/regulatory services, and related information/data, with special focus on community fire-protection and building code effectiveness. ISO evaluates community fire protection through its Public Protection Classification Program (see PPC below), using the ISO's Fire Suppression Rating Schedule.

Local Fire-Rescue Department - One of nineteen independent State-chartered volunteer fire and rescue departments in Montgomery County. Each LFRD has at least one station, and nearly half of the LFRDs have two or more stations. Each LFRD has a uniformed Volunteer Chief, a Board of Directors, and uniformed and administrative personnel who volunteer their services to the community.

Medic Unit - An emergency medical services unit that is equipped and staffed to provide advanced life support services, including patient transport. A medic unit is staffed by a minimum of two personnel – one paramedic and one EMT, or occasionally two paramedics.

Montgomery County Fire and Rescue Service (MCFRS) – The organization responsible for providing all fire, rescue, EMS and special operations services and risk reduction programs to the public in Montgomery County, Maryland.

Natural hazards - Hazards related to acts of nature such as severe thunderstorms, windstorms, tornadoes, hurricanes, winter storms, floods, extreme heat, extreme cold, drought, earthquakes, and others.

Paramedic - The State certification given to EMS providers who meet the minimum requirements for providing the highest level of advanced life support services within the State. Skills required of personnel certified at the Paramedic level include all skills required under the CRT-I level, plus additional medication administration, nasotracheal intubation, and external transcutaneous pacing. To become a licensed Paramedic, personnel must successfully complete the State's Paramedic curriculum[3] and a field evaluation, participate in hospital emergency room training, and pass a State-issued ALS protocol licensing exam.

Personal injury collision (PIC) – A collision resulting in injury to the occupant(s) of the vehicle(s) involved. [Note: A pedestrian struck by a vehicle is a separate incident type.]

Public Protection Classification (PPC) – A classification, or rating, assigned to a community by the Insurance Services Office based upon an evaluation by ISO using ISO's Fire Suppression Rating Schedule. A community's PPC will be between Class 1, representing superior fire protection, and Class 10, indicating a level of fire protection in the community that does not meet ISO's minimum criteria. The community's PPC is based upon an evaluation of their fire alarm and communications systems, the water supply system for fire suppression, and the fire department's apparatus, equipment, staffing, training, and geographic distribution of stations.

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[3] The State has adopted the national scope of practice for Paramedic.

<u>Public Safety System Modernization (PSSM) Project</u> – A Montgomery County public safety communications system project that will replace the existing computer-aided dispatch (CAD) and radio systems used by public safety departments as well as the fire station alerting system. The project is scheduled for completion in CY2018.

<u>Rescue Squad</u> - A special service unit equipped to provide a wide variety of tools and equipment necessary to effect vehicle extrication, complex rescues, and to assist at structure fire incidents.

<u>Response Time</u> – The elapsed time from the MCFRS call-taker answering the 9-1-1 call transferred by the PSAP, to the arrival of MCFRS unit(s) at the incident scene. Upon implementation of universal call-takers under MCP, response time will be redefined as the elapsed time from the call-taker answering the 9-1-1 call to the arrival of MCFRS unit(s) at the incident scene

<u>Risk</u> - The likelihood or probability of a damaging or injury-causing event (e.g., fire, heart attack, vehicle collision, hazmat incident, act of terrorism, tornado,) in combination with the consequences or severity of that event. Stated mathematically: RISK = PROBABILITY OF OCCURRENCE X SEVERITY, where probability and severity can be stated numerically to derive a numerical level of risk that can be compared with other risks in order to rank them. When not stated mathematically, risk may be ranked in subjective terms such as special, high, medium, and low or similar rankings.

<u>Self-Assessment Manual (SAM)</u> – The manual prepared by a candidate fire department (i.e., "Candidate Agency") as the department proceeds through the accreditation process and readies itself for evaluation by peer assessors. For CFAI accreditation, the SAM must addresses all criteria and performance indicators as published in the latest edition of the CFAI's *Fire & Emergency Service Self-Assessment Manual* guidebook.

<u>Societal hazards</u> - Hazards related to the close interaction of people in daily activities and adverse occurrences that arise due to various political, physiological, and psychological factors, influences and events. Societal hazards include health/disease epidemics, civil disorder, commodity shortages, and war.

<u>Special service unit</u> – A term used by MCFRS that refers to an aerial unit or rescue squad, as both units provide specialized services in support of engines and EMS units.

<u>Standards of Cover</u> – The document prepared by a fire department seeking agency accreditation through the Commission on Fire Accreditation International (CFAI) based upon a comprehensive risk analysis of the department's service area that leads to the establishment of service level objectives upon which the distribution and concentration of the department's resources are based. The Standards of Cover is a required document for CFAI accreditation.

Tanker - A fire suppression unit that carries a minimum of 2000 gallons of water and provides firefighting water supply to areas without fire hydrants. MCFRS tankers carry 3000-3500 gallons of water and are a key resource with respect to the MCFRS' goal to achieve a fire flow of at least 500 gpm for the initial 30 minutes of a structure fire in a non-hydranted area.

Task Force - A group of any type of resources, with common communications and a leader, temporarily assembled for a specific mission. Within MCFRS, a fire suppression Task Force (TF) consists of two engines and a special service (i.e., aerial unit or rescue squad). A Water Supply Task Force (WSTF) consists of three tankers and an engine to operate at the tanker fill-site. An EMS Task Force (EMSTF) consists of five transport units, two paramedic engines, an additional ALS resource if an ALS unit is not included among the five transport units, an EMS Duty Officer if not already assigned to the incident, and a command officer if not already assigned to the incident.

Technological hazards - Hazards created by or related to technological infrastructure, business/manufacturing processes, and by-products of a technological civilization. Technological hazards include utility disruptions (power, water, natural gas, and communications systems), dam failures, pollution emergencies, conflagrations, and others.

Terrorism - The unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political, religious or social objectives.

Weapons of Mass Destruction (WMD) - Weapons used by terrorists to cause casualties, intimidation, fear, panic, and/or property damage to the intended target and population. WMDs include biological, radiological, incendiary, chemical, and high-yield explosive materials.

SECTION 1

INTRODUCTION

SECTION 1

INTRODUCTION

BACKGROUND

This Section of the *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* provides an overview of the statutory requirements for fire-rescue master planning; the original (1994) and second (2005) MCFRS master plans and associated amendments/updates; and laws, statutes, standards and best practices impacting fire-rescue service delivery in Montgomery County. Section 1 also includes the purpose and scope of the plan, integration with other plans, and planning assumptions used in developing this plan.

MASTER PLAN PURPOSE, SCOPE AND TIMEFRAME

The purpose of this *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* is to set a forward-thinking, rational and attainable course for the continued delivery of effective and efficient fire, rescue, EMS and related services to the residents, business owners and visitors of Montgomery County during the five-year life span of the Plan. The Plan serves as a guideline for the Fire Chief, County Executive and County Council in making decisions regarding delivery of fire-rescue services but does not have the force of law nor does it impose any legal obligation on any party.[4] The Master Plan is not a business plan for administering and managing the MCFRS, nor is its scope limited to that of a strategic plan.
The primary focus of the *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* is the external customers -- the residents and business owners of Montgomery County as well as visitors to the County. The Plan guides the MCFRS in how best it can meet the needs and expectations of these customers. The Plan accomplishes this purpose by addressing the emergency and non-emergency programs, personnel, apparatus, equipment, and facilities that are needed and how best to train, prepare, and deploy MCFRS personnel to meet the department's mission.

The *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* is based upon the MCFRS vision, mission, and guiding principles (see Section 2); MCFRS goals (Section 2); provisions set forth in Chapters 2, 21, and 22 of the County Code; and agency accreditation requirements. The Plan's recommended initiatives are fact-driven and derived from incident data and trends; demographic data and trends; GIS-based maps,

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[4] Reference: Montgomery County Code, Chapter 21, Section 12(c)

analyses and data; community master/sector plans; and needs, issues, and expectations expressed by County residents/business owners and MCFRS officers, managers, employees and members – both career and volunteer.

PLANNING ASSUMPTIONS

Planning assumptions on which this Master Plan is based are presented below.

1. The *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* (hereafter referred to as "Master Plan") will be the single plan on which all fire, rescue and emergency medical services resource allocation, station location, service delivery, risk reduction, and business operations will be based.

2. This Master Plan, and amendments thereof, will not be superseded by any other plan prepared and used by the Montgomery County Fire and Rescue Service (MCFRS). Only amendments approved by the County Council may modify this plan.[5] Other MCFRS plans addressing select topics and shorter time frames will be consistent with broader language contained in the Master Plan and will include no content contrary to that appearing in the Master Plan. MCFRS implementation and deployment plans, for example, may contain greater detail and minor deviations from this Master Plan as long as the basic intent of the Master Plan is met.

3. The MCFRS will continue as the County's provider of fire, rescue and EMS services to the public during the five-year lifespan (2015-2020) of this Master Plan.

4. The County Fire Chief will remain the individual responsible for leading, managing, and administering the MCFRS as well as formulating and enforcing policies and procedures that apply to all MCFRS operations and personnel.

5. The MCFRS will remain a combination system of career and volunteer personnel, and sufficient efforts will be undertaken to ensure the continuation of this long-standing, successful partnership.

6. The MCFRS will receive adequate tax-funded appropriations from the County Council that will allow for continued delivery of quality service to the public through continued operation of existing programs/services and initiation of new programs/services as deemed essential by the Fire Chief.

7. The MCFRS will receive revenue of approximately $18.4 million annually primarily from EMS Transport Fee revenues (estimated at $17.0 million) and also from revenues (estimated at $1.4 million) generated by the Office of the Fire Marshal involving fees for

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[5] Ref. Montgomery County Code, Chapter 21, Section 12

permits and inspections. The LFRDs will receive Amoss Fund monies from the State of Maryland of approximately $1.5 million annually.

8. The fire, rescue and EMS incident call load in the County will continue increasing in relation to population growth, pace of development, and changing demographic factors (e.g., age, race, ethnicity and socio-economic level of residents).

9. The ongoing trend of EMS incidents comprising an ever increasing majority of MCFRS incident responses (approximately 75-80%) will continue over the five-year lifespan of this Master Plan.

10. While all age groups in the County will continue to increase in number, the largest percentage increase will occur in the 65 years and over age group. This growth will outpace all other age groups by a sizable margin. Due to this increase in the senior population, the EMS call load will continue increasing, particularly the ALS call load.

11. The trend of increasingly higher numbers of racially and ethnically diverse populations residing in the County will continue. Likewise, the percentage of these diverse populations residing in the County in relation to all populations will continue to rise.

12. Residential and business development throughout the County will continue to grow at a steady rate between 2015 and 2020. Transportation infrastructure will continue to expand within the County, as well, primarily related to the proposed Purple Line, proposed Corridor Cities Transitway, and new roadways constructed in Clarksburg and other areas.

13. County-wide risk related to terrorism will remain throughout the five-year lifespan of this Master Plan and may increase or decrease as the level of risk becomes better defined. The MCFRS will take an active role in the County's homeland security efforts to plan and prepare for, respond to, and, to the greatest extent possible, mitigate acts of terrorism. The MCFRS will strive to achieve a level of preparedness commensurate with the perceived threat and risk.

14. Planning and preparedness for, and response to, large-scale emergencies (e.g., natural disasters, major transportation incidents, acts of terrorism, etc.) occurring in Montgomery County or within the Washington D.C. Metropolitan Area will be addressed from a regional approach to ensure the most effective and efficient means of protecting the public. The MCFRS will continue its participation in and support of National Capital Region and Metro Washington Council of Governments planning, preparedness, and response programs and initiatives.

15. MCFRS will maintain its agency accreditation status through the Commission on Fire Accreditation International throughout the five-year lifespan of this Master Plan (through

2020), including the pursuit of re-accreditation in 2018 when the current accreditation status will have reached the end of its five-year cycle (i.e., 2013-2018).

16. MCFRS will maintain its paramedic training program accreditation from the Commission on Accreditation of Allied Health Education Programs throughout the five-year lifespan of this Master Plan.

17. MCFRS will achieve a passing evaluation rating and certification for the Fire-Rescue Training Academy's (FRTA's) EMS training programs from the Maryland Institute for Emergency Medical Services Systems throughout the five-year lifespan of this Master Plan.

18. MCFRS will achieve a passing evaluation rating and certification for the FRTA's fire and rescue training programs from the National Board on Fire Service Professional Qualifications throughout the five-year lifespan of this Master Plan.

STATUTORY REQUIREMENT FOR MASTER PLANNING

Chapter 21, Section 12 of the County Code states: "The Fire and Rescue Commission [later replaced by the Fire and Emergency Services Commission (a.k.a., FESC) in August 2009] must review the master fire, rescue and emergency medical services plan [later re-titled *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan*] on an ongoing basis, and must propose amendments to the Fire Chief, [County] Executive and [County] Council as appropriate." The Code also states that the County Executive must forward the plan or any amendment(s) proposed by the Fire Chief, along with any comments, to the County Council. The Council then approves the master plan, or plan amendments, as proposed or with further revisions.

Chapter 21, Section 12 also states the master plan serves as a guideline for the County Executive, County Council and the Fire Chief in making decisions regarding delivery of fire and rescue services. Section 21-12 also sets forth minimum requirements for the master plan.

Section 21-9 of the County Code addresses a separate document known as the "disaster plan." The code states that the County Executive, after receiving Fire and Rescue Commission [now FESC] approval, must establish and maintain a fire and rescue disaster plan that provides an integrated chain of command compatible with the Standardized Incident Management System and the Integrated Emergency Command Structure.

1994 (ORIGINAL) MASTER PLAN AND AMENDMENTS

ORIGINAL MASTER PLAN

The original *Fire, Rescue and Emergency Medical Services Master Plan* was adopted by County Council Resolution 12-1835 on October 18, 1994. The stated purpose of the original master plan was to give County residents a comprehensive description of how the Fire and Rescue Service fulfills its responsibilities and how changes in the County are likely to affect service delivery, and to provide direction for the present and future through a set of recommendations that specifically address the steps necessary to provide a desired level and quality of service.

In summary, the original master plan addressed demographic and service demand trends; factors affecting service demand; and an overview of the service delivery system, life safety programs, and fire investigation program. The plan also provided an overview of the organizations comprising the MCFRS, its interrelationships with other agencies and organizations, and the personnel who operate, manage and administer the Fire-Rescue Service. The need for new facilities, apparatus, equipment and communications/data systems was addressed, as well. Considerable attention was given to describing the seven "Fire and Rescue Planning Areas[6]" in terms of demographics, characteristics, service demand and service delivery trends, and resources (existing and future needs). The plan also included a section on funding sources and a brief fiscal impact analysis addressing operating budget impacts, station construction, and water supply enhancements.

Looking back on the effort to implement the 39 recommendations appearing in the original master plan, about three quarters of the recommendations were fully or partially addressed, although certain of the recommendations required long-term, continuous action due to their scope and intent.

Of particular note concerning the ability of the MCFRS to keep pace with growth during the ten year period between 1994 and 2004, no additional stations were built. In fact, no additional stations had been built since Germantown Station 29 was completed in 1980. The original master plan had called for the construction of a new station in Clarksburg and another in the Travilah area. Regarding renovation or replacement of existing stations during this 10-year period, Sandy Spring Station 4 was replaced, Kensington Station 5 received a major renovation, and CIP projects were approved to replace Silver Spring Station 1 and Takoma Park Station 2. All four of these projects (i.e., Stations 1, 2, 4 and 5) had been recommended in the original master plan, as well as a recommendation to renovate or replace Station 30.

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[6] The seven Fire and Rescue Planning Areas included: Down County Area, Route 29 Area, Potomac Area, I-270 Corridor, Poolesville Area, Damascus Area, and Georgia Avenue Area.

PUBLIC HEARING DRAFT
FIRE, RESCUE, EMERGENCY MEDICAL SERVICES,
AND COMMUNITY RISK REDUCTION MASTER PLAN

AMENDMENTS TO 1994 MASTER PLAN

Amendments to the 1994 *Fire, Rescue and Emergency Medical Services Master Plan*, were proposed twice during the plan's ten-year lifespan. The initial amendment occurred in 1996 when Master Plan Recommendation G.2-1 addressing the purchase of fire-rescue support vehicles was amended to return responsibility for purchasing support vehicles with tax funds from the County to the corporations [Local Fire-Rescue Departments].

The second effort to amend the Master Plan occurred during 1999-2000. As a result of recommendations provided in the Phase 1 Report of the "Station Location and Resource Allocation Study," the Fire and Rescue Commission, in 1999, proposed a series of amendments to the County Executive and then to the County Council. The amendments were adopted by County Council Resolution 14-442 on February 29, 2000. A public hearing and a work session of the Council's Public Safety Committee on the proposed amendments preceded the resolution. The Council-adopted amendments related to this second effort to amend the Master Plan are summarized below.

- Amendment 1: Established County-wide response time goals for fire and rescue incidents, including density-related goals for urban, suburban, and rural areas.

- Amendment 2: Revised Fire and Rescue Service priorities for the Capital Improvements Program for existing station replacement/renovation and new station construction.

- Amendment 3: Revised Recommendation K-2.1 concerning the disposition of Hyattstown Station 9. The amendment proposed the continued operation of Station 9, assignment of the new Clarksburg station to the Hyattstown Volunteer Fire Department, and redeployment of [certain] equipment from Station 9 to the Clarksburg station.

- Amendment 4: Updated the section on the Interstate 270 Corridor Fire-Rescue Planning Area, including recommendations to build new (additional) stations in west Germantown, east Germantown, and Clarksburg.

- Amendment 5: Updated the section on the Potomac Fire-Rescue Planning Area, including a recommendation to build a new (additional) station in the Travilah-Shady Grove vicinity.

- Amendment 6: Revised Appendix A - a listing of all Master Plan recommendations - to reflect changes brought about by Amendments 3, 4, and 5.

2005 MASTER PLAN AND UPDATES

2005 MASTER PLAN

In October 2005, the 1994 Master Plan was replaced by the *Fire, Rescue, Emergency Medical Services and Community Risk Reduction Master Plan*. The replacement plan, adopted by County Council on October 11, 2005, had a 10-year lifespan to October 2015. The 2005-2015 plan, written by the MCFRS Planning Section, presented 104 recommendations for improvement to be implemented over the 10-year period as funding and resources allowed. Recommendations were prioritized into three levels – A, B and C – for implementation purposes and were cross-referenced to departmental goals. As the plan sunset in 2015, many recommendations had been fully or partially addressed while others had not due largely to lack of staff and funding.

2010 UPDATE

In 2009, the Fire Chief approved updates to the 2005 master plan and those updates were adopted by County Council in March 2010. The updates primarily addressed changes to the MCFRS vision, mission and guiding principles; modifications to response time goals; four-person staffing implementation; advanced life support (ALS) service delivery (introducing the 1 and 1 ALS deployment model); and additional fire station Capital Improvements Program (CIP) projects. The updates also included three additional recommendations addressing fire risk reduction for seniors, apparatus transfer during working incidents, and resource needs for worst credible scenarios.

ANNUAL STRATEGIC PLAN

MCFRS prepares an annual[7] strategic plan for implementation of the highest priorities of the *Fire, Rescue, Emergency Medical Services and Community Risk Reduction Master Plan* as determined by the Fire Chief. Input concerning priorities is provided by division chiefs, section managers, and program managers throughout the department. The Strategic Plan is approved by the Fire Chief and does not require adoption by the County Council.

For each priority in the Strategic Plan, the corresponding departmental goal(s) is/are identified, the priority's importance is briefly described, and a detailed explanation of the priority is provided. The Strategic Plan typically consists of 10-15 priorities for the upcoming fiscal year; however, implementation is dependent upon actual funding for the fiscal year and associated availability of staff and other resources.

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[7] Occasionally the strategic plan covers a two-year period (e.g., FY14-15 Strategic Plan) as determined by the Fire Chief.

PLAN AMENDMENTS, REVISIONS AND REPLACEMENT

The previous *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* (adopted October 11, 2005) was intended to have a ten-year lifespan, sun-setting by December 31, 2015 as referenced in Section 1, page 20 of that plan. The need for a replacement Master Plan, therefore, was specified by the previous Master Plan; however, the lifespan of the replacement plan is not specified by County Code nor the previous plan.

The lifespan of this Master Plan is five years as directed by the County Fire Chief. The plan will sunset on December 31, 2020. The Fire Chief determined that another ten-year plan (as applicable to the two previous plans) would address a time frame that is too long considering the fast-changing demographics, growth, service needs, and other characteristics of Montgomery County. Agency accreditation is also based upon a five-year cycle, so a five-year master plan would be consistent with the accreditation model; although not aligned by beginning and end dates. The Fire Chief, therefore, determined that a five-year time frame would be appropriate for this new master plan.

In accordance with Montgomery County Code, Chapter 21, Section 12, the Fire Chief must draft and propose any desired amendments to the *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan*. The County Council, Fire and Rescue Commission [now "Fire and Emergency Services Commission"], or any local fire and rescue department may ask the Fire Chief to consider an amendment to the plan. The Fire Chief must conduct a public hearing before proposing any significant amendment(s) to the County Executive. Chapter 21 also states that the County Executive must forward any amendment(s) proposed by the Fire Chief, along with any comments, to the County Council. The Council then approves amendments, as proposed, or with Council-directed revisions.

It is envisioned that development of the 2021-2025 *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* will begin during the fourth year of this 2015-2020 Plan to ensure its adoption by the previous Master Plan's sunset date.

LAWS, STATUTES, STANDARDS AND BEST PRACTICES

Several laws, statutes and standards impact the MCFRS in terms of organizational structure, administration, authorities and responsibilities; legal considerations; and service delivery. Laws that govern the MCFRS and FESC include Chapters 2, 21, and 22 of the County Code. Each of these laws, statutes and standards is addressed below.

In addition to the laws and standards that impact MCFRS in a broad sense, there are other laws and codes that pertain to specific MCFRS functional areas such as fire code enforcement (e.g., Montgomery County Fire Safety Code, Code of Maryland Regulations, Annotated Code of Maryland, NFPA codes that have been adopted by the County, etc.).

NFPA Standard 1710[8] for example, while not legally binding in Montgomery County because it has not been adopted by the County Council into County Code, is a voluntary national standard to which the MCFRS has chosen to follow to the greatest extent possible, as many fire departments across the nation have adopted its provisions or have likewise chosen to follow them to the greatest extent possible.

COUNTY CODE - CHAPTERS 2, 21 AND 22

Chapters 2, 21, and 22 of the Montgomery County Code address fire and rescue services, with Chapters 21 and 22 providing the majority of the legislative language. Both Chapters 2 and 21 were amended through the County Council's enactment of County Council Bill 36-03 in May 2004. Chapter 2 establishes the structure of County's fire and rescue service as a public-private partnership comprised of the Montgomery County Fire and Rescue Service (MCFRS), Fire and Rescue Commission [now "Fire and Emergency Services Commission" or FESC], and local fire and rescue departments (LFRDs). Chapter 22 is the County's Fire Safety Code.

Chapter 21, as amended in May 2004, consists of six Articles. Portions pertaining directly or indirectly to planning appear below. Chapter 21, Section 12 addresses fire-rescue master planning.

ARTICLE I – COMPREHENSIVE FIRE AND RESCUE SERVICES

- [One of six goals of Chapter 21, Section 1] "Plan and coordinate County fire, rescue, and emergency medical services with services provided by other government and private organizations to provide all needed services while minimizing duplication and conflict."

ARTICLE II - ORGANIZATION

- [Section 21-2(d)(3)(C)] The FRC [now FESC] "may review and make recommendations regarding the master plan for fire, rescue and emergency medical services as provided in Section 21-12."

- [Section 21-2(d)(3)(B)] The FRC [now FESC] "may advise the [Fire] Chief, [County] Executive, and [County] Council on County-wide policies, standards, procedures, plans, and programs that should apply to all fire, rescue and emergency medical service operations."

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[8] NFPA Standard 1710 – "Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments"

ARTICLE III - OPERATIONS

- [Section 21-9] "The County Executive, by regulation issued after receiving [Fire and Rescue] Commission [now FESC] approval under Section 21-2(d)(4), must establish and maintain a fire and rescue disaster plan that provides an integrated chain of command compatible with the Standardized Incident Management System and Integrated Emergency Command Structure."

- [Section 21-12] See discussion under the "Statutory Requirements for Master Planning" heading above regarding master planning.

ARTICLE V – FISCAL MATTERS

- [Section 21-22] The [Fire and Rescue] Commission [now FESC] must forward the Commission's comments on the Fire Chief's proposed budget, together with a summary, an analysis of County-wide implications and relationships to applicable provisions of the fire service master plan, and the Commission's recommendations on the proposed budget, to the County Executive for review and submission to the County Council as required by the County Charter."

- [Section 21-26] "A newly constructed fire-rescue station, purchased with tax funds after July 1, 1999, may be held under a title reflecting concurrent ownership by the County and local fire and rescue department if: (1) the station complies with the adopted master fire, rescue and emergency medical services plan." Two other conditions apply, as well, unrelated to planning.

ACCREDITATION REQUIREMENTS AND BEST PRACTICES

As MCFRS is an accredited agency through the Commission on Fire Accreditation International (CFAI), there are a number of accreditation-related requirements that must be met, including a set of approximately 250 performance indicators (a.k.a., "competencies") as well as preparation of three comprehensive documents – the Self-Assessment Manual, Standards of Cover, and a strategic/master plan. In addition, there are fire department best practices that CFAI publishes in their guidebooks that accredited agencies should strive to meet and address in their Standards of Cover. Accreditation is addressed in greater detail in Section 3 of this master plan.

REQUIREMENTS FOR TRAINING-RELATED ACCREDITATIONS

In addition to agency accreditation through CFAI (see above), there are several training-related accreditations that MCFRS pursues in order to provide its fire, rescue, paramedic and EMT training programs. Achieving accreditation status every five years through the Committee of Accreditation of Educational Programs for the Emergency Medical Services

Professions (COAEMSP) allows the MCFRS Fire-Rescue Training Academy (FRTA) to continue its paramedic training program. Achieving a passing evaluation rating and certification every five years from the Maryland Institute for Emergency Medical Services Systems (MIEMSS) is required for the FRTA to provide its EMS training programs. In addition, the FRTA must achieve a passing evaluation rating and certification for its fire and rescue training programs from the National Board on Fire Service Professional Qualifications (a.k.a., "Pro Board"). These training accreditations/certifications are addressed in Sections 5 and 6 under the Training heading.

STANDARDS OF COVER AND DEPLOYMENT CRITERIA

MCFRS has established standards of cover and deployment criteria that the department uses for resource allocation planning and performance measurement purposes. While they are not mandates, MCFRS uses them to establish and modify resource levels to meet risks and related emergency service needs.

STANDARDS OF COVER

MCFRS standards of cover address distribution and concentration of emergency resources and response time objectives as described briefly below. These standards of cover are discussed in greater detail in Section 4 of this master plan.

Distribution and Concentration of Resources

Based on risks present in Montgomery County, distribution of incidents, and established response time objectives (see below), MCFRS has determined the appropriate distribution of fire-rescue stations and concentration of resources to be deployed in those stations. The need for new-additional fire-rescue stations and renovation/expansion of existing stations is presented in Sections 5 and 6 of this plan under the Facilities heading. The need for new-additional resources or reallocation of existing resources is presented under the Preparedness /Readiness and the Resource Deployment and Staffing headings in Sections 5 and 6.

Response Time Objectives

A key factor in determining resource distribution and concentration is response time. While total response time is of greatest importance, response time is recorded and analyzed in its three component time frames – call processing/dispatch, turnout, and travel. Response time objectives that have been established by MCFRS, approved by the County Executive, and adopted by the County Council, are instrumental in determining the locations of stations and the number and types of apparatus deployed in them. Response time objectives are broken down into baselines (i.e., response times presently or recently achieved) and benchmarks (i.e., response time goals intended to be met by a specific date in the future following implementation of operational improvements).

DEPLOYMENT CRITERIA

The MCFRS uses several deployment-related criteria to assist in the decision-making process concerning resource allocation. These criteria include 2500 incident responses per unit per year and failures to respond (FTRs). Each is described below. NFPA Standard 1710, described below, is another deployment criteria that could be used by the MCFRS in the future if adopted into law by the County Council.

2500 Unit Responses per Year

Although not appearing in previous editions of the *Fire, Rescue and Emergency Medical Services Master Plan*, the MCFRS has been using the criterion of 2500 unit responses per year as the threshold for identifying a unit that has become overextended and for which an additional unit may be required in the same station or a nearby station providing the same type of service to the community. This threshold was found to be used in the late 1990s by several other fire-rescue departments in the United States of similar size and characteristics as MCFRS.

The 2500 threshold was derived by the Station Location and Resource Allocation Work Group in 1998 and first placed in print by the MCFRS in the *Phase 1Report of the Station Location and Resource Allocation Work Group* in 1999. The report states on page 18: "The Work Group has determined that the maximum threshold level for unit responses should be 2500 per year (equivalent to about 7 calls daily) for any unit. This maximum threshold level takes into consideration: time spent on each incident including trips to/from hospitals for EMS [transport] units and time spent preparing units for service following an incident, time for training, and time for performing routine activities such as incident reporting, station /equipment maintenance, public relations/community outreach, physical fitness, etc." In 1999, the Fire and Rescue Commission adopted this criterion for the MCFRS. This criterion was a major factor in the decision to place additional EMS units in service at Stations 8, 12, 23, and 25 between 1998 and 2001.

During CY2014, thirty one fire-rescue units exceeded the 2500 response threshold, including 11 engines, 10 ambulances, 7 medic units, 2 aerial units, and one rescue squad. Furthermore, fourteen of these units, including 9 EMS transport units and 5 paramedic engines, each surpassed 3,000 responses during CY2014. The data indicate that additional units are needed to decrease the demand for these overextended units, and/or that the department consider re-evaluating the appropriateness of the 2500 threshold level and possibly raising it.

Failures to Respond

The failure-to-respond (FTR) rate is another criterion used by MCFRS to evaluate the need for additional personnel in the County's fire-rescue stations. A FTR is the failure of a fire-rescue unit (volunteer or career-staffed) to respond within 5 minutes of dispatch. If after 3 minutes of having been dispatched the unit officer has not indicated response of the unit, or

personnel from that station or another responding unit indicate that the unit in question will not be able to respond, the ECC, per procedure, dispatches the next-due unit of that type as well as a first responder unit for certain types of EMS incidents. After 5 minutes without indication of response from the originally dispatched unit, the ECC records within the CAD a FTR for that unit. While a small percentage of FTRs is caused by mechanical breakdown of apparatus or other extenuating circumstances, the overwhelming majority of FTRs are due to lack of minimum staffing at stations that are not 100% career staffed.

Units having a high percentage of FTRs (e.g., at or above 2% of the total annual call load for the unit) is an indication that measures must be taken to ensure guaranteed staffing, such as increasing volunteer coverage at the station where the unit is deployed, adding career positions, or a combination of the two to decrease the number of FTRs. Stations having even a low rate of FTRs are of concern, as MCFRS strives to achieve an FTR rate of zero in its efforts to better serve the public. It is important to note that stations having guaranteed staffing (i.e., 100% career staffed) have historically had a FTR rate at or near zero. FTRs that had occurred at these stations were due to cross-staffing of station units[9] or mechanical or technological problems with the apparatus or station alerting system.

STATE AND FEDERAL LAWS/MANDATES

In addition to Montgomery County laws and statutes, there are over 20 federal and State of Maryland laws and statutes that impact MCFRS. Table 1 in Appendix A, in part, lists these federal and State laws and statutes that address a wide array of topics such as health care, emergency preparedness/response, fire prevention, emergency management, human resources, and the environment, among others. These federal and State laws and statutes have a direct impact on personnel regulations, labor relations, employee health and safety, emergency operations, fire prevention, safeguarding of patient information, and other functional and administrative areas of the MCFRS and County Government.

INTERNATIONAL BUILDING CODE

Montgomery County has adopted the International Building Code (IBC) developed by the International Code Council. The IBC primarily addresses fire prevention with respect to construction and design, including structural stability and access for the disabled. The IBC applies to all structures in areas where it has been adopted, except for one and two-family dwellings.

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[9] Units that are cross-staffed by career personnel result in only one unit responding while the other unit is left unstaffed unless volunteer staffing, as applicable, is available. For example, three career personnel are assigned to cross-staff an aerial unit or rescue squad and they respond with the unit most needed for a particular incident such as the aerial unit for a structure fire or the rescue squad for a vehicle collision. Cross-staffing of primary units occurs at Stations 7, 15 and 40.

The IBC references other codes including the International Plumbing Code, International Mechanical Code, National Electric Code, and certain National Fire Protection Association standards; therefore, if a municipality adopts the IBC without exceptions, it also adopts those parts of other codes and standards referenced by the IBC.

The IBC (2000 edition) specifically addresses:

- Building occupancy classifications
- Building heights and areas
- Interior finishes
- Foundation, wall, and roof construction
- Fire protection systems (sprinkler system requirements and design)
- Materials used in construction
- Elevators and escalators
- Means of egress

NFPA STANDARDS

The National Fire Protection Association (NFPA) develops and publishes a wide variety of comprehensive fire protection/prevention model standards that can be adopted wholly or in part by state and local governments into their governing codes by the authority having jurisdiction (AHJ). The AHJ for Montgomery County is the County Council which for decades has adopted, by reference, over twenty NFPA standards, wholly or in part, into Montgomery County Code. Chapter 22 – Fire Safety Code - specifically references NFPA Standards 1, 101, 130, 214, 720 and 850. Many other NFPA standards are referenced within these six standards; thus also adopted by reference in County Code. MCFRS has also chosen to voluntarily follow the guidance provided in several additional NFPA standards, one of which (NFPA Standard 1710) is described below. Table 1 in Appendix A, in part, lists the NFPA standards that have been adopted, wholly or in part, by Montgomery County as well as those standards used voluntarily by MCFRS.

In July 2001, the National Fire Protection Association issued NFPA Standard 1710 (a.k.a., NFPA 1710) – "Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments." Several editions have been published since 2001. The purpose of this standard is to specify the minimum criteria addressing the effectiveness and efficiency of career firefighter-provided public fire suppression operations, emergency medical services, and special operations in protecting the public as well as the occupational safety and health of fire-rescue service employees. NFPA 1710 is widely considered the benchmark for service delivery for urban fire-rescue departments in the United States. While NFPA 1710 has not been adopted by reference into Montgomery County Code, MCFRS has voluntarily chosen to follow much of the guidance set forth in this ground breaking standard.

While the Montgomery County Council has not adopted into law NFPA 1710, many fire-rescue departments throughout the United States have committed themselves to meeting this standard whether by mandate of local law and/or by their desire to improve their operations to better serve their customers.

NFPA 1710's deployment criteria address minimum staffing of units, minimum staffing levels for structure fire operations, minimum uninterrupted water supply and application rates for structure and wildland fires, and maximum response times for units to fire and EMS incidents.

NFPA 1710 also establishes service delivery criteria for special operations performed by fire-rescue departments, including confined space rescue, hazardous materials response, wildland fire suppression, airport fire suppression/rescue, and marine-based fire suppression and rescue services. Each of these special operations is individually addressed by a separate NFPA standard[10] (except marine-based rescue/fire fighting) and is only addressed in a general manner by NFPA 1710. Requirements for wildland fire suppression, however, are covered in NFPA 1710 in terms of water flow application rate, number and size of hose lines, and number of suppression and supervisory-level personnel.

INTEGRATION OF FIRE-RESCUE AND COMMUNITY /MUNICIPAL MASTER PLANS

It is important to ensure the integration of this *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* with community and municipal master plans and sector plans prepared by the Maryland-National Capital Park and Planning Commission (M-NCPPC) and several of the municipalities within Montgomery County (e.g., Rockville, Gaithersburg). Community/municipal master plans and sector plans, totaling almost 60 in number, address public services and facilities such as education/schools, transportation /transportation networks, libraries, pools, recreation/community centers, law enforcement/police stations, and fire-rescue services/fire-rescue stations. The fire-rescue master plan must be consistent with community/municipal master plans, and vice-versa, in terms of description of needs and recommendations to address those needs. Facts, figures, and other information regarding fire-rescue services and facilities should also be consistent between these plans. This consistency ensures that citizens and elected officials are presented with the same message concerning fire-rescue service issues, needs and recommendations, so that they can identify and understand what issues and needs must be addressed and how best to respond to those issues and needs. This common understanding of issues and needs garners support for funding the services, initiatives, programs, resources and facilities called for in the master plans' recommendations.

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[10] NFPA 1670 – Standard on Operations and Training for Technical Rescue Incidents; NFPA 472 – Standard for Professional Competence of Responders to Hazardous Materials Incidents; NFPA 295 – Standard for Wildfire Control; NFPA 403 – Standard for Aircraft Rescue and Fire-Fighting Services at Airports

Before the mid-1990s, this partnership between the MCFRS and municipal planning agencies and the integration of planning documents had not occurred. This lack of communication and integrated planning had resulted in community/municipal master plans not addressing the need and potential locations for new fire-rescue stations and related services in major growth areas of the County. Beginning with the original *Fire, Rescue and Emergency Medical Services Master Plan* adopted in 1994 and continuing with the plan adopted in 2005, this issue has been addressed. In 1997, the MCFRS invited M-NCPPC to assist with a major planning initiative to assess fire-rescue station and resource needs within the up-County area. From that point forward, a strong partnership has evolved due to the commitment of both organizations. For the first time, a community master plan[11] was adopted in 2001 that called for a new fire-rescue station to be built in a specific area to serve a fast-growing area of the County. Since that time, new or rewritten community master plans and sector plans have included narrative concerning fire-rescue service delivery to the community as well as resource/facility needs and recommendations regarding the siting of new fire-rescue stations

The effort to forge lasting partnerships with the planning departments of the cities of Rockville and Gaithersburg was, for the most part, initiated in 2000. It is important that this and future versions of the *Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan* are integrated with the master plans of these two municipalities and others within the County.

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[11] *Potomac Subregion Master Plan* adopted in 2001, which recommended the construction of a fire-rescue station in the vicinity of Shady Grove Road and Piney Meeting House Road. The station (i.e., FS32) was eventually built nearby on a County-owned site located at Shady Grove Road and Darnestown Road.

SECTION 2

FIRE & RESCUE SERVICE ORGANIZATION AND PARTNERSHIPS

SECTION 2

FIRE AND RESCUE SERVICE ORGANIZATION AND PARTNERSHIPS

Section 2 addresses the Fire and Rescue Service's vision, mission, guiding principles/values, goals, and objectives; organizational structure; partnerships with other fire-rescue service organizations, governmental agencies and private sector organizations; and the personnel who administer, manage, and operate the MCFRS.

MCFRS ORGANIZATIONAL DOCTRINE

The Montgomery County Fire and Rescue Service (MCFRS) organizational doctrine consists of our vision, mission, guiding principles/values, and goals and objectives which collectively guide and facilitate the delivery of services to our customers – County residents and businesses as well as visitors to our County.

MCFRS VISION

The Montgomery County Fire and Rescue Service vision is to keep our communities safe, secure and healthy by providing the best fire, rescue, emergency medical services and related services, utilizing career and volunteer resources.

MCFRS MISSION

The Mission of the Montgomery County Fire and Rescue Service is to protect lives, property and the environment with comprehensive risk reduction programs and safe and effective emergency response provided by highly skilled career and volunteer service providers representing the County's diverse population.

MCFRS GUIDING PRINCIPLES/VALUES

Our Montgomery County Fire and Rescue Service providers will:
- Deliver services to our customers with impartiality and excellence
- Promote the highest standards of safety and welfare
- Serve with integrity and mutual respect
- Promote the efficient and effective utilization of our resources
- Ensure that all organizations and personnel comprising the Fire and Rescue Service share the responsibility for continuously improving their capabilities, effectiveness, and efficiency
- Be responsible for the honor of our profession and public service
- Recognize the importance of diversity of our workforce and communities
- Promote equity and harmony among career and volunteer personnel
- Maintain and promote open honest communication, creativity, and competence
- Continuously improve public confidence and trust
- Be accountable and ethical

GOALS AND OBJECTIVES

MCFRS has established a general, overarching goal as well as a set of broad departmental goals to guide the Fire and Rescue Service. Goals and objectives have also been established at the division/section level that address these departmental goals in greater detail.

OVERARCHING DEPARTMENTAL GOAL

To comprehensively plan for the future needs of the Montgomery County Fire and Rescue Service and its customers by addressing all aspects of MCFRS capabilities to deliver effective and efficient emergency and non-emergency services as well as capabilities to address the functional, developmental, wellness, and safety needs of the organization.

DEPARTMENTAL GOALS

1. To set a desirable and attainable course for the future through strategic planning and with the establishment and periodic updating of "SMART[12]" goals and objectives.

2. To reassess and refine our vision, mission, and guiding principles periodically.

3. To prevent the 9-1-1 call; minimize deaths, injuries and property damage; and render occupancies safe for inhabitation through a comprehensive risk reduction strategy.

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[12] SMART – Specific, Measureable, Attainable, Relevant, and Time-dependent

4. To maintain our operational readiness at all times for an all-hazards mission and response capability, including emergency medical services, fire suppression, technical rescue, water/ice rescue, aviation fire-rescue, hazardous material, and explosive device emergency services.

5. To ensure that sufficient numbers of personnel, apparatus, equipment, and facilities are in place to effectively and efficiently deliver emergency services and achieve our adopted standards of response coverage.

6. To deploy and leverage our resources to best serve our customers' needs while maximizing our effectiveness and efficiency.

7. To maximize the utilization of our career and volunteer resources to achieve our mission.

8. To seek and sustain tactical and strategic partnerships with other county, municipal, regional, State and federal agencies and private sector organizations to enhance our capabilities to prevent, respond to, and mitigate emergency incidents locally and regionally in keeping our homeland safe.

9. To maintain and grow our infrastructure, including facilities, apparatus, equipment, communications systems, and information technology systems to support our mission.

10. To provide for and enhance the wellness, safety, training, and development of our personnel, including implementation of risk reduction strategies to improve occupational safety and to improve the health and wellness of MCFRS personnel.

11. To ensure that MCFRS continuously recruits the career and volunteer personnel required to effectively deliver our services and programs and undertakes the steps needed to retain these individuals for long-term service to the community.

12. To address the current and projected needs for career and volunteer leadership and workforce development, including adequate training programs.

13. To ensure MCFRS embraces diversity, that our membership is reflective of the community served, and that our environment is open and accepting to all members of the community.

14. To establish an organizational commitment to evaluate, develop, and implement new technologies and innovations on a continuous basis that will enhance the effective delivery of services and performance of business processes.

15. To evaluate our progress, measure our performance, and strive for continual improvement through accreditation, performance measurement, and dashboard monitoring.

<u>DIVISIONAL/SECTIONAL GOALS AND OBJECTIVES</u>

Goals and associated objectives have been established at the division/section level that address the broader departmental goals presented above. Each section/office within MCFRS has created a section mission and a set of goals and SMART[13] objectives for each program within their section/office. Some sections have a single program to manage and administer while others have multiple programs and therefore have multiple sets of goals and objectives. Many sections have also identified a set of actions to be taken to implement their objectives.

As goals and objectives of the MCFRS Sections are subject to periodic (e.g., annual) review and updating as well as being collectively lengthy, they have not been included in this master plan. The complete set of goals and objectives for all MCFRS Sections are kept on file by the Planning Section. Each Section maintains their own goals and objectives as well.

ORGANIZATIONAL STRUCTURE

The Fire-Rescue Service in Montgomery County is comprised of several organizations working together with the common goal of providing quality fire-rescue services to our customers. Included are the Montgomery County Fire and Rescue Service (MCFRS), 19 local (volunteer) fire and rescue departments (LFRDs), and the Fire and Emergency Services Commission (FESC). Each is described briefly below.

MCFRS

MCFRS' organizational structure consists of the Office of the Fire Chief (OFC) and four divisions – Operations, Risk Reduction and Training Services, Administrative Support and Technical Services, and Volunteer Services. Each division as well as the OFC is described below. The MCFRS organizational chart can be found in Appendix B.

OFFICE OF THE FIRE CHIEF

The Fire Chief is the uniformed department head of the MCFRS and has all powers and authorities of a County department director. The Fire Chief has full authority over all fire, rescue and EMS services in the County, including those provided by the LFRDs. The Fire Chief must implement County law, regulations, and policies to effectively administer the MCFRS. The Fire Chief must also meet regularly with senior MCFRS staff and the authorized LFRD representative to communicate policy, evaluate the effectiveness of the integrated MCFRS, and receive advice on the development of policies and delivery of services.

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[13] SMART – Specific, measureable, attainable, relevant, and time-dependent

The Fire Chief has the ultimate responsibility for the overall management, direction, planning and coordination of all MCFRS programs and operations. The Office of the Fire Chief manages the overall service needs and delivery requirements of MCFRS, including fire and rescue master planning, resource deployment plans, and the overall strategic direction for MCFRS; develops and recommends capital improvement projects; coordinates community outreach and public affairs; manages and integrates information technology into MCFRS business processes; and recommends policy initiatives and programs to the County Executive.

The Office of the Fire Chief (OFC) is comprised of the Fire Chief, Executive Officer, and other executive staff. Within the OFC there are three sections/offices described below.

FISCAL MANAGEMENT OFFICE

The Fiscal Management Office is responsible for the overall management of the MCFRS Operating Budget and Capital Improvements Program (CIP) Budget, management and administration of State and Federal funding, and management oversight of the EMS transport reimbursement program. The Fiscal Management Office provides professional advice and guidance on budget preparation, financial analysis, grant administration, and auditing issues. This Office also acts as a liaison between MCFRS and federal, State and local government agencies as well as the 19 Local Fire and Rescue Departments.

OFFICE OF INVESTIGATIVE PROGRAMS

The Office of Investigative Programs is responsible for ensuring continuance of the integrity of personnel in the Department and commitment to the citizens of Montgomery County and the State of Maryland. This Office investigates complaints and serious violations of the personnel regulations and department policy and conducts procedural background investigations of applicants for firefighter-rescuer positions and civilian positions.

COMMUNITY OUTREACH AND PUBLIC INFORMATION OFFICE

The Community Outreach and Public Information Office is responsible for promoting critical fire and life safety initiatives throughout the community to prevent injuries and deaths related to fire and other emergencies. This Office manages and/or coordinates the following programs: "Safety In Our Neighborhood," "Risk Watch," "Safe Kids," and Child Safety Seat Inspections. The Public Information component of this Office handles about 30,000 information requests annually by the media, residents and various public and private agencies/organizations and issues 40-50 news advisories annually. The Community Outreach and Public Information Office uses social media extensively to reach out to its customers, including use of Facebook, Twitter, You Tube, LinkedIn, MCFRS Blog, and others.

OPERATIONS DIVISION

The Operations Division is responsible for the day-to-day delivery of critical emergency medical services (EMS), fire suppression, rescue (extrication, water-ice rescue, and technical rescue) and special operations response to the residents, businesses, and visitors of Montgomery County. The Division's personnel also assist the Division of Risk Reduction and Training Services and the Community Outreach Office by performing a wide variety of non-emergency services that are focused on public education and community risk reduction.

The Operations Division is comprised of five Sections, including Field Operations, Emergency Medical Services, Special Operations, Emergency Communications, and Fleet Management. Over 1100 uniformed personnel and 50 civilians provide staffing in these sections, primarily in Field Operations (i.e., firefighter-rescuers working at 37 stations and Public Safety Headquarters) and at the Emergency Communications Center (i.e., call-takers, dispatchers and supervisors).

The Operations Division is headed by a Division Chief (i.e., Operations Chief) which is a merit position reporting directly to the Fire Chief. The Operations Chief must meet the requirements of chief officer adopted under County Code, Chapter 21, Section 21-8. The Operations Chief has operational authority over fire, rescue, EMS and special operations of the MCFRS, as assigned by the Fire Chief. The Operations Chief, along with the Volunteer Services Division Chief, promotes the integration of activities of career and volunteer firefighter-rescuers.

FIELD OPERATIONS SECTION

Field Operations oversees staffing of primary frontline fire, rescue, EMS and special operations apparatus and command units. A Duty Operations Chief is assigned to each shift and is responsible for overseeing delivery of emergency services during their 24-hour shift. As of FY15, the minimum number of riding positions to fill countywide across 37 fire-rescue stations was 301. These positions were staffed by 285 career personnel and 16 volunteer personnel during the daytime, Monday – Friday. The staffing level on nights and weekends during FY15 was comprised of 251 career personnel and 50 volunteer personnel to maintain the minimum countywide staffing level of 301. An on-duty scheduler ensures that career employees with the appropriate skills (e.g., drivers, paramedics, officers, hazmat technicians, rescue technicians, etc.) are available to staff frontline apparatus at all times.

The career and volunteer components of the combined service work in an Integrated Emergency Command Structure that defines the authority and responsibility for all members of the Fire and Rescue Service. Career employees comprise approximately 81% of the overall staffing of emergency apparatus with about 19% provided by volunteers.

MCFRS responds to approximately 110,000 emergency incidents annually. Approximately 83,000 of those incidents are for emergency medical assistance, with approximately 60,000

patients transported to local hospitals each year. There are about 18,000 fire-related incidents and about 9,000 rescue (including vehicle extrication) and hazardous materials incidents annually.

In FY15, MCFRS personnel operated from 37 fire and rescue stations (see Map 1 in Appendix B). The primary fleet of first-response apparatus during FY15 included 35 engines[14], 15 aerial units[15] (ladder trucks or aerial towers), 6 heavy rescue squads, 18 Advanced Life Support (ALS) ambulances, and 23 Basic Life Support (BLS) ambulances. There are additional units that can be placed in service with available volunteer or recalled career personnel to increase the overall MCFRS capability during times of special need (e.g., severe weather events, special events, regional events, etc.).

EMERGENCY MEDICAL SERVICES SECTION

The Emergency Medical Services (EMS) Section, headed by an Assistant Chief reporting directly to the Operations Division Chief, provides guidance and oversight for all pre-hospital care delivered by MCFRS. The Section performs and oversees EMS quality assurance, quality improvement, logistics, and EMS operational evaluation, liaison and planning functions. The goals of the Section are to ensure a just culture of compliance and constant, data driven improvements in patient care. To accomplish this important work the Section includes the following elements:

- EMS Medical Director – a physician who oversees all aspects of the EMS program and provides certification to all EMS providers (from dispatchers to paramedics) to operate. This position is required by the Code of Maryland (COMAR) Title 30.

- Office of Quality Assurance/Quality Improvement - working closely with area hospitals and other stakeholders, this office reviews incidents for compliance with federal, State and local regulations, patient outcomes, and best practices. This office also chairs the Medical Review Committee which provides peer review of quality assurance cases and makes recommendations to the EMS Medical Director.

- EMS Equipment Committee – this committee, chaired by the EMS Executive Lieutenant, reviews new and existing technologies for the betterment of patient care in a cost- effective manner.

- Other programs managed/coordinated by the EMS Section include the Skilled Nursing Facility Program, the Maryland Emergency Response System (in cooperation with other stakeholders from Montgomery and PG Counties), and regular dialogue with Montgomery County hospitals.

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[14] In FY2015, 28 of 35 engines had ALS first-responder capability.
[15] In FY2015, one aerial unit (PAT708) had ALS first-responder capability.

SPECIAL OPERATIONS SECTION

The Special Operations Section provides specialized training, planning, technical support, and response in the areas of hazardous materials, technical rescue, water-ice rescue, passenger rail support, bomb incidents, and interoperable communications resources. The Special Operations Section also manages MCFRS support services for special events such as professional golf tournaments, charity events (e.g., walkathons) and other periodic or one-time, large-scale, planned events involving thousands of participants and/or spectators. In addition, this Section manages MCFRS tactical interaction with the Montgomery County Police Emergency Services Unit (ESU) during ESU deployments. Station 23 personnel have been specially trained to provide fire, rescue and EMS support to the ESU. The Special Operations Section manages the staffing of the County EOC fire desk as well. The Section is headed by an Assistant Chief reporting directly to the Division Chief.

EMERGENCY COMMUNICATIONS SECTION

The Emergency Communications Section is responsible for obtaining the necessary information and dispatching the proper response assignment quickly, providing appropriate pre-arrival instructions, ensuring fire-rescue response personnel have adequate situational awareness of the dispatched event, and managing all response communications and technologies. The Section is headed by an Assistant Chief reporting directly to the Division Chief.

During the FY17-18 time frame, it is anticipated that the fire-rescue call-taking and dispatch function will be transitioned to Montgomery County Police, with civilian Public Safety Communications Specialists (PSCSs) cross-trained to handle both police and fire-rescue 9-1-1 calls. At that time, MCFRS civilian PSCSs will be transitioned to MCP to serve as universal call-takers and dispatchers. A uniformed MCFRS Supervisor (Captain or Lieutenant) will work alongside the PSCSs to provide operational expertise as needed concerning fire-rescue related calls to provide quality assurance and respond to any technical questions or issues that arise.

FLEET SECTION

The Fleet Section is responsible for meeting the daily apparatus needs of MCFRS through a viable preventative maintenance program, management of running repairs, as well as the acquisition and disposal of fire apparatus. Related functions include parts management, fuel management, and supplying and maintaining the tools, equipment, hose, and appliances associated with apparatus. The Section is headed by an Assistant Chief reporting directly to the Division Chief.

RISK REDUCTION AND TRAINING SERVICES DIVISION

Organizational units comprising the Risk Reduction and Training Services Division include the Office of the Fire Marshal (comprised of the Fire Code Compliance Section and Fire and Explosive Investigations Section), Wellness and Safety Section, and Training Section. The Division is responsible for the assessment and mitigation of fire-related risks to the community as well as firefighter health, safety and training.
The Division Chief of the Risk Reduction and Training Services Division is a merit position reporting directly to the Fire Chief. This individual is responsible for overseeing the training, safety, and wellness support for all MCFRS personnel. As the County Fire Marshal, this individual is responsible for overseeing fire code compliance and fire-explosives investigations.

OFFICE OF THE FIRE MARSHAL:

- **FIRE CODE COMPLIANCE SECTION**

The Fire Code Compliance Section prevents the loss of life, reduces property damage and lowers the impact of fires on the environment through coordinated prevention programs and facilitates community compliance with local and State fire codes. The Section provides inspections of existing commercial, industrial, and multi-family residential structures for compliance with applicable County and State fire and life safety codes. Yearly inspections are conducted at health care, day care, and educational facilities, as well as residential boarding and home-based health care facilities. Fire Code Compliance Inspectors respond to structure fires to determine compliance with the fire and life safety code. Engineering staff provide technical evaluation of complex fire protection needs and recommend systems or processes for appropriate fire protection in all occupancy types within the County.

- **FIRE AND EXPLOSIVE INVESTIGATIONS SECTION**

The Fire and Explosive Investigations (FEI) Section is responsible for preventing fires and explosions by determining the cause of fires and explosions and through enforcement of County, State, and federal regulations. The Section also strives to maintain a safe community through education and training concerning threats or acts of violence involving explosives, fire, and weapons of mass destruction. FEI investigates all fires involving loss of life, serious injury, substantial property damage, and all suspicious fires, to determine the cause, origin, and circumstances. The Section is responsible for the enforcement of all State and County laws concerning fire, arson, and explosives. This program involves four major elements: (1) fire and explosive origin and cause investigation; (2) investigation of incendiary or explosive devices or materials; (3) hazardous device mitigation (bomb squad); and (4) training and education to businesses, law enforcement agencies, and the general public regarding fire and explosive materials. FEI also collects and secures evidence at the scenes of suspicious fires and explosions for subsequent prosecution of persons charged with related crimes.

PUBLIC HEARING DRAFT
FIRE, RESCUE, EMERGENCY MEDICAL SERVICES,
AND COMMUNITY RISK REDUCTION MASTER PLAN

HEALTH AND SAFETY SECTION

The Health and Safety Section develops a high standard of health and safety throughout all aspects of MCFRS and ensures that the department minimizes risks and reduces the frequency of losses. The Section is headed by an Assistant Chief reporting directly to the Division Chief.

The health and safety program includes medical, behavioral health, and safety components as described below.

- **Medical:** The Fire-Rescue Occupational Medical Section (FROMS) provides a fire-specific focus on MCFRS health needs. Services provided by FROMS include entry level physicals, annual physicals, injury care, return to work exams, fitness for duty exams, vaccinations, and follow-up evaluations as necessary. FROMS also monitors employees injured on the job to ensure appropriate care and timely return to work.

- **Behavioral Health:** This program addresses the behavioral and mental health of MCFRS fire and rescue personnel and their families. A staff psychologist provides direct clinical services to MCFRS personnel and trains and assists with the Critical Incident Stress
Management (CISM). The staff psychologist also trains and educates personnel on matters relating to behavioral health.

- **Safety:** This program ensures the occupational safety of personnel through management, accountability, and enforcement of safety policies and procedures in all aspects of fire-rescue activities. The program develops and promotes proactive prevention initiatives to reduce injuries to personnel and damage to property by engaging in root cause analysis and monitoring performance. This Section is responsible for the annual Respiratory Protection Program, personal injury investigations, apparatus/vehicle collision investigations, and near miss and line of duty death investigations. The Safety Officer, a Captain assigned to each shift, manages apparatus safety, Personal Protection Envelope (PPE)/Self-Contained Breathing Apparatus (SCBA) fit-testing, station safety inspections, live fire training, special projects, and safety-related training programs.

TRAINING SECTION

The Fire and Rescue Training Academy provides, coordinates and supports the department's current and projected training and educational initiatives in an effort to maintain or improve all aspects of organizational effectiveness. The Fire and Rescue Training Academy is responsible for the development and delivery of all fire, rescue, and emergency medical training for uniformed fire-rescue personnel. The Training Academy is an accredited institution that provides entry-level and advanced levels of training, education, and

certification. All training programs comply with applicable Federal, State, and County requirements. The training is conducted to ensure that each Firefighter/Rescuer has the necessary skills, competencies, and practical experiences required to effectively perform the duties of his/her position within the Fire-Rescue Service.

ADMINISTRATIVE SERVICES AND TECHNICAL SUPPORT DIVISION

The Administrative Services and Technical Support Division provides central administrative and management service and direction for all administrative functions across MCFRS. The Division is comprised of the following Sections: Planning, Information Technology, Capital Projects and Facilities Management, Human Resources (including Labor Relations and Recruitment), Logistics, and Procurement.

The Division Chief of the Administrative Services and Technical Support Division is a merit position reporting directly to the Fire Chief. This individual is responsible for overseeing planning information technology, , CIP project management, facility maintenance, logistics, procurement, human resources, labor relations, and recruitment.

PLANNING SECTION

The Planning Section provides comprehensive planning, departmental assessment, analytical services, Geographic Information System (GIS) services, and related technical services to assist the MCFRS in meeting its mission. The Planning Section analyzes risk and historical emergency incident data and considers it along with growth/development to project strategic resource needs, facility placement, special operational requirements, and future workforce levels. The Planning Section develops planning documents, including the "Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan," annual strategic plan, and station location studies/reports. Comprehensive mapping, geographic incident data analysis, and other GIS services are provided by the Planning Section as well. The Planning Section also plays a major role in the agency accreditation process, working closely with the MCFRS Accreditation Manager to address accreditation compliance requirements.

ACCREDITATION OFFICE

The Accreditation Office ensures that MCFRS meets annual accreditation compliance requirements to maintain its agency accreditation as well as the full spectrum of re-accreditation requirements every fifth year in the five-year accreditation cycle. Each year in July, MCFRS must submit to the Commission on Fire Accreditation International (CFAI) an Annual Compliance Report showing the status of the department's efforts to continually maintain its compliance in relation to CFAI-established core competencies as well as progress made in improving the department with regard to recommendations made by the CFAI Peer Assessment Team during its last on-site evaluation. Every five years during the

re-accreditation process, the MCFRS Accreditation Office coordinates the preparation of a new Self-Assessment Manual and an updated Standards of Cover document for submission to CFAI prior to the on-site visit of the Peer Assessment Team. [Section 3 of this master plan addresses the accreditation process in greater detail.]

INFORMATION TECHNOLOGY SECTION

The IT Section provides timely and effective IT service and support which is tailored to the business needs of customers and implements automation systems that assist the department in accomplishing its core mission. The IT Section is responsible for development, implementation, and ongoing support of all IT needs for the department. This Section ensures compliance with all Department of Technology Services requirements, assists with Computer Aided Dispatch, manages the Data Warehouse, and maintains desktop, laptop, tablets and Fire App reporting and inventory control software. IT training is also provided by this Section throughout MCFRS.

CAPITAL PROJECTS AND FACILITIES MANAGEMENT SECTION

The Capital Projects and Facilities Management Section is responsible for providing fire-rescue facilities that are properly designed, constructed and maintained to enable all elements of the MCFRS to meet their mission. This includes construction of new stations, renovation of existing facilities, repair or replacement of failing systems (e.g., HVAC, roof, generator), coordination of daily maintenance needs, and overall monitoring of the department's infrastructure.

HUMAN RESOURCES SECTION

The Human Resources Section is responsible for all personnel and labor-related issues in MCFRS. Responsibilities of the Section include conducting promotional exams, hiring and discipline; advising the Chief and Division Chiefs on personnel and labor matters; participating in the collective bargaining process; and representing the MCFRS in mediation, arbitration, alternative dispute resolution, and at the Merit System Protection Board. Staff also act as a department liaison between the County Office of Human Resources and County Attorney's Office. The Recruiting and Retention component of this Section provides all levels of marketing, advertising, and community interaction for the purpose of attracting qualified candidates to staff the Fire and Rescue Service as compensated employees and volunteers. Recruitment staff develop public service announcements and attend job fairs, community functions, and events to recruit interested, qualified candidates.

LOGISTICS SECTION

The Logistics Section handles the uniform and protective clothing requirements for career personnel in the fire/rescue occupational series. This includes the procurement, order placement, receipt, storage, inventory, and distribution of a wide array of items, as well as

related contract and budget administration and invoice processing. This Section coordinates special services such as uniform tailoring and alterations, shoe repair, and protective clothing inspection, cleaning, and repair. The Logistics Section also handles daily courier service to fire-rescue worksites in the County.

PROCUREMENT SECTION

The Procurement Section provides procurement and travel-related assistance to the department in compliance with all related requirements of Montgomery County Code, Chapter 11, Section B, the Montgomery County Procurement Regulations, Montgomery County Government Administrative Policies and Procedures, and MCFRS Policies and Procedures for the timely acquisition of quality goods and services and the efficient conduct of MCFS business travel. Included are initiation and monitoring of all contracts as well as the County P-Card program.

<u>VOLUNTEER SERVICES DIVISION</u>

The Division of Volunteer Services provides support and volunteer advocacy, oversight, mediation, and enforcement of MCFRS policies, coordination and technical assistance, incentives, and administrative services to support the Local Fire and Rescue Departments (LFRD). This program promotes consistent and balanced integration of the activities of volunteer and career firefighters and rescuers; promotes recruitment and retention of volunteers, assists LFRD's in training, risk management, the formulation and standardization of LFRD/MCFRS business plans, use and maintenance of fire and rescue apparatus, budget and grant preparation and administration, and formulating department-wide policy. The program makes recommendations to the Fire Chief, monitors legislative and regulatory actions involving volunteer activities, and informs the affected groups. The program provides additional opportunities for people to volunteer, including the creation of a Mobile Volunteer Corps as introduced into Chapter 21 by Bill 36-03.

The Division Chief of the Volunteer Services Division is a non-merit position reporting directly to the Fire Chief. This individual must meet the requirements of chief officer adopted under Section 21-8 of Chapter 21 and must have experience as a chief, deputy chief or assistant chief in a LFRD in the County. The Volunteer Services Chief has operational authority over fire, rescue, and EMS activities of the MCFRS as assigned by the Fire Chief. The DVS Chief serves as the highest ranking volunteer officer in the County and coordinates the operations and administration of volunteer personnel and the LFRDs.

COMMUNITY EMERGENCY RESPONSE TEAM PROGRAM

The CERT Program recruits, trains, equips and exercises residents who have volunteered to serve on the County's Community Emergency Response Team which is prepared for all-hazards response. CERT members are non-uniformed volunteers who provide limited response and recovery services to their communities following a major emergency event.

LOCAL FIRE AND RESCUE DEPARTMENTS

There are 19 independent local [volunteer] fire-rescue departments (LFRDs) in Montgomery County chartered by the State as corporations. Chapter 21 of the County Code identifies these 19 volunteer organizations as "local fire and rescue departments" (LFRDs). The LFRDs include Bethesda, Bethesda-Chevy Chase, Burtonsville, Cabin John, Chevy Chase, Damascus, Gaithersburg-Washington Grove, Germantown, Glen Echo, Hillandale, Hyattstown, Kensington, Laytonsville, Rockville, Sandy Spring, Silver Spring, Takoma Park, Upper Montgomery County, and Wheaton.

Several of the LFRDs have more than one station; therefore there are a total of 37 stations county-wide as of CY2015. Along with career firefighter-rescuers serving at these stations, volunteer firefighter-rescuers comprise a portion of the overall staffing on emergency apparatus at some of the stations, primarily during evenings and weekends.

Volunteers serve their communities as firefighter/rescuer members or EMS-only members, and/or as administrative members. Those certified as Firefighter/Rescuers are eligible to respond to any fire, rescue, or EMS incident and participate in operations. Those having EMT or Paramedic certifications, but not Firefighter/Rescuer certifications, can take part in EMS operations only. Administrative-only members are not authorized to participate operationally but may perform any non-emergency administrative task or activity benefiting the LFRD and community such as serving on the LFRD Board of Directors, LFRD committees, and/or participating in fund raising, fire safety and risk reduction educational activities, and other volunteer activities at the local or State level. Some LFRD members serve in both operational and administrative capacities.

FIRE AND EMERGENCY SERVICES COMMISSION

As of January 1, 2005, the Fire and Rescue Commission (re-established as the "Fire and Emergency Services Commission"[16] on August 1, 2009) became a stand-alone body within the Executive Branch of the County Government whose primary duty is advising the Fire Chief, County Executive, and County Council on policies, standards, procedures, plans and programs pertaining to fire, rescue, and EMS services.

Whereas the FRC [FESC] had previously established and approved all policies for the delivery of fire, rescue, and EMS in the County and had approved the MCFRS' annual Operating Budget and biennial CIP Budget requests to the County Executive, the FRC's role became largely advisory beginning January 1, 2005. The FRC [FESC] was, however, given the responsibility to review any "generally-applicable Fire and Rescue Service policy or regulation" proposed by the Fire Chief. If the FRC [FESC] does not take action to approve

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[16] FRC renamed FESC as a result of Council Bill 38-08 amending Chapter 21, Section 2

or disapprove a policy proposed by the Fire Chief within 60 days, the policy is automatically approved. If the FRC [FESC] does not take action to approve or disapprove a regulation proposed by the Fire Chief within 60 days, the proposed regulation is transmitted to the County Executive for review/approval.

The FESC is composed of seven voting members appointed by the County Executive and confirmed by the County Council. The membership is comprised of two career MCFRS employees, two members of local fire-rescue departments (LFRDs), and three public members (i.e., citizens having no personal, family, or business connection with any County volunteer or career fire-rescue organization).

County Code, Chapter 21, defines the membership, duties and responsibilities of the FESC. Duties and responsibilities of the FESC include:

- Recommending how the County can achieve and maintain effective, efficient and equitable fire, rescue, and emergency medical services County-wide and improve the policy, planning, and regulatory framework for all fire, rescue and emergency service operations.

- Advising the Fire Chief, County Executive, and County Council on any matter relating to fire, rescue, and emergency medical services.

- Reviewing and making recommendations regarding the master plan for fire, rescue, and emergency medical services.

- Advising the Fire Chief, County Executive, and Council on County-wide policies, standards, procedures, plans and programs that should apply to all fire, rescue, and emergency services operations.

- Recommending guidelines for curriculum and programs of the Public Safety Training Academy and other training programs for fire and rescue and emergency service employees and volunteers.

- Recommending and commenting on legislation, regulations, and policies that apply to or affect the County's Fire and Rescue Service.

- Reviewing and approving or disapproving any generally applicable Fire and Rescue policy or regulation proposed by the Fire Chief, including any regulation that may be issued by the County Executive.

CAREER AND VOLUNTEER BARGAINING UNITS

IAFF LOCAL 1664

The International Association of Fire Fighters (IAFF) Local 1664 is the sole and exclusive bargaining agent for uniformed personnel in the Montgomery County Fire and Rescue Service who are classified as Fire Fighter/Rescuer II and III, Master Fire Fighter/Rescuer, Fire/Rescue Lieutenant, and Fire/Rescue Captain and who are associated with fire suppression, rescue, emergency medical services, special operations, fire and explosive investigations, fire protection and prevention, communications, and training. Approximately 1185 career firefighter-rescuers, or about 96.5% of all career firefighter-rescuers are IAFF Local 1664 members and are covered under the IAFF Local 1664 Collective Bargaining Agreement. The other 3.5% of career firefighters – those at the rank of Battalion Chief and above comprising MCFRS management - are unrepresented and therefore not covered under the CBA.

MCVFRA

The Montgomery County Volunteer Fire-Rescue Association (MCVFRA) has been designated as the "LFRD Representative" in accordance with provisions of Chapter 21, Section 6, of the Montgomery County Code. As the LFRD Representative, the MCVFRA serves as the LFRDs' exclusive representative for purpose of negotiating with the County Fire Chief. The Fire Chief must consult with the LFRD Representative on all major policy changes. LFRD members, numbering about 2900 in 2014,including life members and all members receiving LOSAP benefits, are covered under the MCVFRA Directly Negotiated Agreement.

MCGEO

A large percentage of non-uniformed Montgomery County employees are members of the United Food and Commercial Workers (UFCW) Local 1994 - Municipal and County Government Employee Organization (MCGEO) and are represented by MCGEO in the collective bargaining process. Almost 75% of non-uniformed ("civilian") employees of MCFRS - those holding non-management positions - are represented by MCGEO and covered by the MCGEO Labor Agreement. The other 25% of non-uniformed MCFRS employees - mostly managers - are unrepresented and therefore not covered by the MCGEO Labor Agreement.

MCFRS PERSONNEL

CAREER PERSONNEL

The career staff of the MCFRS is comprised of uniformed and civilian (non-uniformed) personnel as described below. The ratio of uniformed to non-uniformed career staff is about ten to one.

CAREER UNIFORMED PERSONNEL

The uniformed career component of the MCFRS is comprised of approximately 1200 personnel, although this number varies by fiscal year. Uniformed career personnel are Montgomery County employees and most of those at or below the rank of Captain[17] are represented by the International Association of Fire Fighters, Local 1664.

Nearly 90% of the uniformed career staff is assigned to fire-rescue stations. The remaining uniformed career staff is assigned to other work sites including Public Safety Headquarters, Public Safety Communications Center, Public safety Training Academy, Scheduling Office, Fire-Rescue Occupational Medical Section and the Central Maintenance Facility.

Most of the uniformed career force assigned to fire-rescue stations work a rotating 24-hour shift, with 48 hours off. There are three shifts – A, B and C, each led by an Assistant Chief designated as the Duty Operations Chief. The remainder of the uniformed career force assigned to stations works day-only schedules at stations that are co-staffed by volunteers (primarily during evenings and weekends). About 75% of uniformed career personnel assigned to work sites other than fire-rescue stations work day-only schedules. The other 25% work 24-hour shifts or rotating shifts covering various portions of the day time and night time (i.e., personnel assigned to ECC, FEI, Safety Office, Scheduling Office).

Uniformed career personnel operate under a paramilitary structure including the ranks of Chief, Division Chief, Assistant Chief, Battalion Chief, Captain, Lieutenant, Master Firefighter, Firefighter III, Firefighter II and Firefighter I. While all uniformed career personnel must be State-certified Emergency Medical Technicians (EMT), others have attained the Cardiac Rescue Technician-Intermediate (CRT-I) or Paramedic certifications from the State. Many uniformed career personnel have received special training and certifications to serve in specialty roles with the MCFRS specialty teams (i.e., hazmat, water-ice rescue, technical rescue, bomb squad). Others have attained instructor certifications that allow them to teach classes at the Fire-Rescue Training Academy or Maryland Fire-Rescue Institute.

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[17] Certain Lieutenants and Captains are not represented based on their job assignment (e.g., HR, Budget, QA, etc.). Firefighters are not represented while on probation.

CAREER CIVILIAN PERSONNEL

Non-uniformed ("civilian") personnel comprise about 10% of the career MCFRS staff. These County employees work primarily at MCFRS Headquarters at the Public Safety Headquarters. Civilian fire code inspectors have offices at PSHQ but work mostly in the field. The remainder of the civilian staff works at the Public Safety Communications Center, Central Maintenance /Warehouse Facility, Public Safety Training Academy, and other work sites located in Rockville. The Fire-Rescue Occupational Medical Section in Rockville is staffed by civilian contractors.

Career civilian employees provide a broad spectrum of professional, technical, and administrative services to the MCFRS, including budgeting, planning, policy development, performance assessment, human resources services, public information/education, information technology, communications, geographic information system services, grants and contracts management, CIP and facility management, fleet management, logistics, fire code inspections, and administrative services and support. Some of the civilian staff are volunteer members of LFRDs and/or have had previous experience as career or volunteer firefighter-rescuers. Civilian staff generally work a standard 40-hour week, Monday-Friday, while some work compressed schedules. Some civilians also work evenings and/or weekends in accordance with their specific job duties.

VOLUNTEER PERSONNEL

Approximately 2900 volunteer personnel are members of the 19 independent local fire-rescue departments (LFRDs) in Montgomery County. Approximately 850 volunteers (varies from year to year) are IECS-certified firefighters, emergency medical technicians, and/or paramedics. The remainder of LFRD volunteers are administrative members, serving on the Board of Directors, canteens, assisting with public outreach activities, assisting with fund raising activities, and/or performing other administrative duties, but do not serve in operational capacities. Some LFRD members serve in both administrative and operational capacities. Some volunteers also serve, or have served, as career firefighters/rescuers[18].

Volunteers serve their communities as firefighter/rescuer members or EMS-only members, and/or administrative members. Those certified as Firefighter/Rescuer are eligible to respond to any fire, rescue, or EMS incident and participate in emergency operations. Those having EMT or Paramedic certifications, but not Firefighter/Rescuer certifications, can respond to fire-rescue incidents and take part in EMS operations only. Administrative-only members are not authorized to participate operationally but may perform any non-emergency, administrative task or activity they are capable of performing.

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[18] Federal FLSA laws and local regulations limit the level of participation of MCFRS career firefighters/rescuers as volunteers within Montgomery County.

Operational volunteer personnel participate in training at the County's Fire-Rescue Training Academy as well as at the Maryland Fire-Rescue Institute and other fire-rescue service training facilities. Classes are offered at night and on weekends to accommodate volunteers who work Monday-Friday during the day time. Many LFRDs also offer supplemental training to their operational volunteers directly at the stations.

Volunteers operate under the same paramilitary structure as their career counterparts, in accordance with MCFRS policies. Volunteers can attain the ranks of Chief, Deputy Chief, Assistant Chief, Battalion Chief, Captain, Lieutenant, Master Firefighter, Firefighter III, Firefighter II and Firefighter I. While all operational volunteers must be State-certified Emergency Medical Technicians-Basic (EMT), others have attained certifications of Medical Attendant I, II or III; Master Medical Attendant; or Paramedic from the State, and many are State-certified Firefighters. Operational volunteers who have attained specialized training and certifications are eligible to serve in special operations roles with the MCFRS special operations teams. Others have attained instructor certifications that allow them to teach classes at the County's Fire-Rescue Training Academy, Maryland Fire-Rescue Institute, or other training facilities.

MCFRS PARTNERSHIPS

MCFRS has partnerships with many public and private sector agencies and organizations. These partnerships are presented below.

MUTUAL AID PARTNERSHIPS

Mutual aid agreements are of two types – those that provide automatic aid and those that provide aid when requested but not automatically, although both are written documents developed cooperatively by the parties involved. Automatic agreements allow one jurisdiction to quickly obtain resources from another mutual aid jurisdiction without the need to obtain authorization from the other jurisdiction's ECC. This type of mutual aid agreement greatly expedites the arrival of needed resources. The other type of agreement requires the jurisdiction in need of resources to contact the other jurisdiction each time assistance is needed. Specific resources must be requested, and the designated decision-maker has discretion as to whether the request will be granted under the terms of the agreement. The latter agreement delays the response of resources and, at times, may result in a denied request.

An example of an automatic mutual aid agreement is that between Montgomery and Prince George's Counties, wherein either County's ECC can call upon fire-rescue units from the other without having to obtain formal authorization each time. For example, if a structure fire occurs in Takoma Park, MCFRS ECC staff are authorized to dispatch available units

from Prince George's County that are recommended[19] for priority dispatch by the MCFRS Computer-Aided Dispatch (CAD) system (e.g., due on the fire box assignment) along with the closest MCFRS units. With this agreement in place, fire-rescue units from the two counties respond into one another's jurisdiction on a daily basis.

An example of a non-automatic mutual aid agreement is that between Montgomery County and the District of Columbia wherein one party must contact the other and request specific fire-rescue units each time the need exists. This type of agreement is used infrequently – for example, the MCFRS hazardous materials team responds a few times per year into the District of Columbia when requested. MCFRS fire suppression units might respond into the District, when requested, for a major incident, and D.C. Fire Department apparatus responds into Montgomery County under similar circumstances.

MCFRS has automatic mutual aid agreements with the following bordering counties:

- Prince George's County, Maryland
- Howard County, Maryland
- Carroll County, Maryland
- Frederick County, Maryland
- Loudoun County, Virginia
- Fairfax County, Virginia

The MCFRS has a mutual aid agreement with the District of Columbia (D.C.), as stated above, but it is used infrequently. Only under unusual circumstances does one of these two jurisdictions request mutual aid fire-rescue resources from the other. The Bethesda-Chevy Chase Rescue Squad (BCCRS) responds on a daily basis into Northwest D.C. under an agreement directly between the BCCRS and the D.C. Fire and EMS Department.

MCFRS has automatic mutual aid agreements with the following federal facilities located in Montgomery County:

- Walter Reed National Military Medical Center, Bethesda: On-site Fire Station 50 operates an engine and medic unit.

- National Institutes of Health, Bethesda: On-site Fire Station #51 operates an engine, aerial unit, ambulance and hazardous materials unit. [Note: Engine 751 does not respond off campus except to incidents occurring at the Walter Reed National Military Medical Center located across Rockville Pike from the NIH Campus.]

- Naval Surface Warfare Center, Carderock: On-site Fire Station #52 operates an engine.

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[19] The CAD System automatically recommends the closest available units for dispatch based upon their proximity to the address of the emergency incident. MCFRS units are equipped with an automatic vehicle locator (AVL) system which allows the Fire-Rescue ECC to track each unit's exact location.

- National Institutes of Standards and Technology, Gaithersburg: On-site Fire Station #53 operates an engine, ambulance, brush truck and hazmat unit.

- Ft. Detrick Army Garrison, Silver Spring: On-site Fire Station #54 operates an engine and hazmat unit.

MONTGOMERY COUNTY DEPARTMENTS AND AGENCIES

- POLICE DEPARTMENT (MCP)

  o As of FY15, MCP serves as the primary Public Safety Access Point by answering 9-1-1 calls and transferring citizens' requests for fire, rescue and EMS services to Fire-Rescue Communications call-takers and requests for law enforcement services to Police Communications call-takers. By approximately FY17-18, MCP will serve as the single Public Safety Access Point by handling all 9-1-1 call processing and dispatch through the use of universal call takers. Fire, rescue and EMS 9-1-1 calls will no longer be transferred to Fire-Rescue Communications but handled by the MCP universal call-takers/dispatchers.
  o Responds to assist MCFRS with mitigation (e.g., traffic control, crowd control, protection of MCFRS personnel) of incidents such as traffic collisions, fires, assaults, shootings, stabbings, violent mental patients, DOAs
  o Assists with evacuations and road closures
  o Works closely with MCFRS on criminal investigations involving arson[20] or destructive devices.
  o Coordinates the use and management of the PSTA and PSCC with MCFRS
  o Participates in EOC activations as an Emergency Management Group member and participates in Local Emergency Planning Council (under SARA Title III)
  o Participates in County emergency management exercises
  o Participates in the Bio-Terrorism Task Force and other homeland security initiatives

- OFFICE OF EMERGENCY MANAGEMENT AND HOMELAND SECURITY (OEMHS)

  o Plans, prevents, prepares, and protects against all major hazards that may threaten, harm, disrupt, or destroy communities and to effectively manage and coordinate

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[20] In cases of arson where one or more fatalities is/are involved, MCP has the primary responsibility to lead the investigation. When the arsonist themselves die as a result of the fire they have set, then MCFRS Fire & Explosive Investigations Section takes the lead in the investigation.

the County's unified response, mitigation, and recovery from such disasters or emergencies should they occur.

o Chairs the Homeland Security Directorate, consisting of the Department Heads for Fire-Rescue, Police, Transportation, and Technology Services and the County's Medical Officer. The OEMHS Director also chairs the Local Emergency Planning Council and serves as the Disaster Manager for the Emergency Management Group.

o Manages the hazardous materials licensing program and is responsible for meeting the requirements of "Community Right to Know" legislation regarding hazardous materials in the County, including the coordination of the Local Emergency Planning Council (LEPC).

o Develops and maintains the County's Hazard Mitigation Plan, principally involving natural hazards.

o Updates, enhances, and submits for approval the County's Emergency Operations Plan for all hazards including terrorist events involving the use of weapons of mass destruction.

o Manages the Emergency Operation Center for activation of the Emergency Management Group to plan, respond, mitigate, and recover from disasters and emergencies which impact the County.

o Administers certain federal and State emergency management/homeland security grants for County departments, including the Urban Area Security Initiative (UASI) Grant and State homeland security grants that MCFRS has been awarded along with other departments such as MCP.

- HEALTH AND HUMAN SERVICES DEPARTMENT (HHS)

  o Participates in EOC activations as an Emergency Management Group member and member of the Local Emergency Planning Council (SARA Title III).
  o Participates in County emergency management exercises.
  o Coordinates the distribution of prophylactic medications for MCFRS operational personnel for protection against WMD.
  o Coordinates public health alerts and bulletins for epidemics such as West Nile Virus, SARS, Lyme Disease, etc.
  o Coordinates the TB testing program with Fire-Rescue Occupational Medicine Section
  o Participates in the Bio-Terrorism Task Force and other homeland security initiatives.

- o Responds to requests for health code inspections from MCFRS after fires occur or suppression system activations in commercial kitchens.
- o Provides support for the MCFRS Critical Incident Support Team through the Crisis Center.

- **DEPARTMENT OF TRANSPORTATION (MCDOT)**

  - o Participates in EOC activations as an Emergency Management Group member and member of the Local Emergency Planning Council (SARA Title III).
  - o Participates in County emergency management exercises.
  - o Through the Traffic Management Center at the PSCC, coordinates incidents involving the transportation network with MCFRS and MCP.
  - o Considers fire-rescue apparatus access (i.e., street width, turning radius, cul-de-sacs, traffic circles, speed humps) when developing and reviewing standards.
  - o Refuels MCFRS apparatus on the scene of long duration incidents.

- **DEPARTMENT OF GENERAL SERVICES (DGS)**

  - o Manages and coordinates planning, design, and construction or renovation of MCFRS stations, Public Safety Training Academy and other facilities.
  - o Maintains all County-owned fire stations.
  - o Manages MCFRS "level of effort" CIP projects such as replacement or installation of HVAC systems, roofs, generators, female facilities, etc., and resurfacing of parking lots and access ways at stations and other facilities.

- **DEPARTMENT OF TECHNOLOGY SERVICES (DTS)**

  - o Manages the Public Safety Systems Modernization (PSSM) Project.
  - o Tracks the status of all fiber net, cable and telephone systems.
  - o Provides essential technical integration support to the PSCC.
  - o Participates in EOC activations as an Emergency Management Group member.
  - o Participates in County emergency management exercises.
  - o Provides Geographic Information System services to the EMG during EOC activations in conjunction with MCFRS GIS staff.

- **DEPARTMENT OF PERMITTING SERVICES (DPS)**

  - o Reviews and approves plans for construction and renovation of buildings.
  - o Lead agency for inspecting damaged buildings reported by MCFRS, MCP, DGS, and/or citizens and business owners.
  - o Participates in EOC activations as an Emergency Management Group member.
  - o Participates in County emergency management exercises.

- DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)

  o Participates in EOC activations as an Emergency Management Group member and as a member of the Local Emergency Planning Council (SARA Title III).
  o Serves as Lead Agency for two Annexes of the County Emergency Operations Plan.
  o Plans and participates in County emergency management exercises.
  o Provides assistance to MCFRS Hazardous Incident Response Team with containment and cleanup of hazardous material releases into the environment:
    - Verifies source of release and oversees cleanup once the emergency situation is rendered safe by MCFRS
    - Initiates enforcement of environmental laws with responsible party
    - Conducts follow up monitoring of the environment.
  o Coordinates with Fire & Explosives Investigations staff on environmental crimes, and calls on MCFRS for assistance during multi-agency search warrants in situations where hazardous materials may be present.
  o Coordinates with the Fire Code Enforcement Section when indoor air is a problem, specifically if gasses and odors cross into other leaseholds in commercial or multi tenant buildings and air circulation is a concern. Also coordinates with the Fire Code Enforcement Section in multi-agency inspections of properties where multiple violations exist.
  o Acts as liaison between County agencies and Maryland Department of the Environment during incidents where pollutants may have entered the environment and during investigations of incidents.
  o Forming a partnership with MCFRS in developing environmentally- efficient buildings and to ensure new and renovated buildings meet current environmental standards.
  o Partners with MCFRS in both pollution prevention and environmental management systems to minimize waste, reduce the use of solvents and other hazardous chemicals, and improve environmental efficiency in buildings and overall operations.

- DEPARTMENT OF HOUSING AND COMMUNITY AFFAIRS (DHCA)

  o Identifies fire code violations and other safety-related deficiencies during enforcement of housing codes.
  o Encourages rehabilitation of deteriorated residential structures.

- OFFICE OF MANAGEMENT & BUDGET (OMB)

  o Coordinates Operating Budget requests by MCFRS.
  o Coordinates Capital Improvements Budget requests by MCFRS.
  o Participates in County emergency management exercises.

- DEPARTMENT OF FINANCE

  o Distributes EMST and Amoss grant monies to local fire and rescue departments.
  o Administers workers' compensation insurance.
  o Administers MCFRS' purchase card ("P-card") program.
  o Evaluates employee safety issues in relation to risks.
  o Participates in EOC activations as an Emergency Management Group member.
  o Participates in County emergency management exercises.

- OFFICE OF PROCUREMENT

  o Executes all County contracts, contract modifications/amendments, and purchase orders.
  o Advertises solicitations on the Office of Procurement website.
  o Ensures that contractors meet the wage and minority-owned business provisions of the County's procurement law.

- OFFICE OF HUMAN RESOURCES

  o Supports MCFRS with all aspects of human resources, including recruitment, hiring, promotions, labor relations, benefits, record keeping and employment actions.

- REGIONAL SERVICES CENTERS

  o Coordinate with MCFRS on CIP projects for fire stations and other fire-rescue facilities.
  o Participate in the MCFRS master planning process and related fire-rescue planning activities.
  o Serve as liaisons between the Citizen Advisory Boards and MCFRS, facilitating information flow and coordinating the identification of CIP and Operating Budget priorities.
  o Participate in EOC activations as Emergency Management Group members.
  o Participate in County emergency management exercises.

- PUBLIC SCHOOLS AND MONTGOMERY COLLEGE

  o Participates in EOC activations as Emergency Management Group members.
  o Participates in County emergency management exercises.
  o Provides active participation in many MCFRS safety programs (e.g., "Risk Watch").

- COUNTY ATTORNEY'S OFFICE

  o Represents Fire Code Enforcement Office in court on civil citation issues.
  o Provides legal guidance with fire code issues such as the closing of a business.
  o Provides legal interpretation on the fire code.
  o Advises MCFRS on disciplinary actions involving MCFRS personnel.
  o Represents division/department in negotiations with customers.
  o Reviews Executive Regulations and policy issues for legal requirements.
  o Participates in EOC activations as an Emergency Management Group member.
  o Participates in County emergency management exercises.

PRIVATE SECTOR ORGANIZATIONS AND UTILITIES

- AMERICAN RED CROSS - MONTGOMERY COUNTY CHAPTER

  o Participates in EOC activations as an Emergency Management Group member.
  o Participates in County emergency management exercises.
  o Responds to fires and other local emergency incidents/disasters to provide a continuum of relief services for displaced and/or traumatized residents.

- HOSPITALS[21]

  o Participate in EOC activations as Emergency Management Group members.
  o Participate on the Local Emergency Planning Council (SARA Title III).
  o Participate in County emergency management exercises.
  o Receive and treat the majority of patients transported by MCFRS.
  o Provide decontamination of incoming patients exposed to hazardous/toxic materials.

- POTOMAC ELECTRIC POWER COMPANY (PEPCO)

  o Responds to emergencies involving "live" or downed wires, transformers and related equipment owned by PEPCO.
  o Restores power when outages occur within their service area.
  o Participates in EOC activations as an Emergency Management Group member.
  o Participates in County emergency management exercises.
  o Participate on the Local Emergency Planning Council (SARA Title III).

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[21] Includes: Suburban, Holy Cross - Silver Spring, Holy Cross – Germantown, Shady Grove Adventist, Washington Adventist, Montgomery General and Walter Reed National Military Medical Center

- ALLEGHENY POWER

  o Responds to emergencies involving "live" or downed wires, transformers and related equipment owned by Alleghany Power.
  o Restores power when outages occur within their service area.
  o May participate in County emergency management exercises.

- BALTIMORE GAS AND ELECTRIC (BG&E)

  o Responds to emergencies involving gas leaks or fires, "live" or downed wires, transformers and related equipment owned by BG&E.
  o Restores power when outages occur within their service area.
  o May participate in County emergency management exercises.

- WASHINGTON GAS

  o Responds to emergencies involving leaking gas or fires within their distribution system and related equipment.
  o May participate in County emergency management exercises.
  o Participates on the Local Emergency Planning Council (SARA Title III).

- WASHINGTON SUBURBAN SANITARY COMMISSION (WSSC)

  o Maintains water supply adequate for fire suppression flow requirements.
  o Maintains hydrants, valves and the water distribution system.
  o Provides connections for private fire protection systems' water supply.
  o Participates in EOC activations as an Emergency Management Group member.
  o Participates on the Local Emergency Planning Council.
  o May participate in County emergency management exercises.

- CITY OF ROCKVILLE PUBLIC WORKS – WATER SYSTEM

  o Maintains water supply adequate for fire suppression flow requirements.
  o Maintains hydrants, valves and the water distribution system.
  o Provides connections for private fire protection systems' water supply.
  o Participates in EOC activations as an Emergency Management Group member.
  o Participates on the Local Emergency Planning Council.
  o May participate in County emergency management exercises.

- TOWN OF POOLESVILLE PUBLIC WORKS – WATER SYSTEM

  o Maintains water supply adequate for fire suppression flow requirements.
  o Maintains hydrants, valves and the water distribution system.

o   May participate in County emergency management exercises.

<u>MUNICIPALITIES</u> (Largest of Nineteen in Montgomery County)

- GAITHERSBURG

  o   Participates in EOC activations as an Emergency Management Group member.
  o   Participates in County and City emergency management exercises.
  o   Provides Fire Marshal services within the city limits.
  o   City Police Department provides traffic and crowd control at scene of fire-rescue incidents.
  o   Performs all fire code functions within corporate limits of city (except public schools).

- ROCKVILLE

  o   Participates in EOC activations as an Emergency Management Group member.
  o   Participates in County and City emergency management exercises.
  o   Provides Fire Marshal services within the city limits.
  o   City Police Department provides traffic and crowd control at scene of fire-rescue incidents.
  o   Performs all fire code matters within corporate limits of city.

- TAKOMA PARK

  o   Participates in EOC activations as an Emergency Management Group member.
  o   Participates in County and City emergency management exercises.
  o   City Police Department provides traffic and crowd control at scene of fire-rescue incidents.

<u>METRO WASHINGTON COUNCIL OF GOVERNMENTS (MWCOG)</u>

- Human Services and Public Safety Policy Committee (HSPSPC)

  o   MWCOG advisory body composed of elected officials and department directors and managers that provides oversight on non-homeland security related human service and public safety issues for the MWCOG Board of Directors, including law enforcement, fire-rescue and emergency medical services, emergency management, corrections, animal services, public health, foster care, child care, housing, and mental health and substance abuse programs.

- Fire Chiefs Committee

  o Committee meets regularly to address matters pertaining to fire and rescue services and to exchange information and ideas concerning the delivery of emergency management services and other matters of mutual concern. The Committee also advises the Emergency Preparedness Council, Chief Administrative Officers Committee, regional emergency support committees, and the MWCOG Board of Directors on fire and rescue service issues. Subcommittees working under this technical committee include: Communications, EMS, HazMat, Technology, Training, Technical Rescue, Health & Safety, Life Safety, Rail Safety, and Bomb Squads.

- National Capital Region Homeland Security Program

  o Urban Area Security Initiative (UASI)

  o NCR Emergency Preparedness Council oversees and implements the Regional Emergency Coordination Plan, coordinates activities of the various Regional Emergency Support Function Working Groups as they develop specific procedures and relationships, oversees the development of annexes, and develops training or tests of various components of regional emergency preparedness in conjunction with MWCOG's Chief Administrative Officers Committee.

  o NCR Homeland Security Strategic Plan

  o Regional Incident Communication and Coordination System (RICCS)

STATE OF MARYLAND

- STATE POLICE (MSP)

  o Responds to assist MCFRS with incident mitigation involving traffic collisions, vehicle fires and hazardous materials incidents on interstate, State, and U.S. highways (e.g., U.S. Route 29).
  o Assists with evacuations and road closures.
  o Provides medevac services to MCFRS upon request.
  o Participates in County emergency management exercises upon request.
  o Provides daily intelligence bulletin to the MCFRS Fire Marshal.

- STATE FIRE MARSHAL'S OFFICE (Division of MSP)

  o Establishes minimum requirements of fire code as established by State law.
  o Issues permits for blasting and for fireworks shows.
  o Assists in State fire code interpretation.
  o Provides training on State fire code updates.
  o Meets with local jurisdictions to discuss common fire code and fire prevention issues.
  o Provides canine (K-9) support, upon request of the MCFRS Fire & Explosives Investigations Office.
  o Provides bomb squad support, upon request of the MCFRS Fire & Explosives Investigations Office.

- MARYLAND INSTITUTE FOR EMERGENCY MEDICAL SERVICES SYSTEMS (MIEMSS)

  o Provides administrative direction for the day-to-day provision of emergency medical care throughout the State, in accordance with COMAR Title 30, addressing education, certification and licensure of all levels of emergency medical service provider, including quality assurance, discipline, and medical direction as well as criteria for specialty referral centers.

- MARYLAND FIRE-RESCUE INSTITUTE (MFRI)

  o Serves as the hub for statewide fire, rescue and EMS training.
  o Provides MCFRS with registration materials, text books, course materials, course test, instructor evaluations, certifications, and training equipment.
  o Tests personnel and awards national and State professional certifications.

- MARYLAND EMERGENCY MANAGEMENT AGENCY (MEMA)

  o Participates in certain County emergency management exercises.
  o Coordinates State and Federal emergency management and homeland security grants and awards and oversees grant monies.

- MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE)

  o Participates in certain County emergency management exercises.
  o Provides assistance to MCFRS Hazardous Incident Response Team with containment and cleanup of hazardous materials released into the environment.

FEDERAL GOVERNMENT

- DEPARTMENT OF HOMELAND SECURITY, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

  o Provides programs and guidance to municipalities and emergency services in the areas of mitigation, preparedness, response and recovery.
  o Provides programs and guidance to fire-rescue departments through the U.S. Fire Administration.
  o Provides training to firefighters, rescuers, EMS personnel, and emergency management personnel through the National Fire Academy and Emergency Management Institute in Emmitsburg, Maryland.
  o Oversees and coordinates the Federal Government's response to states and municipalities that have received Disaster or Emergency Declarations by the President of the U.S.
  o Oversees and coordinates the National Urban Search and Rescue Response System of which the MCFRS Collapse Rescue Team is a member Task Force.
  o Manages the National Flood Insurance Program through the Flood Insurance Administration.
  o Provides grants to states and municipalities to fund mitigation and preparedness programs and initiatives, including AFG, SAFER and UASI grants.
  o Participates in Montgomery County emergency management exercises as requested.

- DEPARTMENT OF DEFENSE

  o Fire Stations 50, 52, 54 - See "Mutual Aid Partnerships" heading above.

- DEPARTMENT OF COMMERCE, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

  o Fire Station 53 - See "Mutual Aid Partnerships" heading above.

- DEPARTMENT OF HEALTH AND HUMAN SERVICES, NATIONAL INSTITUTES OF HEALTH (NIH)

  o Fire Station 51 - See "Mutual Aid Partnerships" heading above.

- DEPARTMENT OF INTERIOR, NATIONAL PARK SERVICE (NPS)

  o U.S. PARK POLICE

    Provide helicopter support (i.e., medevac and tactical rescue support) to MCFRS for incidents occurring on and along the Potomac River and in the C&O Canal National Historical Park & Trail (e.g., water rescues, injured hikers). Provide medevac support as needed for incidents (e.g., vehicle collisions, patients with traumatic injuries) occurring elsewhere in the County as well.

  o C&O CANAL NATIONAL HISTORICAL PARK & TRAIL, NPS RANGERS

    National Park Service (NPS) Rangers provide limited on-shore support to MCFRS during swift water rescues along the Potomac River in and around the parks at Great Falls and Carderock. NPS Rangers also provide limited support to MCFRS during incidents occurring in/along the C&O Canal National Historical Park and Trail.

- DEPARTMENT OF JUSTICE

  o FEDERAL BUREAU OF INVESTIGATIONS (FBI)

    - Provides national security alerts and intelligence to MCP and MCFRS.
    - Provides homeland security grants.
    - Establishes standard incident management processes, protocols, and procedures for use by federal, State, and local emergency responders during national security emergencies.
    - During national security emergencies, provides incident command, communications, information management, and post-event evaluation.

  o BUREAU OF ALCOHOL, TOBACCO, FIREARMS AND EXPLOSIVES

    - Assists MCFRS with investigation of large fire incidents and incidents involving explosives upon request.
    - Allows MCFRS to use the ATF national laboratory located in Prince George's County for evidence examination.

- DEPARTMENT OF TRANSPORTATION

  o Provides standards for EMT and Paramedic course delivery.
  o Provides information on hazardous material identification and response via DOT Guidebook (on-board all MCFRS units), and via telephone and web access.
  o Provides standards for the Commercial Drivers License (CDL) program which MCFRS utilizes for its heavy apparatus drivers.

SECTION 3

FIRE DEPARTMENT ACCREDITATION

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FIRE DEPARTMENT ACCREDITATION

As MCFRS is an accredited fire department[22] and its leadership is committed to having the department remain accredited for the long-term, the accreditation process and its importance to the department's success is described in this master plan. Section 3 is focused solely on agency accreditation , including a description, its benefits, and MCFRS' commitment to the process. An overview of the accrediting organization - the Center for Public Safety Excellence[23] and its subsidiary the Commission on Fire Accreditation International - is also provided. An overview of the three primary documents that an accredited fire and emergency service agency must have and continually maintain is provided as well.

OVERVIEW OF FIRE DEPARTMENT ACCREDITATION

A general overview of fire department accreditation is provided below, including a description, purpose and benefits of accreditation. MCFRS' commitment to the accreditation process is described as well.

DESCRIPTION

- **ACCREDITATION DEFINED**

Accreditation is a "comprehensive self-assessment and evaluation model that enables organizations to examine past, current, and future service levels and internal performance and compare them to industry best-practices. This process leads to improved service delivery. The CFAI accreditation process provides a well-defined, internationally-recognized benchmark system to measure the quality of fire and emergency services. The Center for Public Safety Excellence (CPSE)'s Accreditation Program, administered by the Commission on Fire Accreditation International (CFAI), allows fire and emergency service agencies to compare their performance to industry best practices in order to:

- Determine community risk and safety needs and develop community-specific Standards of Cover.

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[22] MCFRS was first awarded accreditation status by CFAI in August 2007 and was re-accredited in August 2013 following a year under a deferred status during FY2013.

[23] CPSE is an organization that helps public safety agencies throughout the world improve their services. CPSE accredits fire and other emergency service agencies and credentials fire/emergency service officers.

- Evaluate the performance of the department.

- Establish a method for achieving continuous organizational improvement."[24]

The CPSE's Accreditation Program is the sole accreditation program for fire and emergency service agencies in the world. In FY15, there were 207 accredited fire and emergency service agencies worldwide, with most of them in the United States.

- **PROCESS vs. PROJECT**

Accreditation is not a one-time or intermittent project that has beginning and end dates and requires only a temporary effort and short-term commitment of resources. Accreditation is a continuous process that must be addressed by the fire department from that perspective. As accreditation is focused on continuous improvement, the department must work toward that goal on a continual basis, not intermittently. The accreditation process requires the full commitment of the entire department and is dependent upon adequate resources, including a dedicated Accreditation Manager, that must be committed to the process year-round, every year. An accredited department that takes a break from the process for an extended period will not achieve continuous improvement and will have great difficulty in becoming reaccredited at the end of its five-year accreditation cycle (see below).

- **STATUS LEVELS/STEPS TO ACCREDITATION**

There are four steps to achieving accreditation. At each step, the fire and emergency service agency seeking accreditation is given one of four hierarchical designations, or status levels:

- "Registered Agency" – This status allows an agency to be involved with the accreditation process for up to three years where it can gain access to the CFAI network, receive the CPSE newsletter, and obtain the latest edition of the *Fire & Emergency Service Self-Assessment Manual*.

- "Applicant Agency" –   This status allows a Registered Agency that is ready to make a firm commitment to accreditation to submit the Applicant Agency Status Form and to receive an Applicant Agency packet of the materials needed to proceed. While holding this status (i.e., 18 months for career agencies; 24 months for volunteer agencies), an Applicant Agency is assigned a volunteer mentor, and a SharePoint site is created for the agency to post draft documents for review by the mentor and for communication between the agency and mentor.

- "Candidate Agency" – This status allows an Applicant Agency that has completed its self-assessment process to uploaded the required documents (i.e., Self-Assessment

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[24] Source: CPSE web page

Manual, Standards of Cover, Strategic Plan) to the CPSE SharePoint site for review by the CFAI-assigned Peer Assessment Team. Following an on-site visit, the team submits a final report on its recommendation for accreditation to the agency and the CFAI.

- "Accredited Agency Status," or "Deferred Agency Status," or Denial – During the CFAI's Spring or Fall meeting, the Commission hears the candidacy report from the Peer Assessment Team Leader in the presence of the Candidate Agency's representatives. The Commission then grants, denies, or defers accreditation. A successful agency is awarded "Accredited Agency Status" applicable for a period of 5 years (see "5-Year Cycle" below). An agency receiving "Deferred Agency Status" is granted a period of up to one year to address deficiencies under the guidance of the Peer Assessment Team Leader and then goes before the Commission again for a decision. An agency receiving a denial decision by the Commission can reenter the system at the first step as a Registered Agency for another attempt at earning accreditation status.

There is a fee structure in place for each of the status levels. Payment is due to CPSE/CFAI in accordance with an established timeline. Fees are based upon the size of the fire department as determined by the population protected.

- **5-YEAR CYCLE**

"Accredited Agency Status" that has been awarded to a fire department by CFAI is applicable for a period of 5 years, provided that the department submits an Annual Compliance Report (ACR) in the first through fourth years that is approved by the Commission. The ACR has a standard format created by CFAI and serves as a progress report. The ACR includes reporting on any major organizational/environmental changes; status of meeting mandatory federal, State and local laws/requirements pertaining to fire-rescue services; status of core competencies; and status of implementing recommendations of the CFAI Peer Assessment Team appearing in their final report. An annual accreditation maintenance fee is also due.

MCFRS was awarded Accredited Agency Status in August 2013, so the department will need to work on maintaining its status annually through August 2017 (i.e., fourth year of cycle) and seeking reaccreditation in 2018 (fifth year). To maintain its Accredited Agency Status through 2017, MCFRS will need to submit its ACR by July 15 each year and receive an ACR approval from CFAI annually.

ACCREDITATION BENEFITS

"The Commission on Fire Accreditation International (CFAI) comprehensive self-assessment process promotes excellence and encourages quality improvement by enabling fire and EMS agencies to:

- Assure colleagues and the public that they have definite missions and objectives that are appropriate for the jurisdictions they serve

- Provide a detailed evaluation of the services they provide to the community
- Identify areas of strength and weakness within the department
- Create methods or systems for addressing deficiencies while building organizational success
- Encourage professional growth for both the department and its personnel
- Provide a forum for the communication of organizational priorities
- Foster national recognition by colleagues and the public
- Create a mechanism for developing strategic and program action plans." [25]

AGENCY COMMITMENT TO THE PROCESS

The MCFRS leadership and all levels of management are fully committed to the CFAI accreditation process and its tenet of continuous improvement. The County Executive and Chief Administrative Officer fully support accreditation as well. While accreditation requires considerable time and effort by the department and has direct and indirect costs, its benefits (see above) far outweigh the effort and costs. It is the intention of the Fire Chief for MCFRS to embrace and follow the CFAI accreditation model for the long-term and to pursue Accredited Agency Status at the intervals (e.g., every fifth year) established by CFAI.

In addition to assisting MCFRS in providing effective and efficient services to its customers and achieving continuous improvement, CFAI accreditation has also played a role in Montgomery County achieving a lower (i.e., improved) Insurance Services Office (ISO) rating.[26]

COMMISSION ON FIRE ACCREDITATION INTERNATIONAL

The Commission on Fire Accreditation International (CFAI) administers the fire and emergency service agency accreditation program for the Center for Public Safety Excellence. The CFAI mission, model and guidance documents are addressed below.

CFAI MISSION

"The Commission on Fire Accreditation International (CFAI) is committed to assisting and improving fire and emergency service agencies around the world in achieving organizational and professional excellence through its strategic self-assessment model and accreditation process that provide continuous quality improvement and enhancement of service delivery to the community and the world at large. CFAI provides fire department training to assist departments with the tools necessary to begin and maintain the self-assessment process."[4]

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[25] Source: CPSE web page

[26] Based on an evaluation conducted in 2012, ISO lowered the County's Public Protection Classification from PPC-4 to PPC-3 within areas served by fire hydrants and from PPC-9 to PPC-6 within areas lacking hydrants. Lower ISO ratings can lead to lower property insurance premiums for property owners depending upon the rates set by individual insurance carriers.

CFAI MODEL

The CFAI accreditation model consists of ten broad performance categories that are broken down into approximately 40-45 performance criteria[27] that serve as a measure upon which an assessment of performance can be based. The criteria have then been broken down into over 250 detailed performance indicators[5] that define the desired level of performance or achievement for each specific capability or task. The ten broad performance categories include:

- Governance and Administration
- Assessment and Planning
- Goals and Objectives
- Financial Resources
- Programs
- Physical Resources
- Human Resources
- Training and Competency
- Essential Resources
- External Systems Relations

About one-third of the performance indicators (a.k.a., "competencies"), or approximately 80-85 indicators[28], have been designated as "core competencies" which must be met (i.e., mandatory requirement) for the agency to achieve accreditation status. Core competencies have been designated by CFAI as critical elements deemed necessary for an agency to be considered credible as judged by peer assessors and the Commission. While the remaining performance indicators (a.k.a., "non-core competencies") are considered beneficial for evaluating agency performance, they are less critical in importance than core competencies. There are both core and non-core competencies within each of the ten broad performance categories listed above. Candidate Agencies must address all performance indicators in their Self-Assessment Manual.

CFAI GUIDANCE PUBLICATIONS

CFAI publishes two primary guidance documents for use by fire and emergency service agencies working toward or maintaining accreditation status. The guides are described below.

- FIRE & EMERGENCY SERVICE SELF-ASSESSMENT MANUAL

The CFAI's *Fire & Emergency Service Self-Assessment Manual* (FESSAM) explains the CFAI accreditation model and process and guides fire and emergency service agencies on how to

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[27] The exact number of criteria and performance indicators are not identified in this master plan as they are subject to change over time as the accreditation model is periodically modified by CFAI.

[28] The exact number of core competencies are not identified in this master plan as they are subject to change over time as the accreditation model is periodically modified by CFAI.

prepare their agency's Self-Assessment Manual and specifies the contents. The FESSAM contains the complete list of criteria and performance indicators; addresses risk assessment, standards of response coverage, and strategic planning; and provides guidance on research and information collection.

As of FY15, the FESSAM was in its 8th edition; however, the 9th edition was in development and expected to be published during the Summer or Fall of CY2015. This is the edition under which MCFRS was reaccredited in 2013 and under which the Annual Compliance Report will be prepared through FY2017. For reaccreditation in 2018, MCFRS will use and comply with whichever FESSAM edition is in effect at that time (i.e., 9th or later edition).

- STANDARDS OF COVER

The CFAI's Standards of Cover (SOC) is a companion guide to the FESSAM. It explains the SOC process and provides guidance to fire and emergency service agencies on how to prepare their agency's Standard of Cover document and specifies the contents. A key component of an agency's SOC document is a comprehensive risk assessment of the service area, and the CFAI's SOC guide explains how to perform a risk assessment and what is to be addressed. The SOC guide also explains performance measurement and agency evaluation which need to be addressed in the agency's SOC document as well.

As of FY15, the CFAI's SOC guide was in its 5th edition. For reaccreditation in 2018, MCFRS will use and comply with whichever edition of the SOC guide is in effect at that time (i.e., 5th or later edition).

ACCREDITATION TRAINING

CPSE/CFAI offer several training opportunities for fire and emergency service agencies who are participants in the accreditation program as a Registered Agency or at a higher level. Basic, intermediate and advanced-level workshops are offered periodically at locations throughout the U.S. and Canada. On-line training is also offered. Workshops and other training opportunities for agencies pursuing or maintaining accreditation status include:

- CFAI Self-Assessment Workshop
- CFAI Basic Standards of Cover Workshop
- CFAI Peer Assessor Workshop
- Data Analysis and Presentation Using Microsoft Excel (workshop or on-line)
- Advanced Technology for Community Risk/Standards of Cover
- Dayroom Discussions and other webinars

CPSE/CFAI also convenes an annual conference as an educational and networking opportunity.

PEER ASSESSMENT

Peer assessment is a vital component of the accreditation process. The peer assessment process allows for a fair, thorough and close-up evaluation of the Candidate Agency by their peers.

When a Candidate Agency is ready to be evaluated for accreditation status, it is a group of peers from within the accreditation system that conducts the evaluation, not CFAI commissioners and/or staff. CFAI maintains a cadre of trained, volunteer peer assessors comprised of personnel from fire and emergency service agencies within the system. A Peer Assessment Team (PAT) of 3-5 individuals is assembled by CFAI, and that team reviews required documents (see below) prepared by the Candidate Agency and then conducts an on-site visit to determine whether the agency meets the core competencies and demonstrates credibility. The PAT then prepares a report of their findings and recommendations. The report is shared with the Candidate Agency and is presented to the Commission by the PAT Leader along with the team's recommendation to the Commission on whether the agency should receive accreditation status, deferral, or denial. Whether or not the Commission awards Accredited Agency Status, the Candidate Agency will have a list of recommendations from the PAT for improvements that can be pursued by the agency to help them attain or maintain accreditation in the future..

ACCREDITED AGENCY REQUIRED DOCUMENTS

There are three primary documents required for accreditation, including an agency's Self-Assessment Manual, Standards of Cover, and Strategic Plan or Master Plan. Each type of document is described below.

SELF-ASSESSMENT MANUAL

MCFRS had prepared its most recent Self-Assessment Manual (SAM), completed in 2013, in accordance with CFAI's *Fire & Emergency Service Self-Assessment Manual* (FESSAM), 8th edition. The MCFRS SAM addresses all criteria and performance indicators (i.e., competencies) addressed in the ten broad accreditation categories listed under the "CFAI Model" heading above. The 82 core competencies identified in the 8th edition FESSAM have been denoted in the SAM. The MCFRS SAM was prepared in accordance with the CFAI-required format which, for each performance indicator, includes:

- A "*Description*" of what MCFRS has been done or put in place to address the stated competency (written in the past tense as required).

- An "A*ppraisal*" of how well MCFRS is meeting the stated competency (written in the present tense as required).

- A "*Plan*" describing what MCFRS will do within the next five-year accreditation cycle to address any deficiencies or make additional improvements in meeting the stated competency (written in the future tense as required).

- A list of "*References*" that can be viewed to verify that MCFRS has done, or is in the process of doing, that which it has stated in the Description and Appraisal sections. References must be actual documents (e.g., plans, reports, SOPs, policies, general orders, memoranda, web site content, etc.) that a peer assessor or other reader can view.

Leading up to its next reaccreditation in CY2018, MCFRS will need to prepare a new SAM in accordance with the specific list of competencies included in the latest edition of the FESSAM as well as the latest CFAI-required format. Work on the new SAM will need to begin in CY2017.

STANDARDS OF COVER

The Standards of Cover (SOC) is the second document required for accreditation. The document is prepared by a fire department seeking accreditation, based upon a comprehensive risk analysis of the department's service area, that establishes service level objectives upon which the distribution and concentration of the department's resources are based. Although there have been many attempts to establish a common methodology in determining the precise number of resources needed to mitigate incidents, build future fire stations, and staff firefighter positions, every community has its own set of innate risks and needs. To that end, every fire department must conduct a self-assessment and community risk assessment that, together, yield the development of an all-hazards response system that successfully meets the needs of the community. This is particularly challenging for departments such as MCFRS that have assumed responsibilities for a variety of emergency services in addition to basic fire suppression, including EMS, hazmat response, water-ice rescue, technical rescue, explosive device (bomb) response, and aviation fire-rescue.

As communities such as Montgomery County continue to grow, the fire department must also continue to grow and develop to meet the evolving emergency needs of the community. The fire department must establish an effective number of resources, assure their full capabilities, and establish and meet appropriate response time objectives to address any given emergency event. An inappropriate number of resources dispatched within an ineffective time period will cause the emergency event to escalate; thus continuing to draw upon the department's more distant resources while threatening the safety and welfare of both the public and emergency responders.

The development of a SOC document induces decisions that determine the deployment of operational resources in relation to the potential demand identified through historical incident analysis and the determination of future community risk through the risk assessment process. The SOC involves analysis and decision-making in four primary areas, each requiring significant research and examination. First, a community risk assessment is conducted to identify the fire and non-fire related risk inherent in the community. Secondly, service levels encompassing personnel, apparatus and equipment must be determined for the area served. Thirdly, an analysis

of the agency's capabilities in relation to response times and on-scene performance must be conducted. Lastly, standards of coverage must be developed that identify how the department's resources will be delivered to maximize response effectiveness.

MCFRS has utilized the CFAI SOC guide (5th edition) to develop its own SOC document. Past versions of this comprehensive document have been submitted to CFAI peer assessors to assist them in evaluating MCFRS for accreditation purposes. The MCFRS SOC must be continuously reviewed, updated and modified to ensure that appropriate standards of response coverage are in place to meet evolving needs and that service delivery performance is continually evaluated.

MASTER/STRATEGIC PLAN

The third document required for accreditation along with the SAM and SOC is the department's strategic plan or master plan. MCFRS has had a master plan since 1994. The initial master plan sunset in 2004 and was replaced by another 10-year plan in 2005. The latter plan (*Fire, Rescue, Emergency Medical Services, and Community Risk Reduction Master Plan*) was used by MCFRS for its 2007 and 2013 accreditations. This new 5-year master plan replaces the 2005-2015 plan and will be used for the 2018 reaccreditation.

In addition to being a required document for accreditation, the MCFRS' master plan is mandated by Montgomery County Code, Chapter 21, Section 12. The plan must be approved (i.e., adopted by resolution) by the County Council following earlier approvals by the County Fire Chief and County Executive.

SECTION 4

ALL-HAZARDS RISK ASSESSMENT AND STANDARDS OF COVER

SECTION 4

ALL-HAZARDS RISK ASSESSMENT AND STANDARDS OF COVER

Section 4 addresses all-hazards risk assessment for Montgomery County. This section defines the concepts of "risk," and "acceptable risk," defines and provides examples of target hazards, and describes the many categories of risk present in the County for which MCFRS has a sole or shared responsibility for mitigating to an acceptable level. Section 4 also describes the impact that changing demographics and new development – community and transit related development - have on overall risk.

Section 4 addresses the MCFRS standards of response coverage (a.k.a., standards of cover) as well. The standards of cover address the distribution and concentration of resources that are needed to effectively respond to various types and levels of risk as well as the response times that the County has established for arrival of resources at the scene of emergency events following the sequence of MCFRS call-taking/dispatch, turnout from station, and travel to the incident scene.

RISK DEFINED

Montgomery County's fire/rescue-related risk is the combined risk that County residents, business owners, and visitors encounter on a daily basis from the following hazards:

- Fire (involving structures, vehicles, trains, aircraft, infrastructure, vegetation, other property)
- Acute medical conditions, bodily injury, illness, etc.
- Transportation networks (e.g., highway, rail, air) and vehicles/trains using them
- Hazardous materials, including destructive/explosive devices
- Terrorism (with or without use of hazardous materials/WMD)
- Bodies of water (rivers, streams, lakes, ponds, canal, including when iced over); pools
- Natural hazards (e.g., thunderstorms, tornados, winter storms, floods, temperature extremes)
- Technological hazards (e.g., utility disruptions, dam failure)
- Societal hazards (e.g., health/disease epidemics, civil unrest)

Residents face other types of risk, as well, such as crime, civil unrest, commodity shortages and financial crises, but those types of risk are beyond the scope of the fire/rescue-related risk (as defined above) typically addressed by MCFRS and discussed within this Master Plan.

Risk is defined for the purposes of this plan as the probability of an event (e.g., building fire, vehicle collision, hazardous material spill, etc.) causing harm to people, damage to property or the environment, and/or business interruption, combined with the consequences or severity of that event. Stated mathematically:

RISK = PROBABILITY OF OCCURRENCE X CONSEQUENCES

where probability and consequences can be stated quantitatively to derive a numerical level of risk that can be compared with other risks in order to rank and evaluate them. Risk can also be examined and compared subjectively in terms of categories such as low, medium, high, and special risk, or variations of these qualitative measures.

Considering both probability and consequences, risk can be viewed as a combination or product of the two component factors. For example, there is a low probability that on any given day a train carrying hazardous materials would derail, leak and produce a toxic vapor cloud within a densely populated area of Montgomery County; however, the consequences of that event could impact tens of thousands of residents and visitors resulting in many casualties and widespread evacuation of the impacted area. Damage to nearby buildings and the environment could be significant as well as substantial costs associated with disruption of business over the duration of the evacuation. The level of risk associated with this example could therefore be designated as a "special risk" as shown below in Figure 4.1.

Figure 4.1

PROBABILITY/CONSEQUENCE RISK MATRIX

HIGH PROBABILITY LOW CONSEQUENCES (**MODERATE RISK**)	HIGH PROBABILITY HIGH CONSEQUENCES (**HIGH RISK**)
LOW PROBABILITY LOW CONSEQUENCES (**LOW RISK**)	LOW PROBABILITY HIGH CONSEQUENCES (**SPECIAL RISK**)

An example of a "high risk" on a daily basis in Montgomery County, one having both a high probability of occurrence and high consequences across a large area, is a line of severe thunderstorms with heavy rain, strong winds, and frequent cloud-to-ground lightning which can occur during any month of the year (likeliest during Spring, Summer and Fall) in the County and could result in injuries/deaths and severe property damage having long-term consequences (e.g., damage to homes, businesses, utility lines, roads, etc.) county-wide. A second example is a fire in an occupied residence posing significant damage to structure and contents and the potential for death/injuries to occupants and firefighters.

A "moderate risk" is that having a high probability of occurrence on a daily basis combined with low consequences. Examples include a vehicle collision resulting in non-life threatening injuries, a child injured (e.g., arm fracture) during an athletic event, and a small fuel spill from a vehicle or a fuel pump. MCFRS typically responds to several such incidents daily. Injuries, if any, and property damage would be expectedly minor.

A "low risk" is that having both low probability and low consequences. Examples include a fire involving a riding mower, a hiker bitten by a non-venomous snake, and people trapped in a stalled elevator. MCFRS would be expected to respond to less than 100 of these incidents annually. Injuries, if any, and property damage, if any, would be expectedly minor.

Additional examples of low, moderate, high and special risk are shown in Figure 4.2 below.

Historically, risks in Montgomery County have been reduced or mitigated to an acceptable level utilizing a variety of risk reduction strategies, including the implementation of preventative and risk minimization measures and the deployment of fire-rescue resources. In some cases, however, an unacceptable level of risk exists which potentially threatens the health, safety, and welfare of the overall population as well as MCFRS firefighters-rescuers. The line between acceptable and unacceptable level of unprotected risk is not precise.

The potential for a given event to occur based upon historical frequency must be examined in combination with the severity of the event should it occur. While the frequency of certain incidents may be low, the associated risk may be very high depending upon the scope and severity of the incident. Since 1935, Montgomery County has experienced at least eight notable incidents of this nature. In 1935, a B&O train struck a school bus in Rockville killing fourteen children and injuring thirteen[29]. During WWII, three trains collided in Dickerson killing and injuring numerous passengers (number unknown), mostly U.S. servicemen[30]. In the early 1950s, two U.S. Navy fighter jets collided in mid-air and crashed in the up-county area killing several on board[31]. In more recent times, six residents were killed in a farmhouse fire in Boyds in 1986;

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[29] Source: Rockville Volunteer Fire Department, 75th Anniversary Program, 1996.

[30] Source: Former Chief George Hillard, Upper Montgomery County Volunteer Fire Department.

[31] Source: Rockville Volunteer Fire Department, 75th Anniversary Program, 1996.

Figure 4.2 - LEVELS OF RISK

SPECIAL RISK	HIGH RISK
• Large airplane (5 or > passengers) on fire or crashed • Bomb Squad special risk responses including confirmed explosive device • Smoke in a house, building, school, apartment, garage, barn, etc. in a non-hydranted box area • Fire in a house, building, school, apartment, garage, barn, etc. in a non-hydranted box area • Smoke or fire in a high-rise building, apartment, office, etc. • Hazmat box alarms for a building fire involving hazmat, or a 2-inch or > high pressure natural gas line break; outside or inside • Technical rescues • Swift water rescues (e.g., Potomac River)	• Smoke in a house, building, school, non-high-rise apartment, garage, barn, etc. in a hydranted area • Fire in a house, building, school, non-high-rise apartment, garage, barn, etc. • Small airplane (4 or < passengers) on fire or crashed • ALS2 EMS incidents, including ALS2 motor vehicle crash with or without entrapment • Bomb Squad high risk responses, including creditable suspicious and unattended packages/devices • Train or Metro Rail crash/derailment/fire • Hazmat inhalation emergencies, including CO alarms with symptomatic patients • Still water rescues (e.g., Potomac River), or incidents involving White's Ferry
MODERATE RISK	**LOW RISK**

• Inside contained appliance fire (dryer, oven, etc.)
• Inside odor of smoke
• Inside natural gas leak
• Inside electrical short circuit
• Detached shed fire
• Large vehicle fire
• Metro Rail subway 3rd rail insulator issue
• Malfunctioning furnace
• ALS1 EMS incidents, including ALS1 motor vehicle crash with or without entrapment
• Bomb Squad moderate risk responses, including suspicious and unattended packages
• Hazmat releases not involving fire, including white powder responses
• Inland water/ice rescue; not including swimming pool, bathtub, etc.
	• Automobile fires
	• Brush, grass, leaf, field fire
	• Outside trash, dumpster fires
	• Outside transformer fire
	• Home automatic or commercial fire alarms; local alarm bells
	• Outside natural gas leaks; small fuel spills
	• Outside electrical short circuit
	• Citizen lock-out with hazard (food on stove, baby locked inside, etc.
	• Outside smoke or odor investigation
	• Stalled elevator with people on board
	• BLS EMS incidents, including BLS motor vehicle crash
	• Public service call (performance not measured). Examples:
	  o Assist fallen citizen off the floor
	  o Water leaking from an apartment above
	  o Citizen lock-in
	  o Tree down blocking the roadway
	  o CO alarm with asymptomatic patients

eleven people were killed in a train collision/fire in Silver Spring in 1996; a crowded passenger train derailed in Kensington in July 2002 injuring 120 passengers; and a sniper killed five people in Montgomery County (and another County resident in Virginia) in October 2002. In June 2007, a woman and her three young children died in a townhouse fire in Burtonsville where a small fire generated considerable smoke and toxic gases. In December 2014, a twin-engine corporate jet crashed into a Gaithersburg neighborhood upon approach to the Montgomery County Airpark killing all three people on board, and three residents were also killed when their house was set ablaze as a result of the crashed aircraft and leaking jet fuel. While all eight of these incidents had a low probability of occurrence, the consequences of each incident impacted not only the victims and their families but much of the general population of the County and metropolitan area, directly or indirectly, due to the horrific and unusual nature of the incidents.

These historical incidents underscore the potential for similar low-probability, high-consequence incidents in the future. In fact, overall risk within Montgomery County will likely increase due to population growth and continued development throughout the County in combination with ever present natural, technological and societal hazards. Taking into account the combined risk posed by transportation networks, aircraft flight paths, hazardous materials transport/storage, underground fuel pipelines, potential acts of terrorism, and other hazards, there is a moderate-high likelihood of another large-scale, major event occurring in Montgomery County during the time frame of this Master Plan (2016-2020).

ACCEPTABLE LEVEL OF RISK

It is not feasible to eliminate all fire/rescue-related risk facing Montgomery County's residents, business owners and visitors, however, the overall level of risk can be reduced to a level that is acceptable to County elected officials, County Fire Chief, residents and business owners. The County strategically utilizes many resources and programs in an effort to reduce its fire/rescue-related risk, including deployment of firefighter-rescuers and other personnel working to reduce fire/rescue-related risk; modern fire, rescue and EMS apparatus and equipment; automatic fire protection systems; and a variety of risk reduction programs including fire code compliance as well as fire safety, injury prevention, and risk reduction programs.

Despite these on-going efforts to reduce fire/rescue-related risk, a portion of the overall level of risk remains. This remaining risk is referred to as "unprotected risk" or "acceptable risk." Simply stated, unprotected risk is that which the County is willing to accept rather than funding an extraordinary number of resources and programs in an attempt to eliminate all fire/rescue-related risk. Minimizing or eliminating unprotected risk requires significant expenditures by the County, its municipalities, the private sector, and individual property owners. By choosing not to fund the vast number of resources and programs that would be required to eliminate or nearly eliminate the overall fire/rescue-related risk throughout the County, the County accepts a certain level of unprotected risk.

It is imperative that the County Fire Chief and elected officials of Montgomery County take great care in periodically reassessing and reestablishing an acceptable level of fire/rescue-related risk, as this important determination will impact County residents, business owners and visitors for many years. This acceptable level of risk will serve as the basis upon which the delivery of fire-rescue services will be established or maintained, the number and distribution of stations, and the concentration of personnel, apparatus and specialized equipment that will be deployed.

Using funding allocated by the County Council, EMS transport revenue, fee-generated revenue via the Fire Marshal's Office, State-provided Senator Amoss Fund monies, various public and private sector grants, and funds raised by the LFRDs, the MCFRS must maximize its risk reduction efforts to close the gap between the County's protected and unprotected risk. In addition, the private sector and individual property owners, collectively, must do their part to reduce risk by such measures as installing automatic fire detection and suppression systems, carbon monoxide detectors, and lightning protection systems; securing adequate insurance coverage (e.g., property, vehicle, life, health, etc.); learning to perform CPR; purchasing and learning to use automatic external defibrillators; preventing injuries and fires; and taking other steps to minimize the impacts of fire/rescue-related emergencies. Risk reduction is a critical responsibility and vitally important measure to be undertaken by Montgomery County and its municipalities, as well as the general public, in order to close the gap between protected and unprotected risk.

TARGET HAZARDS

A "target hazard" is defined as any structure, occupancy or place that presents a major risk to occupants and a significant challenge or risk to firefighters-rescuers due to one or more of the following factors relating to safety, rescue, loss potential, and/or access:

- Potential for significant number of casualties

- Structural design, condition, use, and/or surrounding topography

- Potential for high dollar loss from fire, explosion, collapse or similar event

- Potential for significant loss of jobs and/or long-term business interruption following a fire, explosion, collapse or similar event

- Potential for significant disruption or loss of a key public service such as a governmental, medical, postal or utility service

- Potential for a reduced level of community pride due to loss of an important historical, social, recreational, or religious facility or landmark

Target hazards[32] in Montgomery County include the following types of occupancies, facilities, landmarks, transportation networks, and recreational areas:

- Unsprinklered residential high-rises, garden apartments, and townhouses
- Large, unsprinklered single-family homes, particularly in non-hydranted areas
- Hospitals, nursing homes, assisted-living facilities, and group homes
- Senior housing
- Places of public assembly (e.g., theaters, gymnasiums, fairgrounds)
- Terrorist targets – including many of the target hazards appearing in this list
- Places of worship
- Schools and college campuses
- Shopping malls and large retail stores
- Correctional facilities
- Businesses, research facilities, and other buildings storing, using, manufacturing and/or processing hazardous materials/wastes
- Interstate and major highways (e.g., I-495, I-270, I-370, MD-200, U.S. Route 29)
- METRO Rail
- CSX Railroad
- Purple Line (planned/future)
- Corridor Cities Transitway (planned/future)
- Airparks/airstrips
- Federal, State, County and municipal government facilities
- Barns and other agricultural buildings
- Historic buildings
- Interstate fuel pipelines
- Utility networks and facilities
- Potomac River, primarily the swift water section - Seneca to Little Falls
- Dams

Fire, rescue and EMS incidents have occurred frequently at many of these target hazards, while incidents have occurred less frequently at others. Regardless of their past incident frequency, each of these target hazards poses a significant daily risk, and MCFRS must maintain a constant state of readiness to respond to incidents involving these hazards.

FIRE-RESCUE RISK

Fire-rescue related risk can be best described in terms of its component categories, including emergency medical risk, fire risk, hazardous materials risk, bomb/destructive device risk, water/ice risk, technical rescue-related risk, and aviation risk. Other risks, usually associated with homeland security/emergency management rather than fire-rescue, include risks related to

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[32] Specific facilities and their locations are not revealed for security reasons.

terrorism and to natural, technological and societal hazards. This latter group of risks; however, often involves the response of fire-rescue resources when emergency incidents (e.g., fires, explosions, injured/sick persons, etc.) occur during events such as public health emergencies, acts of terrorism, thunderstorms, tornados, winter storms, utility disruptions, civil unrest, etc.

Each category of risk listed above is described briefly below. Greater detail can be found in the risk assessment section of the "MCFRS Standards of Cover" document. A list of notable fire-rescue incidents occurring in Montgomery County since the 1960s can be found in the "Description of Community Served" section of the *MCFRS Standards of Cover* document. These incidents illustrate the types of risk present in the County as well as low-frequency, high consequence events that have occurred.

EMERGENCY MEDICAL RISK

Emergency medical-related risk is one of the most significant risks facing Montgomery County's residents, business owners and visitors on a daily basis. The consequences of emergency medical incidents can impact one individual (e.g., person suffering a cardiac event) or up to hundreds of people (e.g., mass casualty incident such as a passenger train collision or commercial airliner crash) depending upon the scope of the incident.

MCFRS categorizes EMS incidents into advanced life support (ALS) and basic life support (BLS) incidents. BLS incidents include non-life threatening incident types such as injured persons, sick persons, seizures, hemorrhages, patients with mental disorders, and child delivery. All MCFRS personnel providing direct operational services, regardless of the type of apparatus on which they respond, are required to be State-certified EMTs (at the EMT level), enabling them to provide basic life support services during any incident. BLS services include patient assessment; airway management; cardiopulmonary resuscitation (CPR); rescue breathing; use of automated external defibrillators (AEDs); treatment of contusions, puncture wounds, broken bones, sprains and strains; spinal immobilization; child delivery; and similar basic life support services.

ALS incidents include life-threatening incident types such as cardiac arrest, chest pains, heart attack, unconscious person, asthma, choking, diabetic, shooting, stabbing, electrocution, pedestrian struck, allergic reactions, severe bleeding, poisoning, and anaphylactic shock. ALS incidents require the services of paramedics assisted by EMTs. Approximately 30% of MCFRS personnel providing direct operational services have also attained national certification and are State-licensed as Paramedics[33]. Only paramedics are authorized to provide ALS services, including administering of certain drugs; electrical therapy including defibrillation; advanced airway management including orotracheal and nasotracheal intubation; intravenous maintenance therapy, and other advanced-level life support services.

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[33] Paramedics must be nationally certified by the National Registry of Emergency Medical Technicians and have a State license from the Maryland Institute for Emergency Medical Services Systems.

ALS incidents are separated into two categories – ALS1 and ALS2. The determination of ALS1 versus ALS2 has been made by the County's EMS Medical Director based upon the severity of the incident type and corresponding number/scope of ALS tasks to be performed. ALS1 incidents require the response of one ALS provider while ALS2 requires two ALS providers.

Patients having traumatic injuries or other serious injuries are often transported to trauma centers (e.g., Suburban Hospital, Washington Hospital Center, Johns Hopkins University Hospital, University of Maryland Shock Trauma Center) or specialized hospitals (e.g., Children's Hospital in the District of Columbia) by medevac helicopters operated by the Maryland State Police or U.S. Park Police. The majority of BLS and ALS patients, however, are transported to local hospitals by means of ambulances or medic units.

The risk assessment section of the MCFRS Standards of Cover document includes a map for each fire station area indicating EMS risk. Also shown are the locations of health care facilities (i.e., hospitals, nursing homes, assisted living facilities) which collectively have a high incidence of EMS events, particularly of an ALS nature. From these maps, a predominant level of EMS risk has been determined for each fire station first-due area as shown in Table 2 in Appendix C. Station areas that have been determined by MCFRS to present "special" EMS risk include 1-3, 5-8, 11, 12, 15, 16, 18-29, 31-34, and 40. Station areas that have been determined to present "high" EMS risk include 4, 10, 13, 14, 17, 30, and 35, plus federal station areas 50 and 51.

MCFRS responded to 81,095 EMS incidents during FY14. Of these, 34,226 were ALS incidents (94/day, 42% of all EMS incidents) and 46,869 were BLS incidents (128/day, 58% of all EMS incidents). Of the ALS incident total, 28,921 incidents were ALS1 (79/day, 85% of all ALS incidents) and 5305 (15/day, 15% of all ALS incidents) were ALS2. Maps 2 (ALS1), 3 (ALS2) and 4 (BLS) in Appendix D indicate the FY14 ALS and BLS call volume densities.

While the 81,000$^+$ EMS incidents are distributed throughout Montgomery County, they are most concentrated in areas of metropolitan and urban population density. As population density decreases between urban and suburban areas and again between suburban and rural areas, the concentration of EMS incidents decreases as well. The EMS maps referenced above indicate that areas having the highest EMS incident density include Gaithersburg, Rockville, Aspen Hill-Norbeck, Silver Spring, Takoma Park, Wheaton, Bethesda and the Shady Grove area in the vicinity of Station 32. This also holds true when breaking down EMS incidents into ALS1, ALS2 and BLS categories. Areas of moderate EMS density include Burtonsville, Hillandale-White Oak, Chevy Chase, Kensington, and Germantown; although there are pockets of higher density EMS call load within these areas as well.

EMS incident density is highest in areas having the following characteristics:
- Health care facilities: nursing homes, assisted living facilities, and group homes
- Residential communities or individual mid-rise/high-rise residences for seniors
- Communities having a high concentration of minority populations
- High concentration of mid-rise and high-rise buildings, particularly residential
- Shopping malls or other large concentrations of commercial/retail buildings

- Transportation networks: interstate highways and other major roads, Metro Red Line

Larger health care facilities and senior-living residences average one or more EMS incidents per day, often ALS in nature. The 8500-resident Leisure World community for seniors, located in the Norbeck area, experiences a very high volume of ALS and BLS incidents. Others having a high demand for ALS and BLS services include the 2300-unit Riderwood Village located on the Montgomery-Prince George's County line in Calverton[34], 1200-unit Asbury Methodist Village in Gaithersburg, 1000-resident Charles Smith Hebrew Home in Rockville, 550-resident Village at Rockville (formerly National Lutheran Home), and 315-unit Brooke Grove community in Sandy Spring. In 2014, there were 34 long-term care nursing homes with 4565 beds in Montgomery County. In 2014, there were over 200 independent-living facilities in the County that also offer assisted living services having a total capacity of over 3600 beds.

The demand for EMS services by seniors (i.e., age 65 and above) is disproportionately high when compared to the remainder of the population. While seniors comprised 14.0% of the total County population in 2015, they were involved in 40% of the EMS incidents that year. This percentage is consistent with the previous three years.[35] Seniors also require ALS services more frequently than do younger residents. It is well known locally as well as nationally that seniors require EMS services at a higher rate than the remainder of the population due to greater incidence of illness, disease and injury. In particular, seniors experience a high incidence of cardiac events, respiratory difficulties, and falls.

The number of EMS incidents is expected to increase by approximately 5-7% over the five-year span of this Fire-Rescue Master Plan as the County's senior population and overall population increase. Between 2015 and 2020, the County population is projected to increase by nearly 47,000 (4.4% increase) to a total of 1,071,729[36]. The senior population is projected to increase by almost 25,000 (17.1% increase) to a total of 168,200[37]. The number of additional seniors is over half of the total number of additional residents, per projections. During this 5-year period, ALS incidents as a percentage of total EMS incidents is expected to rise 2-3 percentage points to about 45%, largely due to the aging population and their EMS needs.

Additional EMS resources, including transport units and both ALS and BLS providers, will be needed to address the increased EMS risk and associated call load. The vast majority of these new resources will be needed in areas of major growth, including Bethesda, North Bethesda, White Oak, Rockville, Gaithersburg, Germantown and Clarksburg.

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[34] Approximately one-third of Riderwood Village is located in Montgomery County, with the remainder in P.G. Co.

[35] Source: Age-related EMS incident figures provided by MCFRS EMS Section based upon EPCR reports

[36] Source: Round 8.3 Cooperative Forecast, Research & Special Projects, Montgomery County Planning Department

[37] Source: "Demographic and Socio-Economic Outlook" table, July 2014

Greater detail regarding EMS risk can be found in Section C (Community Risk Assessment and Risk Levels) of the *MCFRS Standards of Cover* document.

FIRE RISK

Fire risk is another risk that residents and other property owners throughout Montgomery County face on a daily basis. Fires can occur in structures, vehicles, utility infrastructure, rubbish, and natural resources such as brush, grasslands, croplands, and woodlands. All fires present a degree of risk, sometimes resulting in injuries and deaths. All fires, with the exception of rubbish fires, cause property damage ranging from minor to catastrophic. While automatic suppression systems (e.g., sprinklers) are in place in some buildings to control fires while they are in their early stage of development, the fire department responds to suppress fires where suppression systems are not present as well as to ensure extinguishment of fires that have been controlled by suppression systems.

Approximately 100 "working" structure fires occur each year in Montgomery County[38] compared to the hundreds of thousands of structures and individual households present (see subsection on Demographics below). These fires can occur in residential and non-residential buildings, typically involving single-family detached homes, townhouses, garden apartments, mid-rise and high-rise apartments and offices, restaurants, retail stores, places of public assembly, institutional buildings, storage buildings, and other types of structures. The frequency of structure fires ranges from low to high depending upon the occupancy type, and the resulting severity ranges from moderate to catastrophic in terms of casualties and property damage. County-wide structure fire risk therefore falls within the moderate to high range when combining the probability of occurrence and associated consequences.

While older structures have a higher potential for experiencing fires due to the age and condition of building systems (particularly electrical and heating systems), newer structures have a higher potential for faster fire growth/fire spread due to light-weight building components that burn and fail quickly, often collapsing. Most of the newer residences built since 1990 are closer together than in the past; thus increasing the potential for fires damaging adjacent houses or other nearby structures. Damage to adjacent/nearby structures can include direct flame impingement, airborne embers landing on roofs, and/or the effects of smoke, radiant heat (e.g., resulting in melted siding) or convective heat. It is not uncommon for a house fire in a newer community with dwellings close together to damage several nearby structures, even though flames were confined to the house of fire origin. When there is a delay in reporting a *structure* fire to the public safety answering point (PSAP), MCFRS units often arrive to find the fire in its advanced stages (in the absence of sprinklers), with little or no chance of saving the structure much less confining the fire to the room of origin.

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[38] Approximately 1000 fire-full assignment events occur annually in Montgomery County and about 10 percent (10%) are "working" structure fires typically requiring the dispatch of additional resources beyond the initial Effective Response Force dispatched on the initial assignment.

While automatic suppression systems present in some high-rise buildings, commercial structures, garden apartment buildings, townhouses, places of public assembly and institutional occupancies (per County Code) control or extinguish fires where systems are in place, many fires grow unimpeded due to the lack of automatic suppression systems as in nearly all single-family homes built before 2004 and in certain other structures. The percentage of homes having sprinklers will increase over time due to the County Fire Code requirement (effective January 1, 2004) that all new single-family homes be equipped with automatic sprinkler systems. Even with the benefit of this law, most single-family homes in the County were built pre-2004 and therefore lack sprinkler protection and remain a major fire risk.

With many structures lacking automatic suppression systems, the incidence of structure fires is a significant life safety and property damage issue in Montgomery County. The risk assessment section of the MCFRS Standards of Cover document includes a map for each fire station area indicating fire risk. Also shown are the locations of high-rise buildings which collectively pose a significant level of fire risk categorized by MCFRS as "special risk."

MCFRS responded to 1005 (2.8/day) fire full-assignment incidents during FY14 which is slightly above average compared with the previous five years. Of the 1005 incidents, 40 (4% of all fire full-assignment incidents) occurred in non-hydrated areas. Homes and other buildings in non-hydrated areas are categorized by MCFRS as "special risk" structures. Map 5 in Appendix D indicates the FY14 fire full assignment call volume density.

The risk assessment section of the MCFRS Standards of Cover document includes a map for each fire station area indicating fire risk. Also shown are the locations of high-rise and mid-rise buildings which collectively have a high incidence of fire events. From these maps, a predominant level of risk has been determined for each fire station first-due area as shown in Table 2 in Appendix C. Station areas that have been determined by MCFRS to present "special" fire risk include 3, 6, 8, 11, 12, 15, 18, 20, 23, 25, 26, 29, 31, 32, and 34. Station areas that have been determined to present "high" fire risk include 2, 5, 7, 17, 19, 21, 28, 30, 33 and 35.

While the approximately 1000 fire full-assignment incidents annually are distributed throughout much of Montgomery County, they are mostly concentrated in areas of metropolitan and urban population density. As population density decreases between urban and suburban areas and again between suburban and rural areas, the concentration of fire incidents decreases as well. The fire-related maps referenced above indicate that areas having the highest fire full assignment incident density include Silver Spring, Gaithersburg, and Bethesda. Areas having moderate-high density of fire incidents include Rockville, Germantown, Wheaton, Aspen Hill, Takoma Park, Hillandale, White Oak, and Burtonsville. While many areas of moderate-low fire density are found within suburban and rural areas of the County, these areas have nonetheless experienced major fire losses involving civilian casualties and substantial property damage.

The number of fire full-assignment incidents is expected to increase by approximately 2-4% over the five-year span of this Fire-Rescue Master Plan as the County's building stock and number of

households increases. Another factor in this increase will be older, non-sprinklered residences with aging /deteriorating electrical and heating systems that will cause a greater number of fires.

Additional fire suppression resources will be needed in specific stations to address the increased fire risk and associated call load. These additional resources will include apparatus (i.e., engines and aerial units) as well as the personnel required to fully implement four-person staffing of existing and new suppression apparatus. The majority of these new resources will be needed at Stations 2, 5, 10, 11, 20, 26, 32, and 40 plus the planned new stations to be located in the following areas: Shady Grove, Norbeck, East County, and Montgomery Village.

Greater detail regarding fire risk can be found in Section C (Community Risk Assessment and Risk Levels) of the *MCFRS Standards of Cover* document.

HAZARDOUS MATERIALS RISK

Hazardous materials ("hazmats") present a significant risk within Montgomery County on a daily basis. The U.S. Department of Transportation defines a hazardous material as "any substance or material in any form or quantity that poses an unreasonable risk to the safety, health, and property when transported in commerce." Hazmats pose serious risks to humans, animals, property and the natural environment. Hazmats are classified as flammable/combustible liquids, compressed gases, corrosives, poisons/toxic materials, oxidizers, flammable solids, etiologic agents, cryogenics and radioactive materials. Many hazmats pose multiple hazards such as flammable gases (e.g. acetylene), poisonous corrosives (e.g., drain cleaner), and cryogenic oxidizers (e.g., liquid oxygen stored and transported below its critical temperature of minus 182 degrees F).

Substantial quantities of hazardous materials are present in Montgomery County every day, whether in storage, in use, or transported within or through the County. Hazmats are stored and used in numerous businesses, offices, laboratories and other facilities throughout the County, and hazmats are transported through the County by means of vehicles, trains, and underground pipelines, and above the County by aircraft. No portion of the County is free of hazmat risk; although urbanized areas are considerably more at risk than other areas. While the hazmat risk is present on a daily basis, it is also important to note that hazmats are regularly transported, stored, and handled safely throughout the County without incident, as well.

Hazmats can be released from their containers into the surrounding environment in the form of leaks, spills, explosions, and/or fires. The release may occur all at once in a catastrophic container failure, or gradually through small breaches in containers. Upon release, hazmats can cause immediate harm to people, animals, property, and the natural environment. Spills will flow downhill and can harm anyone or anything in their path. Leaks produce vapors, sometimes large vapor clouds, which will be carried downwind impacting everything in their path. Under circumstances where hazmats have not been released from their containers following a collision,

fire or some other damaging event, the potential for a release often poses a substantial risk to nearby persons (including firefighters), animals, property, and the natural environment.

Hazmat risk is described below in terms of transportation, pipelines, and fixed facilities.

- TRANSPORT OF HAZMATS

Hazmats are transported daily across the County by a variety of highway vehicles and train cars. At the same time, aircraft are transporting hazmats above the County around the clock. In addition to any hazardous cargo, commercial aircraft carry thousands of gallons of fuel which presents a life safety and environmental risk in and of itself should the aircraft crash. Some hazmats are being delivered within the County for sale or for use while others are simply passing through en route to other destinations. Hazmats are transported through the County in several types of highway vehicles and train cars. Loads may range from a few pounds or gallons up to thousands of pounds or gallons. Commonly transported hazmats by highway in Montgomery County include gasoline, diesel fuel, heating oil, propane, hot tar, muriatic acid, pesticides, compressed gases (e.g., oxygen, acetylene), sodium hydroxide, potassium hydroxide and hydrogen peroxide.

Although hazmats are transported over nearly every roadway in the County, including residential streets (e.g., pest control vehicles, lawn care trucks, etc.), the greatest quantity of hazmats are transported along major road networks and rail lines. U.S. and State highways used frequently by vehicles transporting hazmats include Interstates 495, 270 and 370; U.S. Route 29, and Maryland Routes 200 (Inter-county Connector), 355-Rockville Pike, 97-Georgia Avenue, 650-New Hampshire Avenue, 193-University Boulevard,   185-Connecticut Avenue, 108-Olney-Sandy Spring Road, 28-Darnestown Road, 190-River Road, 410-East West Highway, 124-Woodfield Road, 27-Ridge Road, 119-Great Seneca Highway, 109-Beallsville Road, and 586-Veirs Mill Road. I-495 carries the highest number of hazmat vehicles in the County on a daily basis. County owned and maintained roadways with heavy hazmat traffic include Shady Grove Road, Montrose Road, Montrose Parkway, Randolph Road, and Bel Pre Road.

Large quantities of hazmats are also transported by rail along the CSX Railroad running between Silver Spring and Dickerson, through Kensington, Rockville, Gaithersburg, Germantown, Boyds and Barnesville. Freight trains transport a wide spectrum of hazmats in the form of liquids, solids, and compressed gases. Commonly transported hazmats by rail include: propane, liquid petroleum gas, chlorine, anhydrous ammonia, hydrochloric acid, sulfuric acid, caustic soda, nitric acid, phosphoric acid, acetic acid, acetone, alcohols, molten sulfur, acrylonitrile, ethylene oxide, and methyl mercaptan. Some products have multiple hazards, such as anhydrous ammonia which is corrosive, flammable, and a compressed gas. Locomotives carry about 3,000 gallons of diesel fuel in each fuel tank that can spill and ignite during derailments.

There have been hundreds of incidents in Montgomery County involving hazmats in transport, ranging from minor to major in scope and severity. The most notable incidents have involved tankers carrying flammable liquids that have caught fire, mostly having occurred on Interstate

495 and Interstate 270. One such tanker incident in 1992 at the I-495/I-270 Spur involved a multi-vehicle collision and fire that resulted in two fire fatalities and 3 injured. The most recent incident involving a burning tanker occurred in 2010 on Montrose Road above I-270 when a 8000-gallon gasoline tanker overturned and burned.

- HAZMAT PIPELINES

High pressure petroleum product pipelines that traverse the County present a major leak/fire risk. The Colonial Pipeline transports gasoline and diesel fuel, and the Columbia, Dominion and Williams (Transcontinental) pipelines transport natural gas. All four pipelines, shown in Map 6 in Appendix D) transport products at extremely high pressure, adding to the risk.

Several incidents have occurred within the County and the region involving these pipelines. In 1990, lightning struck an above ground portion of the Columbia pipeline north of Germantown igniting escaping natural gas. The fire was located immediately next to Interstate 270, so the busy north-south highway was closed for the night while the fire and leaking gas were controlled. Fortunately, the leak/fire occurred in an unpopulated area. In 1993, a natural gas leak occurred in Rockville involving the Colonial pipeline when a 36-inch main ruptured releasing gas at 800 psi. The leak occurred near the intersection of Darnestown Road and Research Boulevard, forcing the evacuation of the immediate area, including townhouses, a nursing home, and an office, and closing one of Rockville's busiest roadways to traffic.

- FIXED FACILITIES

Thousands of businesses, facilities, and other occupancies in Montgomery County store, use or process hazardous materials. Types and quantities of hazmats vary considerably from location to location, posing varying degrees of risk. Figure 4.3 lists the types of occupancies that store, use or process hazmats on the premises; although the list is not all-inclusive.

The County's Office of Emergency Management/Homeland Security manages a program whereby, under federal and local laws, permits are issued to businesses, organizations, and individuals who store specific quantities and types of hazardous materials. The category of permit that is required for each facility depends upon the type and quantity of material(s) stored.

"SARA-Use" permits are issued to facilities storing 10,000 pounds or greater of any hazardous substance, or the "threshold planning quantity" or greater of an "extremely hazardous substance" (EHS) listed as such in federal publications relating to SARA, Title III[39]. Facilities requiring a SARA-Use permit pose the greatest risk to the public and emergency services personnel. "High-Use" permits are issued to facilities storing greater than or equal to 2000 pounds of a single hazardous substance or aggregate weight of multiple hazardous substances (but less than 10,000 pounds), or greater than or equal to 10 pounds of an EHS. Facilities requiring a High-Use permit

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[39] "Superfund Amendments and Reauthorization Act of 1986," Title III addressing the rights of communities to be made aware of the threats posed by facilities in the community storing hazmats.

Figure 4.3 - HAZMAT FIXED FACILITIES

Occupancies/Locations	Commonly Stored Hazmats
Laboratories	Multiple/all categories of hazmats
Research & development firms	Multiple/all categories of hazmats
Bio-technology firms	Multiple/all categories of hazmats
Manufacturers	Multiple categories of hazmats
Hospitals	Comp. gases, cryogenics, etiologic agents
Garden centers	Pesticides, fertilizers
Nurseries	Pesticides, fertilizers, flammable fuels
Lawn care storage facilities	Pesticides, fertilizers
Farms	Pesticides, fertilizers, flammable fuels
Golf courses	Pesticides, fertilizers, flammable fuels
Pest control businesses	Poisons
Chemical suppliers	Multiple categories of hazmats
Vehicle repair and painting shops	Flammables, corrosives, compressed gases
Automobile dealerships	Flammables, corrosives, compressed gases
Auto parts stores	Flammables, corrosives, compressed gases
Gasoline/service stations	Flammables, corrosives, compressed gases
Propane storage/filling facilities	Flammable liquids, compressed gases
Compressed gas storage/filling facilities	Compressed gases–flammable and non-flam.
Refinishing shops	Flammables, corrosives, compressed gases
Home improvement centers	Multiple categories of hazmats
Hardware stores	Multiple categories of hazmats
Grocery stores	Multiple categories of hazmats
Pharmacies	Multiple categories of hazmats
Sporting goods stores	Flammables, compressed gases
Camping goods stores	Flammables, compressed gases
Paint stores	Flammables, comp gases, poisons, corrosive
Department stores	Multiple categories of hazmats
Warehouses	Multiple categories of hazmats
Quarries and construction sites	Explosives, flammable fuels
Water filtration plants	Chlorine, other hazmats for water treatment
Power plant	Flammables, compressed gases
Natural gas pressure reduction facilities	Flammable compressed gas
Cell/microwave towers	Corrosives (batteries)
Schools/colleges (chemistry labs)	Multiple categories of hazmats
Pools	Chlorine, corrosive acids

NOTE: List is not all-inclusive

generally pose the next greatest hazmat risk to the public and emergency services personnel after SARA facilities.

The risk assessment section of the MCFRS Standards of Cover document includes a map for each fire station area indicating the location of businesses, facilities and organizations holding SARA-Use permits as well as the level of hazmat risk present in each box area. These maps indicate the central portion of the County encompassing Rockville, Gaithersburg, and Germantown clearly have the greatest number of facilities holding SARA-Use hazmat permits. A large percentage of the County's light-industrial facilities and bio-technology labs are located within this area. The southern and eastern areas of the County have the next highest number of facilities holding SARA-Use permits, encompassing Bethesda, Silver Spring, Takoma Park, Wheaton and Hillandale-White Oak. While these areas are not in grave danger of a catastrophic hazmat incident, the risk associated with fixed hazmat facilities is higher in these particular areas than elsewhere in the County.

From these maps, a predominant level of hazmat risk has been determined for each fire station first-due area as shown in Table 2 in Appendix C. Station areas that have been determined by MCFRS to present "special" hazmat risk include 3, 8 and 11. Station areas that have been determined to present "high" hazmat risk include 1, 2, 5, 6, 10, 12, 14-16, 18-20, 23, 25-29, 31, 32, 34, 35 and 40.

MCFRS responded to 171 hazmat incidents during FY14. Map 7 in Appendix D indicates the density of FY14 hazmat incidents in the County. The map shows the greatest concentration of incidents in Silver Spring (particularly Station 1's first-due area), Hillandale-White Oak, Wheaton, Aspen Hill, Bethesda, Rockville and Gaithersburg. These areas have the vast majority of fixed facilities/businesses having hazmat permits The map also reveals considerable hazmat incident activity along I-495 between Hillandale and Bethesda as well as the Gaithersburg section of I-270. FY14 hazmat incident density is consistent with that of past years dating at least back to the mid-2000s.

MCFRS hazmat response resources are distributed strategically to address the County's hazmat risk. These include fully equipped, Type I hazmat units at Stations 7 and 28, hazmat support apparatus at Stations 7, 20 and 28, plus special operations capabilities at Stations 25.

Greater detail regarding hazmat risk can be found in Section C (Community Risk Assessment and Risk Levels) of the *MCFRS Standards of Cover* document.

EXPLOSIVE/DESTRUCTIVE DEVICE (BOMB) RISK

Explosives are defined as any substance designed to produce an explosion, or capable of producing an explosion by reacting with itself. Explosives present in Montgomery County include military ordnance that have surfaced outside military installations, explosives used by quarries and construction/demolition companies, and devices that have been assembled and strategically placed by persons having malicious intent. The latter category of explosives is

found infrequently within the County and usually consists of pipe bombs or improvised explosive devices. Four Whitman High School students and graduates were killed while assembling a pipe bomb in the garage of a home in Bethesda in 1988.

Military ordnance surfaces occasionally in Montgomery County, usually found on a property by someone not having prior knowledge of its whereabouts. An example is someone who discovers a wartime souvenir (e.g., hand grenade in the basement or attic) left behind by a previous owner who had served in the military. A property owner might find while excavating or landscaping some type of ordnance buried on the property from a former military ordnance burial site or from the Civil War.

A "destructive device" is an explosive, incendiary, or toxic material that has been combined with a delivery or detonating apparatus, rendering the device capable of inflicting life-threatening injury to people and damage to property; or deliberately modified, containerized, or otherwise equipped with a special delivery, activation, or detonation component that gives the material destructive characteristics of a military ordnance. While many devices involve explosives or flammable materials, some contain chemicals or other toxic/hazardous substances that lack the explosive power or heat release of other devices, but still have the potential of inflicting injury and damage when the material is released. "Suspicious packages" are also included under this definition as are "powder incidents" (see below).

A suspicious package is one that may not actually be destructive in nature but may be perceived as posing a threat to the public due its appearance, location, and/or other unusual circumstances. The package could be a brief case, box, luggage, duffle bag, or any other type of parcel. Suspicious packages comprise a high percentage of the MCFRS Bomb Squad's responses, and these incidents are treated as potential destructive devices until the Bomb Squad determines otherwise. Generally, suspicious packages turn out to contain ordinary items inadvertently left behind by their owners. About 3-5% of suspicious package incidents involve actual destructive devices or confirmed hoaxes. With the awareness and risk of terrorism on the rise, the incidence of suspicious package incidents will likely increase over the next five years and beyond.

A "powder incident" involves someone discovering an unidentifiable powdery substance under suspicious or threatening circumstances. Powders may show up unexpectedly in letters, parcels, or other mail or in boxes, plastic containers, or any other item. Terrorists and hoaxers have been sending powders inside letters and packages for decades with the intent of having the recipient believe it is Anthrax or some other hazardous substance. MCFRS handles powder incidents as modified hazmat incidents, with focus on threat assessment and any required emergency action.

The MCFRS, along with the MCP, respond to all reports of explosive/destructive devices, although the MCFRS has the lead responsibility for identifying the device and mitigating the emergency. Other MCFRS, MCP, and State and federal agency resources (e.g., FBI, State Fire Marshal, BATF) are requested to assist, as needed.   Bomb threats are the responsibility of MCP with support from the MCFRS Bomb Squad as requested, usually involving consultation by phone or radio by the Bomb Squad leader with on-scene MCP personnel.

MCFRS responded to 494 explosive/destructive device incidents (a.k.a., "bomb" incidents) during FY14 many of which were suspicious packages. Map 8 in Appendix D indicates the density of FY14 bomb/explosive incidents in the County. The highest incident density is found in Silver Spring, Bethesda and Rockville. Based upon this map, a predominant level of bomb/explosives risk has been determined by MCFRS for each fire station first-due area as shown in Table 2 in Appendix C. Silver Spring Station 1's area is the lone station area presenting "special risk" for bomb/explosive incidents. Moderate-high density is found in Wheaton, Gaithersburg and Germantown. Historically, similar incident density has occurred in the same areas. The common thread concerning the location of most bomb incidents is the Metro Red Line where suspicious packages are frequently found.

Greater detail regarding bomb/destructive device risk can be found in Section C (Community Risk Assessment and Risk Levels) of the "MCFRS Standards of Cover" document.

WATER/ICE RISK

The many rivers, streams, lakes, ponds, reservoirs and other bodies of water present in Montgomery County create a combined risk to citizens who use them for recreational purposes, as well as those who venture too close while in vehicles or on foot. Even at low water levels, many of these bodies of water present significant drowning potential. High water conditions greatly increase these risks. Iced-over bodies of water create yet another hazard during winter.

The primary water-related risk in the County is the Potomac River, which features Great Falls and many stretches of whitewater rapids, in addition to numerous calm stretches of flowing water. Even at low water levels, the Potomac poses great risk to those who do not respect its power and unpredictable currents. Many drownings have occurred in seemingly calm portions of the river when the foolhardy[40] attempt to swim across, only to discover that the unseen current below the surface overcomes their swimming abilities. A second major cause of drowning on the Potomac occurs when fishermen and hikers, many of whom cannot swim, fall in. Although a kayaker drowned while running Great Falls in 2013, experienced kayakers and canoeists have the lowest incidence of drowning on the Potomac because they wear personal floatation devices, have the ability to swim, the ability to "roll" their closed-deck boats upright after capsizing, and have knowledge of the river's hazards. Novice boaters who enter the river without exercising these safeguards often find themselves in trouble and require rescue by MCFRS with assistance from the U.S. Park Police and/or fire-rescue departments of adjacent counties. MCFRS has water/ice rescue resources to help address the risk brought about by the County's many water-related hazards.

Despite public outreach efforts by the MCFRS, fire-rescue departments of bordering counties, U.S. Park Service and the media, the Potomac claims an average of 3-4 drowning victims

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[40] Many of these victims are intoxicated, as reported by witnesses and in police reports

annually between Whites Ferry and the Brookmont Dam, most occurring downstream of Great Falls. Educational efforts have helped, however, to reduce the annual drowning rate by about half, compared to the rates experienced in the 1970s -1980s.

Other bodies of water that pose lesser risk than does the Potomac River include the C&O Canal (running parallel to the Potomac River), Little Seneca Lake at Black Hills Regional Park, Lake Needwood, Lake Whetstone, Clopper Lake, Triadelphia Reservoir, Patuxent River, and Seneca Creek. During high water levels following heavy rains or melting snow, normally shallow streams become dangerous to motorists crossing flooded bridges and people venturing too close.

MCFRS responded to 102 water/ice incidents during FY14. Map 9 in Appendix D indicates the density of FY14 water/ice incidents in the County. Unsurprisingly, the area of greatest density is in Station 30's area along the section of the Potomac River from Great falls downstream to Carderock. Incidents occur both upstream and downstream of the rescue boat ramp at Angler's Inn. A second area of density (moderate density) is the section of the Potomac River located in Station 11's area in the vicinity of the Brookmont Dam. From this map, a predominant level of water-ice risk has been determined for each fire station first-due area as shown in Table 2 in Appendix C. Station areas that have been determined by MCFRS to present "special" water-ice risk include 10, 11, 14, 30 and 31 – all bordering the Potomac River and C&O Canal. Station 40's area has been determined to present "high" water-ice risk due to several streams that have repeatedly caused flash flooding of low-lying roadways.

Ice presents another serious hazard. Most winters, some County residents – typically children - venture onto the ice which is often of insufficient thickness to support their weight. When they fall through the ice, their chances for survival are slim particularly when alone. In January 2014, three boys aged 10-12 years fell through thin ice on a storm water retention pond near their homes. One boy drowned and the others were rescued by MCFRS personnel. Other drownings or near-drownings have occurred in past years involving falls through ice. Ice-related incidents are an example of low-probability, high-consequence events (i.e., "special risk").

Greater detail regarding water-ice risk can be found in Section C (Community Risk Assessment and Risk Levels) of the *MCFRS Standards of Cover* document.

TECHNICAL RESCUE-RELATED RISK

While Montgomery County does not typically experience a high volume of incidents involving building collapse, trench collapse, confined space rescue and high-angle rescue, the risk of such events is ever present. Examples of major incidents that have occurred involving civilian casualties include the collapse of a parking garage under construction on Fishers Lane in Rockville in the mid-2000s with two fatalities, collapse of a parking garage at NIH in Bethesda with one fatality in the late-2000s, and the partial collapse of a garage under renovation at Montgomery Mall in Bethesda in 2013 with one fatality and one seriously injured construction worker rescued.

When technical rescue incidents occur, they pose a unique challenge to MCFRS personnel that require special skills and equipment and a very labor-intensive tactical operation. For these reasons, the MCFRS has a Type III - Technical Rescue Team (TRT) that is dispatched along with other MCFRS resources to incidents involving building collapse, trench collapse, confined space rescue, and high-angle rescue. The team has responded to incidents elsewhere in the State such as the train-into-a-house incident in Cumberland in 2000 and a tornado in La Plata in 2002. MCFRS also has one of 28 Type I - Urban Search and Rescue teams comprising FEMA's National Urban Search and Rescue Response System. The MCFRS team, Maryland Task Force 1 (MD-TF1), has been activated several times since the mid-1990's for national events such as the partial collapse of the Pentagon on September 11, 2001; Murrah Federal Building explosion in 1995; several hurricanes (including Katrina in 2005 and Sandy in 2012); and the Summer Olympics in Atlanta in 1996. Approximately 12-15 rescue technicians from MD-TF1 assisted the MCFRS TRT at the partial garage collapse incident at Montgomery Mall in 2013.

Incidents involving building collapse, trench collapse, confined space rescue and high-angle rescue are low-frequency, high-consequence events; therefore categorized by MCFRS as "special risk." MCFRS responded to six technical rescue incidents during FY14, none involving fatalities. A predominant level of technical rescue-related risk has been determined by MCFRS for each fire station first-due area as shown in Table 2 in Appendix C. Station areas 1, 6 and 23 have been determined to present a "special" level of technical rescue risk. Station areas that have been determined to present "high" technical rescue risk include 3, 8, 12, 18, 20 and 21.

Greater detail regarding technical rescue-related risk can be found in Section C (Community Risk Assessment and Risk Levels) of the *MCFRS Standards of Cover* document.

AVIATION RISK

Risk involving aircraft traveling above Montgomery County and making landings and take-offs is ever present. The risk is greatest at and near the two airports located in the County but also present at private airstrips and heliports located throughout the County. The two airports include Montgomery County Airport in Gaithersburg and Davis Airport in Laytonsville. Montgomery County Airport is a regional airport handling approximately 51,000 flights annually of single-engine planes, twin-engine planes and jets, and helicopters but not commercial airliners. The Davis Airport is a small, local facility handling a small volume of single-engine planes. There are three private airstrips located on large-acreage, rural properties located in Comus, Boyds and Brookeville. Heliports are located at hospitals, corporate properties and on private properties. There is also a State Police heliport near Sandy Spring and a heliport at a federal facility located near Laytonsville.

Portions of Montgomery County are located in the flight paths of large commercial airliners departing and arriving at Reagan National Airport, Dulles International Airport and Baltimore-Washington International Airport, plus military aircraft departing and arriving at Andrews Air Force Base. These airliners often carry over 100 passengers and/or thousands of pounds of cargo

plus thousands of gallons of fuel, creating the potential for a catastrophic incident if one of these aircraft were to crash.

Historically, aviation-related incidents in Montgomery County have typically occurred at or in close vicinity of Montgomery County Airpark and far less frequently at/near Davis Airport. MCFRS responded to one aviation incident (at the Montgomery Airpark) during FY14, and the department responds to approximately two aviation incidents annually, on average. While most aviation incidents involve aircraft running off runways without significant injuries and damage, there have been several major incidents involving crashes and casualties. The most recent and historically tragic incident occurred on December 8, 2014 about one mile north of Montgomery County Airpark where a twin-engine, 12-passenger corporate jet crashed into a residential area upon approach to the runway, setting two houses on fire and damaging others upon impact. All three persons aboard the jet plus three residents were killed. In 2012, a single-engine plane crashed shortly after takeoff at the Davis Airport killing one passenger. Other aviation incidents involving casualties and property damage have occurred at or in the vicinity of the Montgomery County Airpark and Davis Airport as well. These incidents illustrate that low-probability, high-consequence (i.e., special risk) aviation incidents have occurred in the County and similar incidents involving casualties and property damage can be anticipated in the future.

Station 17's and Station 28's first-due areas have been determined to present "special" aviation risk due to the presence of the Davis Airport and the Montgomery County Airport, respectively. No station areas have been designated by MCFRS as having "high" aviation risk. Station areas wherein heliports are located have been assigned "moderate" aviation risk by MCFRS, including station areas 2, 3, 4, 20, 29 and 32, plus federal station areas 50 and 54.

Greater detail regarding aviation-related risk can be found in Section C (Community Risk Assessment and Risk Levels) of the *MCFRS Standards of Cover* document.

TERRORISM RISK

Terrorism is a significant threat facing Montgomery County, as well as the State and nation. Terrorism is defined by the Federal Bureau of Investigation as "the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." Acts of terrorism can involve the use of conventional firearms, other conventional weapons, or weapons of mass destruction (WMD) - biological agents, war chemicals, radioactive materials, high-yield explosives, and nuclear weapons.

The risk of terrorism is posed by domestic terrorists as well as international terrorists. The incidence of terrorism is increasing steadily throughout the world. The scope of terrorism in the United States has ranged from bombings that have injured one person and/or caused extensive property damage (e.g., abortion clinic bombings), to shootings at Fort Hood, to the bombing of the Murrah Federal Building, to the September 11, 2001 terrorist attacks by the al-Qaeda terrorist

network involving the use of commercial aircraft as missiles to topple prominent national landmarks (i.e., Pentagon, World Trade Towers) and kill thousands of people in the process.

While no major act of terrorism has occurred in Montgomery County (through 2014), there is a moderate-high risk of a terrorist incident occurring here between the time frame of this master plan (2016-2020) and beyond considering the County's proximity to the Nation's Capital and the presence of federal facilities, foreign embassies, and ambassadors' residences in Montgomery County. The County has numerous other potential terrorist targets, as well. For security reasons, specific "targets" (i.e., buildings and locations) will not be identified in this plan. The risk of a terrorist attack in the County on a daily basis is very low, however, that risk increases considerably when applied over a 5-year period. The daily risk of terrorism within the County also increases during periods of increased national risk, as determined by the Department of Homeland Security based on their on-going national threat assessment.

The likelihood of a terrorist attack in Montgomery County, elsewhere in State, or elsewhere in the nation involving firearms, other conventional weapons, incendiary devices, commonly found chemicals, and/or non-military explosives is much higher than an attack using military ordnance, biological agents, war chemicals, or radiological materials, due to the relative ease with which the former group of devices can be obtained by terrorists. WMD can cause mass hysteria, heavy casualties, catastrophic property damage, and environmental contamination. Mass hysteria and fear may have greater and longer lasting impact on the citizenry than would the number of casualties and extent of property and environmental damage.

Despite the concerted effort by MCFRS and its partner agencies to plan and prepare for acts of terrorism and to employ countermeasures to minimize the impact of terrorist attacks in Montgomery County, a formidable risk remains. The County has a "Terrorism Annex" to the *Emergency Operations Plan* that outlines each County agency's responsibilities in mitigating, preparing for, responding to, and recovering from acts of terrorism. In terms of preparedness, the MCFRS has an experienced and well-equipped hazmat team that is continuously building its inventory of protective gear, detection and monitoring equipment, containment/clean up equipment, antidote kits, and decontamination equipment in preparation for an attack involving WMD. In addition, the MCFRS Bomb Squad has a comprehensive inventory of protective gear and equipment for handling incidents involving destructive devices, and the Bomb Squad is also continuously working to expand its inventory in preparation for acts of terrorism. While Montgomery County may be better prepared for terrorism than most municipalities across the nation, much work remains. Complete preparation for a terrorism incident, however, is not possible due to the innovativeness of the terrorists' plans, complexity of the attack, and lack of moneys to fund the vast number of resources that would need to be in place continuously.

Federal grant moneys have been available to Montgomery County and other counties and municipalities across the U.S. to address needs for equipment, protective gear, training, exercises and planning as they relate to terrorism preparedness and response. Montgomery County is one of several Washington D.C. Metropolitan Area counties that comprise the National Capital Region – a region designated by the U.S. Department of Homeland Security (DHS) to receive

federal grants for terrorism preparedness. Grant moneys have been distributed according to each County's needs. MCFRS must aggressively pursue any additional federal and State grant opportunities for terrorism mitigation, preparedness and response.

NATURAL HAZARDS RISK

Natural hazards are those hazards related to acts of nature. Natural hazards that present risks to Montgomery County include severe thunderstorms, tornados, tropical storms/hurricanes, winter storms, floods, extreme heat, extreme cold, drought, earthquake, and sink holes. These hazards range from frequently occurring thunderstorms to infrequently occurring earthquakes.

While MCFRS does not have incident types directly matching natural hazards (e.g., there is no "tornado" incident type), MCFRS responds to incidents directly or indirectly related to these events of nature. Major thunderstorms, for example, might produce dozens of incidences of downed power lines, fallen trees on buildings and vehicles, trapped motorists in high water, etc. These events can place a large demand on MCFRS resources. For example, a heavy snowstorm might require a plow-equipped vehicle to accompany an ambulance to a medical emergency to ensure both a timely response and that the ambulance does not get stuck in the snow. Certain acts of nature require relatively few calls for service. The most likely demand for service relating directly to a drought, for example, might be fires involving brush, croplands, and woods. Droughts are often accompanied by extreme heat, another natural hazard, which produces a higher than normal frequency of heat exhaustion and heat stroke incidents, as well as respiratory distress and cardiac incidents. High heat also poses an added risk to firefighters during long-duration fire-rescue operations.

TECHNOLOGICAL HAZARDS RISK

Technological hazards are those created by or related to infrastructure, business/manufacturing processes, transportation, utilities, etc. Technological hazards include: utility disruptions (power, water, natural gas, and communication systems), dam failures, and pollution emergencies. Widespread utility disruptions, for example, can impact many residents and businesses and are typically associated with winter storms and thunderstorms. Damaged power lines pose serious risks to people and property due to the danger of fire and electrocution. Widespread water disruptions, although infrequent, can occur for several reasons and typically have a serious impact on sanitation, health care, commerce, and travel (e.g., burst water pipe flooding a roadway such as that involving the swift water rescue incident on River Road near Station 10 in 2008). For MCFRS, water disruptions can result in low water pressure for firefighting, resulting in the need for water tankers and additional engines to be dispatched on structure fires in urban and suburban areas.

SOCIETAL HAZARDS RISK

Societal hazards are those hazards related to the close interaction of people in daily activities and adverse occurrences that arise due to various political, physiological and psychological factors, influences and events. Societal hazards include public health/disease epidemics, civil disorder, commodity shortages, and war. All of these hazards have a low likelihood of occurring in Montgomery County but could have very serious and widespread consequences if they were to occur.

Epidemics, commodity shortages, and war do not typically occur suddenly and without warning signs. Most develop gradually[41]; thus providing lead time for mitigation and preparedness actions on the part of the government and the public. With epidemics, the degree to which the population is affected can be positively impacted by surveillance and mitigation measures, including immunization, exercising due caution in daily activities, change in daily routines, sheltering in place, and others.

Civil disorder is usually preceded by mounting tensions by some segment of the population, although events can escalate quickly such as that which occurred in Baltimore in April 2015. Civil disorder is primarily a law enforcement responsibility to address; however, MCFRS would be involved in the response to incidences of fire, medical emergencies, and any other hazardous conditions related to the unrest. A large-scale riot in any jurisdiction within the Metro Washington Area would be a regional issue and involve a regional response to bring it under control, including fire-rescue resources for any related EMS and fire events. MCFRS may well be called upon to provide tactical and/or logistical support to another jurisdiction. For example, fire suppression support was provided to the District of Columbia during the April 1968 riot, and logistical support (i.e., portable radio cache and two personnel to program radios) was provided to the Baltimore Police and Fire Departments during the April 2015 riot.

Shortages involving key commodities such as fuel, electricity, natural gas, water, food, and medications may occur within the County, State, and nation and have the potential of significantly impacting the population at large. The consequences, however, would not be expected to have a major impact on fire-rescue call volume, but could lead to new policies addressing how the MCFRS handles the direct impact of a reduction in commodities that it relies upon to deliver services to the County's population.

IMPACT OF CHANGE ON RISK & SERVICE DEMAND

Anticipated changes in Montgomery County's landscape will have a significant impact on risk and associated service demand. Changing demographics, increased development, and expansion

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[41] One notable exception would be an outbreak of certain diseases such as smallpox that can occur suddenly and represent a worldwide health emergency.

of transportation networks will lead to an increased level of countywide risk and cause fire, rescue and EMS service demand to rise as well. The impact of a changing County on risk and service demand is addressed in detail below.

IMPACT OF DEMOGRAPHICS ON RISK AND SERVICE DEMAND

Population

With a January 1, 2015 population of just over 1,020,000 residents, Montgomery County is the second most populous jurisdiction in the Washington D.C. Metropolitan Area, ranking only behind Fairfax County, Virginia. Since 2010, the County's population has grown by nearly 44,000 or 4.3%. By 2020, the projected population in Montgomery County will reach nearly 1,072,000 – a 5.1% increase over the 2015 population[42].

Map 10 in Appendix E shows the projected 2020 population density (persons per square mile). Urban/metropolitan areas having over 2,000 residents per square mile include Silver Spring, Takoma Park, Bethesda, Friendship Heights, Glen Echo, Chevy Chase, North Bethesda, Rockville, Derwood, Gaithersburg, Montgomery Village, Germantown, Clarksburg, Olney, Wheaton, Aspen Hill, Kensington, White Oak, Hillandale and Burtonsville. These southern, eastern, central and north-central areas of the County are where the majority of our residents live. In stark contrast are rural areas of the County located predominantly to the west, north and northeast in the 90,000-acre Agriculture Reserve where population density is ≤1,000/sq. mi (<100/sq. mile in some locations). These areas include Darnestown, Travilah, Beallsville, Barnesville, Boyds, Comus, Hyattstown, Laytonsville, Etchison, Sunshine, Brookeville, Sandy Spring, and Ashton as well as portions of Potomac, Poolesville, Clarksburg, and Damascus. The remainder of the County has a suburban density of between 1000 and 2000 residents/sq. mile, including Cabin John, Redland, Washington Grove, Norbeck, and Spencerville, as well as portions of Potomac, Poolesville, Damascus, Clarksburg, Olney, Hillandale, and Burtonsville.

The impact of a growing County population on fire-rescue related risk and service needs is an increasing number of fire-rescue incidents to which MCFRS must respond. There is a direct correlation between population and number of incidents. This holds particularly true for EMS incidents. Based on the 2012-2014 data, the average number of incidents per capita is about 0.11 countywide. This figure is up 0.01 from what it had been ten years earlier. Incidents per capita vary from station area to station area, with some areas less than 0.11 and others above.

Race/Ethnicity

Montgomery County's population is very diverse and is becoming more so. Based on the 2010 U.S. Census, Montgomery County has become a "minority-majority" County where minorities comprise 50.7% of the overall population. The "Hispanic or Latino" population, which may be of any race,

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[42] Source: Round 8.3 Cooperative Forecast, Montgomery County Planning Department

became the largest minority group in the County with 165,398 residents (17.0% of the total population). The 2010 Census also revealed that 161,689 County residents (16.6% of total) claimed "Black or African American alone" and 135,104 residents (13.9%) claimed "Asian alone" or "Native Hawaiian and Other Pacific Islander alone." County residents claiming "some other race alone" numbered 30,821 (3.2% of the total).   Residents claiming "White alone" on their 2010 Census forms numbered 478,765, comprising 49.3% of the total population.

The White, non-Hispanic population was the only racial group in Montgomery County to decline between the 2000 and 2010 Censuses, decreasing from 519,318 to 478,765 - a decrease of 40,553 residents or a 7.8% decrease. During that 10-year period, the Hispanic/Latino population increased by nearly two-thirds (64.4%), from 100,604 to 165,398 residents. The County's Asian/Pacific Islander population increased by 37.0%, from 98,632 to 135,104 residents, and the Black/African American population increased by 25.0%, from 129,371 to 161,689 residents. "Other race" population increased by 21.3%; however, that represented a change of only 5405 people (25,416 in 2000 to 30,821 in 2010). The trend for increased numbers and percentages of minorities and decreasing percentages (and possibly numbers) of White, non-Hispanic residents is expected to continue in the County for the foreseeable future.

The impact of the County's racial composition on fire-rescue related risk and service needs is unknown due to lack of complete and accurate data focusing on this particular demographic. Concerning EMS incidents, MCFRS will need to establish a process for extracting demographic-data, including patient's race, from the Electronic Patient Care Reporting system and then analyzing it.[43] Income level and spoken language are race/ethnicity-related demographics that might have a correlation with incident type and frequency and/or have a direct bearing on effective communications between MCFRS personnel and customers. These two demographics are addressed below under the headings "Income and Jobs" and "Households and Language Spoken." Regarding fire incidents, the property owner's race is rarely captured on incident reports, but this information would be beneficial to regularly record to enable analysis of a potential correlation between race and incidence of structure fire and related casualties.

Age and Gender

Montgomery County has an aging population. Between the 2000 Census and 2010 Census, the median age of County residents increased from 36.8 to 38.5, or almost two years. The number of residents age 65 and above (i.e., "seniors") was 119,769 in 2010 representing 12.3% of the total County population. By 2015, this number had grown to 142,520 or 14.0% of the total County population. The projection for 2020 is 167,640 residents age 65 and above representing 15.7% of the total population, or nearly one out of six County residents. This trend is expected to continue for the foreseeable future as many long-time residents remain in-County rather than relocating elsewhere upon retirement. The other age group for which a significant increase is projected between 2015 and 2020 is the 20-44 age group.   The number of residents in this group

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[43] The process must address HIPAA concerns so that data is captured collectively (not on individual patients) and without identifying names and addresses of patients.

is projected to increase by 18,160, from 336,540 to 354,700 – a 5.4% increase. The projected increase for the 0-4 and 5-19 age groups combined (i.e., 0-19) will be less significant. The number of residents in the 0-19 age group is projected to increase by 6630, from 256,890 to 263,520 – a 2.6% increase.

Map 11 in Appendix E shows the percentage of County residents over 65 years of age (i.e., seniors). The highest concentrations of seniors are found in large retirement communities or high-rises located in Norbeck ("Leisure World"), Gaithersburg ("Asbury Village"), Fairland-Calverton ("Riderwood Village"), Rockville ("The Village at Rockville," formerly "National Lutheran Home," and "Ingleside at King Farm"), Bethesda ("Fox Hills"), and Chevy Chase ("Classic Residence" and "Connecticut Avenue Condos;" 8100 and 8101 Connecticut Ave., respectively). Areas having one or more large health care facilities also have high concentrations of seniors. These facilities are located predominantly in Bethesda, Rockville, Silver Spring, Kensington, Hillandale, White Oak, and Burtonsville as well as in the retirement communities and condos identified above.

In 2015, female residents (530,600 or 52% of total population) in Montgomery County outnumbered male residents (489,400 or 48% of total population) by 41,200. By 2020, the projection is for a female population of 555,360 (52% of total population) and a male population of 511,640 (48%); thus while females would outnumber males by 43,720, the percentages will remain as they were in 2015.[44]

The impact of residents' age on fire-rescue related risk and service needs is frequency and type of fire-rescue incidents to which MCFRS must respond. The demand for EMS services by seniors (i.e., age 65 and above) is disproportionately high when compared to the remainder of the population. While seniors comprised 14.0% of the total County population in 2015, they were involved in 40% of EMS incidents that year. This percentage is consistent with the previous three years.[45] Seniors also require ALS services more frequently than do younger residents. It is well known locally as well as nationally that seniors require EMS services at a higher rate than the remainder of the population due to greater incidence of illness, disease, and injuries. In particular, seniors experience a high incidence of cardiac events, respiratory difficulties, and falls.

Regarding fire incidents, the property owner's age is rarely captured on incident reports, but this information would be beneficial to regularly record to enable analysis of a potential correlation between age and incidence of structure fire and related casualties. In cases where fire-related injuries or fatalities had occurred, the age(s) of the injured or deceased person(s) is/are recorded by fire investigators. There is a well known correlation that seniors (age 65 and above) residing in Montgomery County are involved disproportionately in fatal fires when compared to the remainder of the population. An analysis performed by the Montgomery County CountyStat

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[44] Source: Maryland Department of Planning, January 2014

[45] Source: Age-related EMS incident figures provided by MCFRS EMS Section based upon EPCR reports

Office of FY13-14 fire injuries revealed that residents in the 40-59 age group were slightly overrepresented in the number of fire injuries compared with the overall population.

The impact of County residents' gender on fire-rescue related risk and service needs is not entirely known due to lack of complete and accurate data focusing on this particular demographic. Concerning EMS incidents, MCFRS will need to establish a process for extracting demographic data, including patient gender, from the Electronic Patient Care Reporting system and then analyzing the data. Gender might have a correlation with EMS incident type and frequency that will need to be determined. Regarding fire incidents, the property owner's gender is rarely captured on incident reports, but this information would be beneficial to regularly record to enable analysis of a potential correlation between age and incidence of structure fire and related casualties. In cases where fire-related injuries or fatalities had occurred, the gender of the injured or deceased person is recorded by fire investigators. An analysis performed by the Montgomery County CountyStat Office of FY13-14 fire injuries revealed that male residents were slightly overrepresented in the number of fire injuries compared to females.

Income and Jobs

In 2012, estimated median household income in Montgomery County was $94,965 (2012 inflation adjusted dollars).[46] Actual median household income was $89,155 (in 2010 dollars) in 2010 which was ninth highest in the nation and sixth highest in the Washington Metropolitan Area after Loudoun, Fairfax, Arlington and Prince William Counties in Virginia and Howard County in Maryland. Montgomery County's 2010 median household income was much higher than that of the State ($68,854) and the nation ($50,046). An estimated 7.7 percent of Montgomery County residents (approximately 75,000 people) lived in poverty in 2010. Poverty levels are most acute among families headed by single females which increased to 19% of families in 2010. The 2010 median household income for White non-Hispanic households was $109,694; $98,325 for Asian households; $65,314 for Hispanic/Latino households; and $60,063 for Black/African American households.[47]

Map 12 in Appendix E shows median household income in Montgomery County. Areas having median income ≤$100,000 include Silver Spring, Takoma Park, Hillandale, White Oak, Burtonsville, Wheaton, Aspen Hill, Norbeck, Rockville, Derwood, Gaithersburg, Montgomery Village, Germantown and Damascus. Areas having median income ≥$150,000 include Potomac, Cabin John, Glen Echo, Chevy Chase, Bethesda, North Bethesda, Travilah, North Potomac, Darnestown, Laytonsville, Sunshine and Brookeville.

In 2015, there were approximately 542,000 jobs located within the County, including approximately 272,600 office jobs, 94,300 retail jobs, 49,000 industrial jobs, and 126,000

[46] Source: 2012 American Community Survey

[47] Source: "Trendsheet," September 2011, Montgomery County Planning Department, based partially on 2010 American Community Survey

"other" jobs. This number of total jobs ranked third highest in the Washington Metropolitan Area after Washington, D.C. and Fairfax County, Virginia. By 2020, the projected number of in-County jobs will increase by about 43,000 to almost 585,400 jobs. The projected 2020 breakdown will be approximately 299,800 office jobs, 98,500 retail jobs, 51,500 industrial jobs, and 135,500 "other" jobs.[48] The table in Figure 4.4 below indicates the largest employers located in Montgomery County.

The impact of County residents' income on fire-rescue related risk and service needs is related to the type and frequency of incidents that service delivery, code compliance and community outreach must address. Residents' income level and education level are known to have a direct

Figure 4.4

LARGEST EMPLOYERS IN MONTGOMERY COUNTY

10 Largest Public Sector Employers	10 Largest Private Sector Employers
National Institutes of Health	Adventist Healthcare
Walter Reed National Military Med. Ctr.	Marriot International
Montgomery County Government	Lockheed Martin
U.S. Food and Drug Administration	Verizon
Montgomery County Public Schools	Giant Food
Nat. Oceanic and Atmospheric Admin.	Holy Cross Hospital
U.S. Nuclear Regulatory Commission	Montgomery College
Nat'l Institute of Standards and Tech.	Kaiser Foundation Health Plan
U.S. Department of Energy	Westat Research Inc.
Naval Surface Warfare Ctr., Carderock	GEICO Insurance

relationship with incidence and severity of residential fires. This is a well known fact across the nation as reported by the National Fire Protection Association. Less educated, lower income citizens experience a disproportionate number of residential fires than persons having higher levels of education and income. Less educated, lower income citizens also experience a disproportionately high number of fire fatalities and injuries than do persons having higher

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[48] "Jobs Forecast - 2010 to 2040," Round 8.1 Cooperative Forecast, Montgomery County Planning Department

education and income levels.   It is not known whether residents' income level and education level have a direct relationship with type and frequency of EMS incidents. The Electronic Patient Care Reporting system does not capture data regarding a patient's level of income or education.

Households and Language Spoken

Based upon increased population, the number of households in Montgomery County will have reached about 376,525 in 2015, an increase of about 15,500 or 4.3% since 2010. By 2020, the projected number of households will have grown by an additional 20,700 to about 397,225 representing a 5.5% increase over 2015.[49] The average household size between 2015 and 2020 is expected to remain almost constant at 2.66 persons per household.[50] One-quarter of households have only one person and 30% have two persons; thus 55% of County households have two or less persons. Nearly 17% of households have three persons and about 15% have four persons. About 13% of County households have five or more persons.[51]   In 2015, 66% of households were in single-family occupancies and 34% in multi-family occupancies. By 2020, these figures are expected to change slightly to 64% single-family and 36% multi-family. This trend is projected to continue, with 62% single-family/38% multi-family households by 2025 and about 59% single-family/41% multi-family households by 2030.[52]

Nearly one of three County residents is foreign-born. Of the foreign-born population, 38% came from Latin America and about 35% from Asia. The remaining 27% of the foreign-born population came primarily from Africa (15%) and Europe (10%). The other 2% came from elsewhere in North America and from Oceania.[53] With about one-third of County residents foreign born, there are over 130 foreign languages spoken in homes and schools either exclusively or in addition to English. The most common languages other than English spoken in County homes and schools include Spanish, Chinese (Mandarin, Cantonese), French, Korean, Vietnamese, Farsi, Russian, Arabic, and Amharic. Of the County population over 5 years of age (939,547 in 2012), about 368,250 (39%) speak a language other than English at home and about 140,800 (15%) speak English "less than very well" (i.e., having limited English proficiency).[54] Map 13 in Appendix E shows percentage of residents speaking English "less than very well." Areas of the County having the highest percentage include Wheaton, Aspen Hill, Rockville, Gaithersburg, Germantown, Silver Spring, Takoma Park, White Oak and Hillandale.

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[49] Source: Round 8.3 Cooperative Forecast, Montgomery County Planning Department

[50] Source: Demographic and Socio-economic Outlook (table), Maryland Department of Planning, January 2014

[51] Source: U.S. Census, 2010

[52] Source: Round 8.3 Cooperative Forecast, Montgomery County Planning Department

[53] Source: Selected Social Characteristics, 2012 American Community Survey

[54] Source: Selected Social Characteristics, 2012 American Community Survey

The impact of household-related demographics on fire-rescue related risk and service needs is related to frequency of incidents and effectiveness of communications. Greater number of households relates to increased number of fire-rescue incidents, particularly EMS incidents. The trend toward greater number of households living in multi-family residences raises the risk of more residents being injured or killed during fires and greater property damage due to greater number of households being in close proximity.

The situation of residents having limited English proficiency has a significant impact on effective communications with MCFRS personnel. Lack of effective communications between the 9-1-1 caller and MCFRS communications staff can lead to long phone-to-dispatch times (which adversely impacts total response times) and misunderstanding of the reported emergency (which could result in dispatch of less appropriate resources). Ineffective on-scene communications due to a language barrier between the person(s) in need of assistance and response personnel can lead to delayed or less effective emergency services provided. For example, a foreign speaking individual having chest pains who cannot communicate effectively with English-speaking first-responders; thus delaying appropriate assessment and care.

Montgomery County pays employees, including firefighters and 9-1-1 call-takers, who speak foreign languages additional pay, encouraging multi-lingual employees who can provide translation services when needed. MCFRS has some employees who are multi-lingual. Although the Language Bank[55] can be of assistance to call-takers, use of the service prolongs phone-to-dispatch time by several minutes.

Housing/Building Stock

Montgomery County has a varied assortment of housing and building stock featuring many architectural styles reflective of various eras dating back to the late 1800s in some cases (e.g., historic Victorian houses in the Town of Garrett Park as well as other areas). Many original homes and buildings have been razed and replaced by newer homes and buildings, while others have been renovated and/or expanded to meet changing needs. Considerable new construction has occurred in the County each decade since World War II. Sprawling communities emerged between the 1960s and 1990s consisting mostly of single-family detached homes, townhouses, garden apartments, shopping centers, shopping malls, offices, schools, public facilities, and commercial buildings. Planned communities also appeared during this time period, including Montgomery Village, Kentlands, King Farm, Fallsgrove, Lakelands and Clarksburg. Beginning during the 2000s, there has been a shift to "smart growth" with high-density, mixed-use, high-rise and mid-rise development concentrated along mass transit networks, most notably the Metro Red Line.

As shown in Figure 4.5 below, Montgomery County's housing stock as a whole is aging, particularly single-family detached homes. About 38% of the County's housing stock was built

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[55] The Language Bank is a group of volunteers who are on-call to help translate or interpret for County government and nonprofit agencies serving residents with limited English proficiency.

prior to 1970, with over half of all single-family detached homes built during this time period. These figures indicate that a large percentage of single-family homes have ongoing needs for repair or replacement of aging components and systems.

The total assessed value of residential and non-residential properties in the County reached $182.7 billion in 2010, with residential properties comprising nearly 78% of the total - about $142.5 billion. In 2010, the median sales price for a single-family detached home was $455,000 and $270,000 for a single-family attached home (i.e., townhouse). These median prices are some of the highest in the U.S.

New single-family homes in Montgomery County have gotten larger, on average, each decade. The average size of a single-family detached home built in the 1950s was about 1300 sq ft compared with 3200 sq ft for a detached home built in the 2000s, or about 2.5 times larger than in the 1950s. This trend has not only affected detached housing but has also occurred with townhouses, with some featuring one and two-car garages and additional bedrooms. In some

Figure 4.5 – DISTRIBUTION OF HOUSING STOCK
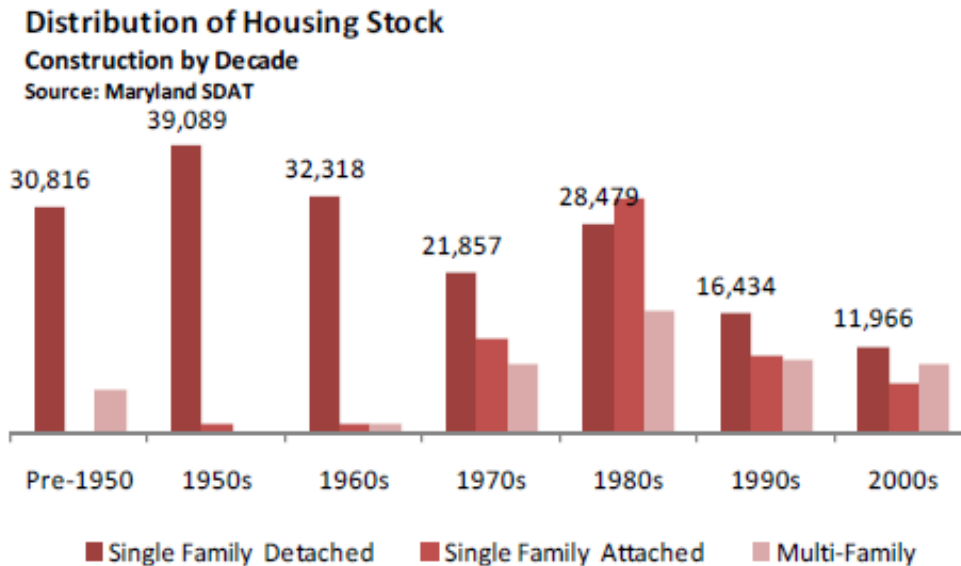
areas of the County, it is not uncommon to find single-family detached homes in the 4,000-6,000 sq ft range, others in the 6,000-10,000 sq ft range, and a small number exceeding 10,000 sq ft (mostly in Potomac, Cabin John and Bethesda).

Another trend in the County since the mid-2000s is the razing of small, older homes and replacing them with much larger homes. This is occurring mostly in Bethesda and Glen Echo but elsewhere as well. Condominiums ("condos") have also gotten much larger since coming

onto the market in the 1950s in Montgomery County. The median square footage of condos by the mid-2000s was 1300 sq ft compared with 420 sq ft in the 1950s.

New to Montgomery County beginning in the mid to late 2000s are the double-stacked, 4-story townhouses (a.k.a., "two-over-twos" or "townhouse condos"). Many of these are located in The Kentlands, The Lakelands, Gaithersburg, Germantown, Clarksburg and Rockville. Based on their arrival onto the market in the County during the 2000s, all two-over-twos are sprinklered.

Another trend in the County is ever greater use of Type V (lightweight wood frame) construction used in single-family detached homes and townhouses, garden apartments and two-over-twos. Most new 4-story and under residential buildings are of Type V construction. Some 5-story residential buildings now have Type V construction in the top four floors that sit upon a 3-hour concrete slab with a bottom floor of Type I or II construction typically for retail use. Fire destroyed a large building of this type under construction in King Farm on Upper Rock Circle in April 2014 causing an estimated $25 million loss. This was the largest dollar loss fire in County history.

In 2010, Montgomery County had 68.7 million sq ft of leasable office space in 1501 buildings, ranking third highest in the Washington, D.C. Metropolitan Area after Washington, D.C. and Fairfax County. This accounts for 48% of the commercial space in Montgomery County. Retail space totaled 42.4 million sq ft (30% of commercial space) in 2268 buildings, industrial space totaled 17.3 million sq ft (12%) in 638 buildings, and flex space[56] totaled 13.3 million sq ft (10%) in 337 buildings.

The Montgomery County Development Pipeline, dated September 2014, indicates there were 461 development projects in the pipeline, divided across residential, office, retail and industrial categories. Of 46,464 approved dwelling units county-wide, 36,613 remained unbuilt, including 27,899 multi-family and 8714 single-family dwelling units. Of nearly 49.1 million sq ft of approved gross floor area for commercial uses, almost 30 million sq ft remained unbuilt in 2014, including about 22.7 million sq ft of office space, 5.1 million sq ft of retail space, 581,912 sq ft of industrial space, and about 1.5 million sq ft of other space.[57]

The impact of housing/building stock on fire-rescue related risk and service needs is higher frequency of fires and greater severity. During 2013-14, Underwriters Laboratories (UL) scientists, engineers, and researchers, along with fire service professionals, conducted extensive testing and analysis of modern fire dynamics within residential structures. The results of these tests confirm that fire in a modern home is a "perfect storm" of conditions (i.e., larger homes with open geometries, increased fuel loads and new lightweight construction materials), and outcomes (i.e., faster fire propagation, shorter time to flashover, rapid changes in fire dynamics,

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[56] Flex space is a sub-category of industrial space. Industrial space is used as light production and assembly, distribution and repair/service operations. Flex space is typically single-story space with a portion finished as office space and a portion retained as space for warehousing, repair or production.
[57] Source: Montgomery County Planning Department, September 2014

shorter escape times for occupants, and faster structural collapse). Although new single-family and multi-family residences in Montgomery County require sprinkler protection, serious fires will still occur due to fires starting in areas that are unsprinklered, including attics, decks and the exterior of buildings (e.g., fire in vegetation or mulch spreading to siding). Sprinkler systems may also not function due to being shut off by property owners, improperly maintained, broken pipes, or water service being cut off by the water supplier (water company or municipality).

Older homes, although typically built of heavier materials, collectively present a high fire risk due to aged systems (i.e., electrical wiring, HVAC systems, wood stoves, etc.) that are susceptible to malfunctioning, overheating or electrical short circuiting. Older residences and other buildings pre-dating sprinkler laws, with few exceptions, lack sprinkler protection to control or extinguish fires while in their early stages of development. Furthermore, older residences having owners who may have lived in them for decades will typically have a large amount of accumulated belongings that contribute to fire load and fire spread as well as hindering the escape of occupants.

Regardless of the age and type of construction of a residence or other building, occupants' behavior and actions before and during fires will have a major impact on fire incidence, fire spread, and whether fire fatalities and injuries occur. Smoking, careless cooking practices, hoarding, and careless storage of flammable liquids are examples of risky behaviors that cause many fires. MCFRS can influence occupant behavior/actions through community outreach teaching fire prevention and fire safety. MCFRS can also minimize fire risk through fire code compliance efforts.

Note: Greater detail regarding Montgomery County demographics can be found in Section A (Description of Community Served) of the *MCFRS Standards of Cover* document.

IMPACT OF DEVELOPMENT ON RISK AND SERVICE DEMAND

The amount and type of development occurring in Montgomery County has a major impact on fire-rescue risk and service demand. Development brings more people into the County, both residents and people conducting business, and more people leads to more incidents. This is a well-known, direct relationship.

With the County's commitment to "smart growth," sustainability, environmental protection, and maintaining open space, the emphasis of recent community master/sector plans is reduction of urban sprawl and society's "carbon footprint" by concentrating development along existing and future mass transit networks and increasing density via vertical (i.e., high-rise and mid-rise) development. New urban centers such as White Flint (a.k.a., "Pike District"), Twinbrook and Shady Grove are taking shape along the Metro Red Line, while others are taking shape, or being planned, along the future route of the Corridor Cities Transitway (e.g., Great Seneca Science Corridor's Life Sciences Center, Germantown Employment Area) and along other Bus Rapid Transit corridors (e.g., White Oak).

Community master/sector plans, both County and municipal, provide a picture of future development. Several sector/master plans that involve significant development are described briefly below. They have been grouped by category as follows: development in progress, planned development, limited development, and planning in progress.

DEVELOPMENT IN PROGRESS

WHITE FLINT/PIKE DISTRICT (NORTH BETHESDA-ROCKVILLE)

The White Flint area (to be renamed "Pike District") in North Bethesda/South Rockville is undergoing a transformation from a sprawling, predominantly commercial area into an urban center of high-density, mixed-use occupancies. High-rise buildings - residential and offices above street-level retail - are being built and many more will follow, including some that could be up to 300 feet high near the White Flint Metro Station. The transformation is being guided by the White Flint Sector Plan approved by County Council in 2010. The Sector Plan area covers 430 acres and is bounded by Montrose Parkway to the north, Old Georgetown Road to the west, White Flint Mall to the south, and CSX Railroad to the east. Major roads in the White Flint area include Rockville Pike (MD 355), Old Georgetown Road (MD187), Montrose Parkway, Randolph Road, Executive Boulevard, Nicholson Lane, Nebel Street, and Marinelli Road.

At build out, the area covered by the White Flint Sector Plan could have up to 14,300 residential units (compared to 2320 in 2010), approximately 20,000 residents (compared to about 3500 in 2010), up to 13 million square feet of non-residential space (compared to 5.5 million square feet in 2010), and businesses supporting approximately 50,000 jobs (compared to approximately 23,000 in 2010). New public facilities will include a fire station and library. All new buildings will have automatic fire detection and fire suppression systems and will be served by fire hydrants.

Rockville Pike will be converted to an urban boulevard with wide median, underground utility lines, street trees, and "pedestrian-friendly" features such as signalized crosswalks, reduced speed limits, and wide sidewalks. Additional streets (with "local" and "business" classifications) will be constructed throughout White Flint to accommodate new, high-density development and related traffic. White Flint Mall will be replaced by mixed-use occupancies situated along a network of new local and business streets.

The area addressed by the White Flint Sector Plan is located entirely within Rockville Fire Station 23's first-due area. Fire-rescue incident call load within the White Flint area is expected to be about 3000 annually at build out. Approximately 80% of the incidents will be EMS in nature, and the majority of the fire-related incidents is expected to involve alarm bells, automatic fire alarms, and activated smoke alarms.

TWINBROOK (ROCKVILLE)

The Twinbrook area is partially within the city limits of Rockville and the remainder within the unincorporated area of Montgomery County. The latter portion, located mostly east of Twinbrook Parkway with several small areas west of that roadway including one abutting the CSX Railroad, is addressed by the Twinbrook Sector Plan adopted by County Council in 2008. The Sector Plan's northern and western boundaries abut the City of Rockville, its eastern boundary is adjacent to Parklawn Memorial Park, and its southern boundary is the future Montrose Parkway East right-of-way. The area's two major roadways are Twinbrook Parkway and Parklawn Drive, and other roadways include Fishers Lane, the northern section of Wilkins Avenue, and several streets serving businesses in the industrial area.

The Twinbrook Sector Plan recommends the addition of high-density mixed-use (i.e., residential and retail) occupancies in the immediate vicinity of the Twinbrook Metro Station (i.e., "Metro Core Area"), while maintaining non-residential land uses in the remainder of the plan area east of Twinbrook Parkway ("Technology Employment Area" and "Light Industrial Area"). This recommendation is based upon rezoning of the sector plan area from eight zones (a combination of industrial, office, commercial and residential) to two zones: Transit Mixed Use (TMX-2) and Light Industrial (I-4). The Metro Core Area, to be zoned TMX-2, located next to Twinbrook Station (see below) will consist of high-density mixed-use high-rises of up to 143 feet featuring ground level retail with residential units and offices above. The Technology Employment Area, to be zoned TMX-2, located along Fishers Lane and Parklawn Drive will be comprised of existing office buildings as well as additional office buildings of up to 143 feet housing advanced technology/biomedical businesses and health agencies. The Light Industrial Area, keeping its I-4 zoning, located between Wilkins Avenue, Parklawn Drive and the CSX Railroad, will remain intact. The sector plan also calls for widening of Twinbrook Parkway to a six-lane, divided roadway with wide median to better accommodate vehicular and pedestrian traffic.

The area located immediately east of the Twinbrook Metro Station within the City of Rockville, formerly a Metro parking lot, is being developed with high-rise buildings collectively known as "Twinbrook Station." These buildings were under construction as this Fire-Rescue Master Plan was being written. At build out, these high-rises will include nearly 1600 housing units and about 500,000 sq, ft. of retail and office space. All new buildings in Twinbrook will have sprinkler protection and be served by fire hydrants.

The Twinbrook area as described above is located within Station 23's first-due area and will remain so after Station 23 is relocated to the new site at Montrose Parkway and Rockville Pike. The additional call load associated with the Twinbrook redevelopment, predominantly EMS in nature, is a contributing factor to the need for additional EMS resources to be deployed at Station 23 upon its relocation. It is anticipated that existing suppression units deployed at Station 23 will be able to handle the additional fire-related call load associated with Twinbrook, with quick second-due response from Engine 721 upon completion of Montrose Parkway East.

CLARKSBURG

Clarksburg is a corridor town of about 10,000 acres in northern Montgomery County. Since the early 2000s, it has been transformed from a small rural town consisting primarily of farms, woodlands and a historic district to a predominantly residential community of about 20,000 residents in 2015. There are approximately 6300 dwelling units of comprised of single-family homes, townhouses and 4-story townhouse condominiums (a.k.a., two over twos). By 2020, the population is projected to be almost 30,000 residing in nearly 9000 dwelling units. At build out, the population is expected to be about 44,400 residing in approximately 14,600 dwelling units.

The largest portion of Clarksburg, located east of I-270, has the vast majority of existing residences plus all of the commercial properties and public facilities to date in Clarksburg. This portion of town is comprised of the following:

- Large housing developments, some occupied and others under construction, consisting of single-family homes, townhouses and 4-story townhouse condominiums. These include, Clarksburg Village, Aurora Hills, Highlands at Clarksburg, Grapevine Ridge, Gateway Commons, Catawba Manor, Greenway Village, Clarksbrook Estates, Meadows at Hurley Ridge and others. These housing developments are served by fire hydrants. All townhouses are sprinklered in accordance with County Code as well as single-family homes built after January 1, 2004

- Clarksburg Historic District located along Frederick Road between Stringtown Road and slightly north of Clarksburg Road – a distance of 0.4 mile. The Historic District features historic homes (some converted into businesses) and historic commercial buildings such as the general store. The Historic District lacks municipal water lines, hydrants, and sewer lines. None of these buildings have sprinkler protection. There is also a new commercial occupancy, including a restaurant, on a property adjacent to the general store.

- Future Town Center, consisting of retail and commercial uses plus public spaces /facilities, to be located between Clarksburg Square Road and Stringtown Road approximately 0.4 mile east of Frederick Road and the Historic District. All buildings will have fire detection and sprinkler protection.

- Retail and commercial centers, including Clarksburg Square located at Frederick Road and Stringtown Road and the Clarksburg Village Center, located at Snowden Farm Parkway and Newcut Road. The latter includes a large grocery store, restaurants and various stores.

- Community facilities, including Clarksburg Elementary School, Little Bennett Elementary, Wilson Wims Elementary, Rocky Hill Middle School, Clarksburg High School, several community swimming pools. Future community facilities, including fire station (permanent station), library, community center and another elementary school (Clarksburg Village E.S.).

West of I-270, the Cabin Branch community was under construction at the time this master plan was being written. It will be a mixed-use community on 535 acres. The plan calls for nearly 1900 dwelling units (single-family homes, townhouses and 4-story townhouse condos), including 500 senior units, 2.42 million square feet of commercial space, a hotel, and 75,000 square feet of public uses. A 400,000 sq ft outlet mall (to be named "Clarksburg Premier Outlets") with up to 100 stores has received approval and will be sited near the I-270/MD121 interchange. These outlets would become the only ones located in Montgomery County and are expected to draw customers from throughout the County and region. Also located west of I-270 is the County Detention Center, a 1028-inmate correctional institution, situated at the end of Whelen Lane immediately adjacent to I-270. All new buildings in Cabin Branch will have sprinkler protection and be served by fire hydrants.

The fire, rescue and EMS call load (902 incidents during FY2014) will continue to increase as Clarksburg grows and the overall level of risk increases. It is anticipated that resources in place at interim Clarksburg Fire Station 35 (i.e., paramedic engine, medic unit, aerial unit) will meet the area's needs at least through 2020 when this master plan sunsets. There is a need for a permanent Clarksburg Fire Station that would accommodate existing resources plus a tanker and brush unit. While a site near the Frederick Road/Clarksburg Road intersection had been purchased by the County for this facility, an alternate site is being pursued at the direction of County elected officials due to new environmental restrictions that were established in 2014 for the Ten Mile Creek watershed with adoption of the Ten Mile Creek Area Limited Amendment to the Clarksburg Master Plan and Hyattstown Special Study Area.

"CROWN" (CITY OF GAITHERSBURG)

"Crown" (formerly "Crown Farm") is a 182-acre, transit-oriented, mixed-use community located in the southwestern portion of the City of Gaithersburg. Crown broke ground in 2013 and, at the time this Fire-Rescue Master Plan was being written, was partially developed with a mixture of residential, commercial, and retail uses. Crown is comprised of six neighborhoods. At build out, it will include 2250 residential units of a variety of dwelling types and up to 320,000 square feet of commercial/retail development.

Neighborhood 1 to the north will have 650-1200 townhouses and multi-family units up to 8 stories and at least 235,000 sq. ft. of commercial space, including a large grocery store, fitness center (both opened in 2014), restaurants and various retail shops. Neighborhood 2 will have a mixture of single-family and multi-family dwellings (320-420 units) up to 4 stories. Neighborhood 3 will likewise have single-family and multi-family dwellings (300-440 units) up to 4 stories. Neighborhood 5, bordering the future transit center, will have a mixture of townhouses and multi-family dwellings (300-900 units) up to 20 stories and 10,000-85,000 sq. ft. of commercial space. Two other neighborhoods will have neither housing nor commercial uses; Neighborhood 4 will be a city park, and Neighborhood 6 on the south end of Crown is the site of a future Montgomery County public school. All new residences and other buildings in Crown will have sprinkler protection and be served by fire hydrants.

Crown is located within the first-due area of new Fire Station 32. It is anticipated that the risks present at Crown at build out, in combination with overall risk and increasing call load within Station 32's area, will create the need for additional resources at Station 32 – both suppression (i.e., aerial unit) and EMS (i.e., additional EMS transport and ALS units).

GERMANTOWN EMPLOYMENT AREA

The Germantown Employment Area Sector Plan, adopted by County Council in 2010, will transform Germantown's central employment area into mixed-use districts surrounding the town center. This Sector Plan, covering an area of about 2400 acres of the 13,000 acres addressed in the Germantown Master Plan (approved in 1989), is located on both sides of I-270. The west side includes the Town Center and four other districts, some bordering I-270 and others extending southwest to the CSX Railroad. The east side of the Germantown Employment Area includes Montgomery College-Germantown and three other districts bordering I-270 from south of Middlebrook Road to north of Father Hurley Boulevard.

The Sector Plan's land use recommendations provide for over 24 million square feet of commercial development with approximately 68,800 jobs and 16,400 housing units at build out. The Town Center District will have the greatest density and varied land uses, including retail, office, residential and cultural uses; many already present in 2015 along Century Boulevard. Mixed-use high-rise buildings from 60 to 180 feet will be present in the Town Center and Cloverleaf Districts. The Corridor Cities Transitway will have up to five stations within the Germantown Employment Area. The CCT will make a loop through the area, running through both sides of I-270.

The 100-acre Seneca Meadows/Milestone District on the east side of I-270 will become Germantown's largest commercial/retail center. Existing businesses and uses include the Milestone Regional Shopping Center featuring several large "box stores" (e.g., WalMart, Home Depot, Best Buy, etc.), Neelsville Shopping Center anchored by Giant Foods, Seneca Meadows Corporate Center, various corporate offices and light industrial facilities, and the new 215,000 sq. ft. Shops at Seneca Meadows anchored by Wegmans. Additional retail, commercial and office development is planned for this district with a limited amount of residential development (≤30% of total). All new buildings in this plan area will have sprinkler protection and be served by fire hydrants.

While fire-rescue call load in the Germantown Employment Area will increase as development occurs, existing Fire Stations 29 and 34 are well distributed within central and eastern sections of Germantown and associated resource concentration is expected to adequately handle the increased call load. Primary apparatus at these two stations include 2 paramedic engines, 2-3 EMS units including one medic unit, 1 aerial unit, and 1 rescue squad. Apparatus from surrounding Stations 8, 22 and 35 provide additional resource concentration to the Germantown Employment Area.

OLNEY

Development in and around Olney is addressed in the Olney Master Plan adopted by County Council in 2005. The area covered by the plan is generally bounded by Norbeck Road to the south, North Branch of Rock Creek and Route 108 to the west, Etchison to the northwest, Patuxent River to the northeast, and James Creek to the east and Norwood Road to the southeast.

The Olney Master Plan encourages mixed-uses and recommends rezoning of some of the vacant and re-developable properties in southern Olney. At build-out, the area is expected to have approximately 15,500 - 16,500 dwelling units, resulting in a projected population of 44,300 - 50,200 residents. The primary focus of the plan is the creation of an expanded, mixed-use Town Center surrounding the key intersection of Georgia Avenue (MD97) and Olney-Laytonsville Road (MD108), including a Town Commons, additional residential units, and increased walkability for persons residing in or visiting the Town Center. The existing five commercial zoning districts in the Town Center will be replaced by a single mixed-use zone to facilitate the creation of a commercial/residential town center. The plan calls for the four existing strip shopping centers to remain but undergo redevelopment, some of which has already occurred. The Town Center could have up to 500,000 square feet of additional commercial growth for a total of approximately 1.3 million square feet of commercial space and between 400 and 1300 residential units by 2025. Mixed-use buildings in the core area would have a maximum height of 70 feet while those along the perimeter of the Town Center would have a maximum height of 42 feet. These mixed-use buildings would have ground floor retail space with residential units above.

A town commons and civic center is envisioned for the Olney Town Center to be incorporated within the two strip shopping centers (i.e., Olney Village Center, Olney Town Center) located northeast of the MD97/108 intersection. The civic center would house public facilities that are presently scattered around town such as the library and post office plus new public facilities of types to be determined. The town commons would be an open space of about one-acre for residents to gather informally or for outdoor community events. At the time this Fire-Rescue Master Plan was being written, a Town Center Advisory Board had been established whose initial focus was planning the civic center.

The area addressed by the Olney Master Plan falls mostly within the first-due areas of Sandy Spring Fire Station 40 and Laytonsville Station 17 and the remainder within Sandy Spring Station 4's area. Fire-rescue incident call load within the area addressed by the Olney Master Plan is expected to be about 5000 annually at build out. Approximately 75% of the incidents will be EMS in nature.

As recommended in the Station Location and Resource Allocation Study – Phase 4 Report, a new (additional) fire station is needed in western Olney to address risk associated with existing and future development as well as high response times in western Olney and nearby areas. The report recommends the new station be located in the vicinity of Route 108 and Olney Mill Road. In addition to serving western Olney, the station would serve much of the Bowie Mill Road corridor much faster than presently done by Stations 40 and 28. The report further recommends deployment of a paramedic engine and EMS unit at this station.

Additionally, the engine at Station 40 needs to be upgraded to a paramedic engine to expand Station 40's services to include ALS. At the time this master plan was being written, Engine 740 was one of seven remaining engines county-wide that had not yet been upgraded to provide ALS service. ALS units deployed at Stations 4, 17, 25 and 28 must respond to ALS incidents in Station 40's area which frequently exceed ALS response time goals particularly along the Georgia Avenue corridor from Norbeck Road to Brookeville and points west.

The deployment of an extrication-capable unit at Station 40 is also needed to provide rapid extrication service to the ICC and along the Georgia Avenue and Route 108 corridors in the Olney area. Each of these highways experiences high-speed collisions, particularly the ICC which has a 60 mph speed limit. The advantage of having an extrication unit close to the ICC can be realized by deploying an extrication-capable unit at Station 40. As of FY15, these major highways were served by an extrication-capable unit responding from Aspen Hill (i.e., Truck 725) and/or a rescue squad responding from Laytonsville (Station 17) or Wheaton (Station 42).

PLANNED DEVELOPMENT

WHITE OAK SCIENCE GATEWAY (EAST COUNTY)

The Montgomery County Council approved the White Oak Science Gateway Master Plan (WOSGMP) on July 29, 2014. The plan covers a 3,000-acre area within the eastern County that includes White Oak, Hillandale and fringe areas of Silver Spring and Calverton. The plan's area is bounded by Columbia Pike, Cherry Hill Road, Prince Georges County line, Interstate 495 and the Northwest Branch. The area covered by this plan is located mostly within Hillandale Station 12's first-due area and partially within Burtonsville Station 15's first-due area.

 The WOSGMP's predominant recommendation is for the creation of a major new mixed-use community on the 300-acre property consisting of the former Percontee Sand and Gravel company and the former WSSC West Farm composting facility (a.k.a., "Site 2"). The 300-acre property is located west of Cherry Hill Road, east of the Food and Drug Administration (FDA) Campus, and south of Tech Road and Industrial Parkway. The plan capitalizes on the presence of the FDA Campus and the proposed relocation of Washington Adventist Hospital to this area. It allows for a mix of uses, including research/technology, office, retail, housing, hotels, parks and open space. The 300-acre property has been zoned Commercial-Residential (CR) with a combined floor area ratio of 1.0 FAR and maximum building height of 220 feet. The total theoretical development could be 13 million square feet at build out assuming it is half residential and half commercial. Total dwelling units could be 5227, with 3852 mid-rise dwellings units, 1000 high-rise units, and 375 townhouses. Based on this number and type of dwelling units, the residential population could reach close to 14,000. Commercial square footage could total approximately 6.5 million sq. ft. Major public facilities would include a fire station, elementary school, and a local park plus a trail system. An estimated 18,000 jobs could

be located in this community. All new buildings in this plan area will have fire detection systems, sprinkler protection and be served by fire hydrants.

In addition to new development on the Percontee and Site 2 properties, the WOSGMP area could experience considerable redevelopment along New Hampshire Avenue , Lockwood Drive and Tech Road/Industrial Parkway in accordance with recommendations of the WOSGMP, plus the potential relocation of Washington Adventist Hospital to a 48-acre site on Plum Orchard Drive. Redevelopment is proposed for both the White Oak and Hillandale Shopping Centers (proposed as mixed-use commercial and residential), the eastern portion of the National Labor College (potential mixed-use redevelopment), and several other commercial areas along New Hampshire Avenue, Lockwood Drive, Tech Road and Industrial Parkway.

The entire WOSGMP at build out, including some existing residential neighborhoods that would remain unchanged, could have up to 15,600 dwelling units (9600 mid-rise unit, 3200 high-rise units, 1545 single-family homes and 1255 townhouses), 25.4 million sq, ft. of commercial space, and over 70,000 jobs, including 9000 jobs at the FDA. This would more than double the number of existing dwelling units and commercial space and would increase the number of jobs by about 150%.

Fire-rescue incident call load within the area addressed by the WOSGMP is expected to be about 1500-2000 annually at build out. EMS incidents are expected to comprise approximately 80% of all incidents. As recommended in the Station Location and Resource Allocation Study – Phase 5 Report, a new/additional fire-rescue station is needed in the vicinity of Columbia Pike and Tech Road to address risk associated with existing and future development as well as demographic factors and high response times within portions of the area. An East County fire-rescue station will also place less demand on surrounding Stations 12 and 15 – among the busiest stations in the County – and place much needed ALS resources in that immediate area. Needed resources at the new station would include a paramedic engine, ambulance and potentially an ALS chase car.

WHEATON

Wheaton the area is in the vicinity of the major crossroads of Georgia Avenue, University Boulevard West, and Veirs Mill Road. The Wheaton Central Business District and Vicinity Sector Plan, adopted by County Council in 2012, addresses an area within an approximate ½-mile radius of the Wheaton Metro Station. The Central Business District (CBD) is currently a commercial/retail area; however, the sector plan envisions a dense mixture of retail, office and residential uses for the future. Under the proposed zoning change which would rezone the entire CBD as Commercial-Residential (C-R), allowable building heights would increase up to 250 feet adjacent to the Wheaton Metro Station and up to 200 feet elsewhere within the Wheaton Triangle and immediately adjacent areas. Building heights would transition downwardly toward the neighborhoods outside the CBD having low density single-family dwellings. These zoning changes will lead to a significant amount of redevelopment in the CBD. Zoning in the areas surrounding the CBD will remain largely unchanged; therefore those portions of sector plan

area, predominantly low-density residential neighborhoods, will remain in place. All new buildings in Wheaton will have sprinkler protection and be served by fire hydrants.

The Wheaton area has a very diverse population where minorities comprise about 55% of the total population. Approximately one-third of the households have foreign born heads of the households. Residents aged 45 and above comprise about 45% of the population, and 71% of the population is 30 years and above. These demographics are associated with a high demand for both BLS and ALS services.

While fire-rescue call load in Wheaton will increase as redevelopment occurs in the CBD, existing fire-rescue stations, including nearby Stations 5, 18 and 42, as well as surrounding Stations 16, 19 and 21 are well distributed to provide timely service to the Wheaton area. Concentration of fire suppression resources is generally adequate for the 5-year time frame of this Fire-Rescue Master Plan, but additional EMS units will be needed, including the upgrading of Engine 705 to Paramedic Engine 705, the conversion of two medic units at Station 42 (Wheaton Volunteer Rescue Squad) to ALS chase units, and the deployment of an ambulance at Station 18. These EMS enhancements are not due solely to the redevelopment to occur in the Wheaton CBD but rather the overall needs of the Wheaton, Glenmont and Kensington area.

GLENMONT

In accordance with the recommendations in the Glenmont Sector Plan (adopted by County Council in December 2013), redevelopment in the Glenmont area has begun. The Sector Plan addresses a 711-acre area north of Wheaton, southeast of Aspen Hill, and south of Layhill. The area includes portions of the Georgia Avenue, Randolph Road and Layhill Road corridors and a major thoroughfare (Glenallan Avenue) linking these three major highways. Glenmont is comprised of a commercial area, including the Glenmont Shopping Center, Glenmont Metro Station and adjacent Metro yard, at its center, surrounded by residential neighborhoods to the west, north and east made up of single-family homes and two-three story garden apartments. On Glenmont's southern boundary are Kensington Fire Station 18 and the 4th District Police Station. Glenmont has approximately 12,600 residents (nearly 70% of which are of minority races) residing in 3100 housing units. Glenmont has a higher portion of low-income residents than the County as a whole.

The Glenmont Sector Plan recommends rezoning and redevelopment of the Glenmont Shopping Center to the Commercial-Residential (C-R) Zone with mixed-use development consisting of ground floor retail and multi-family residential above. Buildings would be 6-12 stories high. The Sector Plan also recommends rezoning and redevelopment of the Winexburg Manor and Metrocenter garden apartments to higher density, mixed-use occupancies ranging in height from 40-60 feet and some up120 feet. In addition, the Sector Plan recommends rezoning and redevelopment of the Glenmont Forest garden apartments to allow higher density housing with buildings up to 6 stories in height. At build out, the number of housing units within Glenmont is projected at 6335 but could approach 8100 if all recommendations in the Sector Plan for rezoning were to be allowed through Local map Amendments and then implemented.

As this Fire-Rescue Master Plan was being finalized during 2015, Station 18 was being rebuilt on the former Glenmont Elementary School site located at Georgia Avenue and Mason Street. The reason for the relocation is a grade separation project at Georgia Avenue and Randolph Road where Station 18 formerly stood on the southeast corner since 1953. The former station has been vacated, razed and temporarily relocated to an interim facility during construction of the new station. The State Highway Administration has also begun the grade separation project.

While existing fire suppression resources serving the Glenmont area should remain adequate to serve planned growth, the need for additional EMS resources (to be deployed at Station 18 and other existing stations) is likely due to increased demand brought about by additional residents, including those having special needs (e.g., immigrants, seniors). All new buildings in Glenmont will have sprinkler protection and be served by fire hydrants.

SHADY GROVE (ROCKVILLE-DERWOOD)

Future development in the Shady Grove area is laid out in the Shady Grove Sector Plan which was approved by County Council in 2006. The 2000-acre area includes the unincorporated area between the Cities of Rockville and Gaithersburg along Frederick Avenue, the residential areas south and east of Washington Grove and south of Mid-County Highway, as well as much of the Derwood area including the Redland Road corridor. Included in the Shady Grove area is the commercial/industrial area located directly across Frederick Avenue from King Farm[58], plus the Shady Grove Metro Station, Solid Waste Transfer Station, County Services Park along Crabbs Branch Way, The Grove Shopping Center, and Shady Grove Plaza. Major highways running through the Shady Grove area include Frederick Avenue (MD355), Interstate 370, Inter-County Connector (MD200), Shady Grove Road, Redland Boulevard, and Crabbs Branch Way.

The Shady Grove Sector Plan (SGSP) creates a mixed-use community with new residences in the vicinity of the Metro station, while relocating industrial uses to more appropriate sites elsewhere. Relocation of the County Services Park will likewise provide new housing opportunities close to Metro. The Sector Plan proposes a mix of housing types, including single-family homes, townhouses, and apartments, including senior housing, workforce housing, and moderately-priced dwelling units (MPDUs) as well as market-priced units. At build out, there could be up to 6340 additional dwelling units[59], housing approximately 12,000 – 15,000 additional residents compared with 2600 dwelling units and 7600 residents in the entire planning area at the time the SGSP was being written. Local-use retail and services will be included in the new mixed-use community as well. All new buildings in the plan area will have sprinkler protection and be served by fire hydrants.

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[58] King Farm is located in the City of Rockville

[59] This figure would be reduced to 4100 dwelling units if the County Services Park was not relocated.

The area covered by the Shady Grove Sector Plan is divided among the first-due areas of Rockville Station 3, Gaithersburg-Washington Grove Stations 8 and 28, and Travilah Station 32. Fire-rescue incident call load within the Shady Grove area is expected to be about 2500 annually at build out. Approximately 80% of the incidents will be EMS in nature.

As recommended in the Station Location and Resource Allocation Study – Phase 3 Report as well as the Shady Grove Sector Plan, a new (additional) fire station is needed in the Shady Grove area to address risk associated with existing and future development as well as demographic factors and high response times. A Shady Grove fire station will also place less demand on surrounding Stations 3, 8 and 32 – among the busiest stations in the County – and place much needed EMS and suppression resources in that immediate area. The Shady Grove Sector Plan likewise recommends that a fire-rescue station be located at the intersection of Frederick Road and Shady Grove Road or a nearby suitable site[60].

GREAT SENECA SCIENCE CORRIDOR (GAITHERSBURG, ROCKVILLE, TRAVILAH AREA)

The Great Seneca Science Corridor Master Plan (GSSCMP) was adopted by County Council in 2010. The GSSCMP area covers 4,360 acres in the center of the I-270 Corridor, situated on both sides of I-270 but mostly west of I-270. The GSSCMP area includes the Life Sciences Center (comprised of five districts), National Institute of Standards and Technology, neighborhoods along the Sam Eig Highway and Muddy Branch Road corridors, neighborhoods near Quince Orchard High School, and several small residential enclaves such as Rosemont, Oakmont and Walnut Hills which are nearly or completely surrounded by a municipality – Gaithersburg, Rockville or the Town of Washington Grove. The Kentlands and Crown communities are not addressed in the GSSCMP as both are located within the city limits of Gaithersburg.

The area has grown significantly over the past 10 years, and the GSSCMP calls for considerable additional development in the future. Major development will occur within the Life Sciences Center (LSC), including the Belward Farm and former Public Safety Training Academy properties. Approved LSC commercial square footage would increase from 6.9 million in 2010 up to 17.5 million at build out, and the number of dwelling units would increase from 3300 in 2010 up to 9000 at build out. The Corridor Cities Transitway (CCT) – a bus rapid transit system running from Shady Grove to Clarksburg – will traverse the GSSCMP area. Development within LSC Central will consist largely of advanced technology businesses and educational/research institutions, while the PSTA property (LSC West) will be redeveloped into a mixed-use (residential/retail) community. The 107-acre Belward Farm property (LSC Belward), owned by Johns Hopkins University (JHU), is slated for a JHU Campus, including academic buildings, residences, open space, and gridded street network. High-density development, including high-rise buildings up to 150 feet, will occur in the immediate vicinity of CCT Stations of which five are planned for the GSSC area. All new buildings in the plan area will have sprinkler protection and be served by fire hydrants.

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[60] Reference: *Shady Grove Sector Plan* (adopted by County Council on 1/17/06), pages 26, 101 and 102

While fire-rescue call load in this area will increase as development occurs, existing fire-rescue stations, including Stations 31, 32 (opened in 2014), 8 and 53 (NIH Fire Department), along with future Station 36 (Shady Grove) are well distributed to serve the GSSC area. Concerning resource concentration to handle increased call load, deployment of additional apparatus/services (e.g., aerial unit, additional EMS transport units) at Station 32 is anticipated to meet future service demand in the GSSC area. Anticipated apparatus needs for future Shady Grove Station 36 include a paramedic engine and EMS transport unit and potentially a special services unit.

LAYTONSVILLE (TOWN OF LAYTONSVILLE)

The Town of Laytonsville is an incorporated rural municipality that performs planning and zoning independently of the County. Planned development in Laytonsville includes new single-family homes on the Fulks Farm property and on the Stadler Nursery property. A new community known as "Laytonsville Preserve" is under construction on the former Fulks Farm located between Warfield Road and Brink Road, also located west/southwest of Laytonsville Fire Station 17, abutting the Station 17 property. Benefitting from the new municipal water system serving the town, including fire hydrants, Laytonsville Preserve will consist of approximately 75 single-family homes on 1-2 acre lots. On the Stadler Nursery property, located north of Montgomery Country Club, the town's plan envisions a future community of approximately 60 single-family homes. The property fronts on Route 108 to the west and also borders Sundown Road to the north. These homes will also be served by the municipal water system, including hydrants, and will be sprinklered.

The increased call load associated with these future homes in Laytonsville can be easily absorbed by the fire-rescue resources deployed at Station 17. The new municipal water system will provide a continuous, reliable water supply for firefighting throughout the town. Station 17's tanker and engine-tanker will continue to provide portable water supply to support firefighting in areas outside of town lacking fire hydrants.

LIMITED DEVELOPMENT

AGRICULTURAL RESERVE

The County's "Agricultural Reserve" was established in conjunction with the "Preservation of Agriculture and Rural Open Space Functional Master Plan" in 1980. The Agricultural Reserve encompasses 93,000 acres in the western, northern and northeastern County (about one third of the land area in Montgomery County) and was specially zoned to encourage agricultural uses to preserve the agricultural heritage of the County. Since its inception, over 70,000 acres have been further protected through various types of permanent easements which restrict residential, commercial and industrial development. In addition to preserving farmland and open space, farms are important to the County's economy. There are 540 farms and 350 horticultural enterprises in the Agricultural Reserve, collectively having sales of $287.5 million in 2012.

Residential development is restricted to only one single-family dwelling per 25 acres per property owned. For example, a 100-acre farm in the Agricultural Reserve would be allowed a maximum of four dwellings. Instead of building three additional homes on this property in addition to the single existing home, the owner can sell Transfer of Development Rights (TDRs) that have been assigned to his/her property that can be purchased and used by developers to increase building density in TDR receiving areas located outside of the Agricultural Reserve. Of approximately 19,000 TDRs created in 1980, about 10,000 have been transferred/purchased; thus leaving about 9,000 for future transfer.

Due to the restrictions on development within the Agricultural Reserve, the area will experience little development during the 5-year time frame of this Fire-Rescue Master Plan. For this reason, incident call load within the Agricultural Reserve is expected to remain almost even, with a slight increase at most.

PLANNING IN PROGRESS

At the time this Fire-Rescue Master Plan was being written, there were four notable master planning efforts underway led by Maryland-National Capital Park & Planning Commission (M-NCPPC) and City of Rockville planners. These four community plans will have significant impact on fire-rescue service demand and types/levels of risk. Each plan is described briefly below.

BETHESDA CENTRAL BUSINESS DISTRICT ("DOWNTOWN BETHESDA")

At the time this Fire-Rescue Master Plan was being written, M-NCPPC was leading an effort to revisit the master plan for the Bethesda Central Business District (CBD) and prepare a new plan known as the "Bethesda Downtown Plan." The new plan will address land use and density, urban design, mobility, open space, and environmental quality. Preliminary concepts centered on: 1) increased residential density in a business district consisting primarily of offices and retail uses; and 2) increased number of businesses and jobs. Projections to 2040 are for the residential population to nearly double (from 10,610 in 2010 to 21,900 in 2040), the number of households to increase by 82% (from 6500 in 2010 to 11,800 in 2040), and the number of jobs to increase by 38% (from 37,700 to 51,900 in 2040).

Preliminary recommendations call for increased maximum heights, including 290 ft buildings in the Bethesda Metro Station core, 250 ft buildings on Wisconsin Avenue and Elm Street around the proposed Purple Line Station and 250 ft buildings where a new arts center is proposed for Wisconsin and Norfolk Avenues, 120 ft development heights along portions of Battery Lane including the site of the B-CC Rescue Squad, and 70 ft heights along Arlington Road including Bradley Boulevard Shopping Center and office buildings across from the shopping center.

The Bethesda Downtown area is primarily served by Stations 6 and 41. Fire-rescue incident call load within the Bethesda CBD (i.e., not Station 6's entire first-due area) is expected to increase by an estimated 50% at build out. Approximately 80% of the incidents will be EMS in nature, and the majority of the fire-related incidents are expected to involve automatic fire alarms, activated smoke alarms, and alarm bells. All new buildings will have fire detection and suppression systems in accordance with County Code.

WESTBARD (BETHESDA-GLEN ECHO)

At the time this Fire-Rescue Master Plan was being written, M-NCPPC was leading an effort to update the Westbard Sector Plan (to be renamed "PlanWestbard"). The focus of the updated plan will be land-use/zoning, transportation and amenities. The Westbard area is generally bounded by Massachusetts Avenue to the south, Little Falls Parkway to the east, Ridgefield Road to the north, and the Springfield neighborhood to the west (but not including that neighborhood). Major roadways running through the area include River Road (MD 190) and Westbard Avenue.

The draft concept plan includes the following major elements:

- Changes mixed-use zoning to permit higher building height limits which could double or triple the number of residential units

- New road grid configuration for the area that includes Westwood Towers, BowlMor Lanes on the east side of Westbard Avenue and the Giant shopping center and surface parking lot on the west side of Westbard Avenue.

- Potential new elementary school or expansion of Westland Middle School

- New library in the redeveloped Westbard area

- Extension and improvement of Butler Road, possibly extended to Westbard Avenue

The increased mixed-use zoning and higher building height limits could double or triple the amount of residential units in the Westbard area. The existing number of residential units in the area is 1104. If it was built out to current zoning, another 550 to 971 units could be added. Under the proposed zoning in the draft concept plan, 1685-1972 additional units could be built. If everything were to be built, the area could have more than 3,000 residential units. All new buildings in the Westbard plan area will have sprinkler protection and be served by fire hydrants.

The Westbard area is mostly located within Station 11's first-due area, with the remaining portion located within Station 6's first-due area. These stations are distributed well to provide timely response to the Westbard area. Existing suppression resources at these stations are expected to adequately handle fire risk and incident call load in the Westbard area, but additional ALS resources will be needed, including the upgrading of Engine 711 to Paramedic Engine 711 as well as the deployment of an EMS transport unit and possibly an ALS chase unit at Station 6.

ROCKVILLE (CITY OF ROCKVILLE)

The City of Rockville, which has its own planning department independent of the Montgomery County Planning Department, was preparing the City of Rockville Comprehensive Master Plan at the same time this Fire-Rescue Master Plan was being written. One major component of the City's new plan is an independent document required of Maryland municipalities by the State known as the "Municipal Growth Element." That document was completed in 2010 and adopted by the City Council in December 2010. Pages 45-49 of the Municipal Growth Element address fire, rescue and emergency medical services provided to the City by MCFRS and the Rockville Volunteer Fire Department. Existing Stations 3 and 23 (located within City limits) are highlighted, and surrounding stations (outside the City limits) that serve the City are identified as well. Also identified are future County fire stations to be sited at Darnestown and Shady Grove Roads (Station 32 –open February 2014) and near Frederick and Shady Grove Roads (planned Station 36). The City has an Adequate Public Facilities Ordinance that requires the response of fire suppression resources from at least three stations within 10 minutes in order for certain proposed high-risk occupancies (i.e., schools, hospitals, nursing homes, and places of assembly seating more than 500) to be approved by the City Council.

The City's Municipal Growth Element forecasts certain demographics from 2010 to 2040 in 10-year increments. City population is projected to increase by almost 9400 (15.0%) from 62,476 in 2010 to 71,874 in 2020, and number of households is projected to increase by about 4450 (18.3%), from 24,327 in 2010 to 28,784 in 2020. During that 10-year period, the number of jobs within the City (private and public) are projected to increase by over 17,000 (22.9%), from 74,549 to 91,600. Housing demographics were also provided but not by 10-year increments, only from 2010 to 2040. Approximately 47% of Rockville residents live in single-family detached houses, 14% of residents in single-family attached (townhouses), and 39% in multi-family residences.

It is difficult to determine the impact that growth and development within the City of Rockville would have on fire-rescue risk and service demand until such time that the City's new Comprehensive Master Plan is completed and approved. Based solely on the population projections for 2020, there could be an increase of approximately 1000-1100 incidents within the City to be handled mostly by Stations 3, 23, 32 and 33. It is anticipated that approximately 75-80% of the increased call load would involve EMS incidents. Additional resources will be needed to address this increased risk and call load. The addition of planned Station 36 in the vicinity of Frederick and Shady Grove Roads would make possible the deployment of an additional engine and EMS unit on the northern edge of Rockville to help in meeting this risk /demand. Additional EMS resources would be needed at Station 23 and possibly Station 3 to meet the overall EMS service requirements in Rockville brought about by growth projected in the City's Comprehensive Master Plan and Rockville Pike Plan (see heading below) as well as the County's Twinbrook and White Flint Sector Plans (see headings above).

ROCKVILLE PIKE PLAN (CITY OF ROCKVILLE)

The City of Rockville was also preparing the "Rockville's Pike Plan" at the same time this Fire-Rescue Master Plan was being written. The Rockville's Pike Plan covers the Rockville Pike corridor from Rollins Avenue northward to Richard Montgomery Drive. The eastern boundary is the CSX Railroad/Metro Red Line but also includes the Twinbrook Metro Station east of the rail lines as well as adjacent high-rise community known as "Twinbrook Station." The plan's western boundary is East Jefferson Street to the south, Fleet Street to the north, and a straight line parallel to Rockville Pike connecting the two streets (i.e., a planned extension of East Jefferson Street).

The draft Rockville's Pike Plan features a transformation of Rockville Pike (i.e., portion within the plan's boundaries), into a 252 ft. wide "multi-way boulevard." A multi-way boulevard handles a large volume of faster-moving through-traffic on central travel lanes as well as slower local traffic on separate parallel lanes. Through-traffic and local traffic are separated by landscaped medians. The combination of medians, local access lanes flanked by on-street parking, bicycle lanes, and wide sidewalks create a multi-modal, "pedestrian friendly" urban streetscape. The Rockville Pike design would also include two lanes in the center median of the main lanes for bus rapid transit. The draft plan also calls for an expanded road network with extensions of East Jefferson Street and Fleet Street (with both extensions connected to Wootton Parkway), extension of Chapman Avenue north of Halpine Road, and additional cross streets (i.e., "business district streets") running east and west connecting Rockville Pike with these extended north-south roadways to form a grid pattern.

The draft Rockville's Pike Plan envisions a community with a balance between retail, employment, and residential uses which would require additional residential development to achieve the desired balance. Also included would be commercial, institutional, assembly, recreational, entertainment and civic uses. Mixed-use buildings would be prevalent along Rockville Pike, within Twinbrook Station, and in other high-density areas. Multi-family residences would be the predominant type of residential development, with some townhouses permitted in areas other than the Core Area along Chapman Avenue. High-rise buildings of up to 10 stories would be located close to the Twinbrook Metro Station, and mostly mid-rise buildings would be located along Rockville Pike. A minimum of two-stories is generally recommended for all new buildings throughout the plan area.

Under the assumption that the draft Rockville's Pike Plan is approved as the final plan by the City without major changes, the envisioned high-density development, including additional multi-family dwellings, would create a moderate increase in fire-rescue call load for Rockville Stations 3 and 23, mostly impacting Station 23. It is anticipated that approximately 75-80% of the increased call load would involve EMS incidents. Combined with increased EMS service demands associated with White Flint and Twinbrook, additional EMS resources will be needed at both Stations 3 and 23. The need for deploying one or more EMS transport units at old Station 23 (121 Rollins Ave.) after the opening of new Station 23 (Montrose Pkwy. & Chapman Ave.) will need to be evaluated during the 2019-2020 time frame along with the feasibility of reusing

old Station 23. Although there will be increased demand for fire suppression services associated with the Rockville's Pike Plan, the existing suppression resources at Stations 3 and 23 (each having an engine and aerial unit) are expected to meet this demand, along with 2nd or 3rd due assistance from Engine 721 utilizing Twinbrook Parkway as well as the future Montrose Parkway East to respond quickly into this planning area. All new buildings in this planning area will have sprinkler protection and be served by fire hydrants.

MONTGOMERY VILLAGE

Montgomery Village is the 2,345-acre planned-community of approximately 40,000 residents situated northeast of the City of Gaithersburg, built mostly during the mid to late 1960s. At the time this Fire-Rescue Master Plan was being written, M-NCPPC was initiating a revision of its 1982 Gaithersburg East/Montgomery Village Master Plan by splitting off the Montgomery Village portion into a separate master plan. The focus of the new plan is four specific properties to be considered for rezoning and redevelopment:

- Montgomery Village Golf Course – 147-acre former golf course, located on the east and west sides of Montgomery Village Avenue in the vicinity of Duffer Way, proposed for redevelopment by its new owner into a residential community comprised mostly of townhouses, some single-family homes and possibly a limited number of multi-family dwellings. Total dwelling units could number 400-500. About 60% of the acreage is undevelopable, consisting of streams, ponds, and other environmentally sensitive areas to remain as open space.

- Village Center – 58-acre shopping center, located along Montgomery Village Avenue between Stedwick Road and Club House Road, comprised of commercial/retail buildings, restaurants and gas stations.

- Professional Center – 7-acre townhouse condominium office complex comprised of two-story, clustered buildings occupied by doctors, dentists, and other professionals. Located at southeast corner of Montgomery Village Avenue and Centerway Road.

- The Gateway – Vacant 3-acre property located on the northeast corner of Montgomery Village Avenue and Lost Knife Road. This is the unofficial "gateway" to Montgomery Village from the south.

Montgomery Village is situated predominantly within Station 8's first-due area and partially within Station 17's and 34's first-due areas. With its diverse population, including many immigrants and seniors, and many of its single-family homes, townhouses and garden apartments lacking sprinkler protection, Montgomery Village has one of the County's highest levels of risk and incident call loads for both EMS and fire incidents. When considering the future redevelopment of the golf course into a residential community, the high call load present throughout Montgomery Village and Gaithersburg, and the location of Station 8 in the City of Gaithersburg near the southwest edge of the Village, there is a clear need for a new fire-rescue

station in the central/northern portion of Montgomery Village. This need was previously identified and described in the MCFRS "Station Location and Resource Allocation Study – Phase 4 Report." Any new buildings/homes in Montgomery Village will have sprinkler protection and be served by fire hydrants.

IMPACT OF MASS TRANSIT DEVELOPMENT/EXPANSION ON RISK AND SERVICE DEMAND

Planned mass transit projects will have a major impact on fire-rescue risk and service demand in two ways. Firstly, mass transit projects will bring about additional fire, rescue and EMS risk and associated call load that must be addressed through preparedness, resource deployment and training. Secondly, future development is largely dependent upon mass transit which makes high density development possible. This development results in greater fire-rescue risk and drives service demand as described above.

Three major mass transit projects are planned for Montgomery County; although not yet funded. Two of these, the Purple Line and Corridor Cities Transitway, are State projects led by the Maryland Transit Administration. The Bus Rapid Transit Corridors Project is a County project. Each of the three mass transit projects is described below.

PURPLE LINE

The Purple Line is the Maryland Transit Administration's (MTA's) proposed 16.2-mile light rail transit system that would run from Bethesda in Montgomery County to New Carrollton in Prince George's County (see Map 14 in Appendix F). The 9-mile portion in Montgomery County would run from Bethesda to Takoma/Langley Park, passing through Chevy Chase, Silver Spring and Takoma Park. Eleven of the 21 stations[61] would be located in Montgomery County as well as the system's western rail yard ("Lyttonsville Yard").   The system would be above ground, mostly at grade, with the exception of an approximately 1500 ft tunnel between Plymouth Street and Arliss Street in Silver Spring and an approximately 1100 ft portion running under the Apex Building, Wisconsin Avenue, and Air Rights Building in Bethesda. The two-track line would be electric- powered through overhead catenaries supported on trackside catenaries poles attached to train cars through a pantograph. The Purple Line would connect to the Metro Red Line at the Bethesda and Silver Spring Stations and to the MARC Line at the Silver Spring Transit Center. A hiker-biker trail is proposed to parallel the Purple Line between Bethesda and Silver Spring consisting of an improved Capital Crescent Trail. MTA has designed the enhancements to the existing trail system as part of the Purple Line design but Montgomery County would pay for its

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[61] The 11 stations in Montgomery County would include Bethesda, Connecticut Avenue, Lyttonsville, Woodside/16th Street, Silver Spring Transit Center, Silver Spring Library, Dale Drive, Manchester Place, Long Branch, Piney Branch Road, and Takoma/Langley Transit Center (located on the Montgomery/P.G. County line).

construction, maintenance and operation. The Purple Line would transport an estimated 69,000 passengers per day (on average) between its Bethesda and New Carrollton stations.

MTA has been working on the Conceptual and Preliminary Engineering Phase of the Purple Line Project since 2009 in close coordination with Montgomery and Prince George's Counties, Washington Metropolitan Area Transit Authority, Maryland-National Capital Park and Planning Commission, State Highway Administration, and local municipalities in the project area. MCFRS has participated in this phase of the project since 2009 by being members of the Purple Line's Montgomery County planning group as well as members of the MTA's Fire, Life Safety and Security Committee. In 2013, MTA decided to use a public-private partnership (P3) to design, build, operate, maintain and finance[62] the Purple Line. At the time this Fire-Rescue Master Plan was being written, MTA had issued the RFP for P3 proposals and was awaiting bids.

Through participation in the initial phase of the project, MCFRS was able to provide input to the preliminary design in terms of adequate fire department access to both the rail and trail systems as well as fire protection and life safety systems/equipment to be installed in the rail system structures, including tunnels, stations, Silver Spring Transit Center, Lyttonsville Yard, and power stations.

Combined fire, rescue and EMS risk associated with the construction and operation of the Purple Line was being assessed by MCFRS as this Fire-Rescue Master Plan was being written based upon the preliminary design plans. While some aspects of the Purple Line will present risks similar to those of the Metro Rail System found in Montgomery County, there will be new risks to assess and prepare for related to a light rail system involving the use of overhead catenaries. Based upon this risk assessment, MCFRS will need to ensure operational readiness in terms of new/additional fire suppression and technical rescue equipment, specialized training, and standard operating procedures specific to the Purple Line and trail systems. For rescue and EMS- related incidents along the trail system, the strategic deployment of ATVs at fire stations along the Purple Line will also need to be determined and the ATVs acquired and deployed.

BUS RAPID TRANSIT CORRIDORS

Bus Rapid Transit (BRT) combines features of both a bus system and a light rail system, but BRT is far less costly than a light rail system. BRT systems feature dedicated travel lanes, lane and signal priority, low-floor buses allowing for faster/easier entry and exiting, and pay stations to pay for fares before boarding.

The Countywide Transit Corridors Functional Master Plan (CTCFMP), adopted by the Planning Board of the Maryland-National Capital Park and Planning Commission in December 2013, recommends implementing a 102-mile BRT network comprised of 10 corridors (82 miles) plus the 20-mile Corridor Cities Transitway (see separate heading below). The plan also recommends expanding right-of-way for the CSX Metropolitan Branch to allow for enhanced MARC

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[62] The estimated cost of the project as of Fall 2014 was $2.448 billion.

commuter rail service, and the plan designates 24 additional Bicycle–Pedestrian Priority Areas. Of the 102 corridor-miles recommended in the CTCFMP, nearly 80**%** of this network is comprised of dedicated lanes. In most instances where the plan calls for dedicated lanes, it is the result of adding transit lanes within previously approved master-planned rights-of-way. In some instances, dedicated lanes may be created from existing or planned general purpose lanes. There are only about 21 miles in this network where buses would operate in mixed traffic. The 102-mile network will be constructed in stages over a number of years based on available resources, priorities, and need. The CTCFMP's recommended transit corridor network is intended to serve current and planned land use in adopted community master and sector plans.

<u>Map 15 in Appendix F</u> is from the CTCFMP denoting the ten BRT corridors and Corridor Cities Transitway (CCT). Corridors 1 and 2 will be established along Georgia Avenue – Georgia Avenue North (beginning in Olney) and Georgia Avenue South (ending in Silver Spring at the County line). Corridors 3 and 4 will be along MD355 – MD355 North (beginning in Clarksburg) and MD355 South (ending in Bethesda at the County line). The remaining corridors include:

- Corridor 5 - New Hampshire Avenue from Randolph Road southward to Takoma Park
- Corridor 6 – North Bethesda Transitway from Montgomery Mall to MD355 (either to the White Flint or Grosvenor Metro Station)
- Corridor 7 – Randolph Road from MD355 to U.S. 29
- Corridor 8 – University Blvd. from Georgia Ave. to New Hampshire Ave.
- Corridor 9 – U.S. 29 (Columbia Pike) from Georgia Ave. to MD198
- Corridor 10 – Veirs Mill Road from MD355 to Georgia Ave.

BRT station locations (117-119 stations) have been identified in the CTCFMP in general locations; however, their precise locations will be determined during facility planning.

The BRT system is anticipated to have an impact on MCFRS primarily in terms of increased EMS incidents involving individual passengers as well as collisions involving BRT buses and other vehicles resulting in injuries to bus passengers, other motorists and pedestrians. Fires involving BRT buses will occur as well but those incidents will be greatly outnumbered by EMS/collision incidents. While it is difficult to estimate the number of incidents (by incident type) relating to BRT, it is reasonable to anticipate approximately 500-1000 incidents annually involving fall-related injuries, sick persons, cardiac patients, struck pedestrians, and collisions with other vehicles. The distribution of fire-rescue stations and concentration of fire, rescue and EMS resources (i.e., personnel, equipment, and apparatus) in the areas to be served by BRT are expected to be adequate; although additional EMS incidents will contribute to an increased need for EMS resources in general due, in part, to other types of risks present in these same areas. Specialized training for MCFRS personnel will be needed in order to effectively and safely perform passenger extrication and fire suppression involving BRT buses which will have a different design than traditional buses.

CORRIDOR CITIES TRANSITWAY

Although included in Bus Rapid Transit Corridors (see above) as addressed in the Countywide Transit Corridors Functional Master Plan, the Corridor Cities Transitway (CCT) is presented separately due to is uniqueness and scope when compared with other BRT corridors described above. Furthermore, the CCT is a State project whereas the other ten BRT corridors fall under the County's responsibility. Unlike the other ten corridors, the CCT will not utilize one or more existing roadways generally oriented in a straight line; rather, it will take a circuitous route through high density areas and will require the construction of new roadway to be used solely by BRT vehicles.

The CCT will be designed and built in two phases (see Map 16 in Appendix F). Phase I will be a 9-mile segment running from the Shady Grove Metro Station to the CCT's Metropolitan Grove Station in Gaithersburg. From Shady Grove, the CCT will follow a path through King Farm, cross over I-270, then through Crown, the Life Sciences Center and Universities at Shady Grove, the Kentlands, and finally to the Metropolitan Grove area of Gaithersburg. The preliminary site for the operations and maintenance facility is adjacent to the Metropolitan Grove Station. BRT buses will be stored and refueled ("clean" diesel) at this facility as well.

Phase I was in the planning and design stage as this master plan was being written. The design was to be completed by 2018 and construction, upon being funded, was to take approximately three years. If construction funding was secured by 2018, Phase I of the CCT could be operational as early as 2021. Portions of the CCT that will use the right-of-way of existing roads will require the construction of new BRT lanes in the medians or parallel to the shoulders of existing lanes. Phase I CCT stations will be at grade with the exception of the Kentlands Station which will be elevated due to topography constraints. Phase I will have fourteen stations, all of a center-load configuration with the exception of two side-load stations – DANAC and Shady Grove. All stations will be 150 ft long, 18 ft wide and have partial canopies. Average daily ridership for Phase I has been projected at 35,900. BRT buses will be 60 feet long with 60 seats and be of an articulated design, carrying up to 90 passengers at acceptable maximum loading.

Phase II will be a 6-mile segment running from Gaithersburg to Clarksburg via Germantown (see Map 16 in Appendix F). The time table for Phase II was unknown at the time this master plan was being written, and ridership projections for Phase II had not yet been calculated.

The BRT system is anticipated to have an impact on MCFRS primarily in terms of increased EMS incidents involving individual passengers as well as collisions at intersections involving CCT (BRT) buses and other vehicles resulting in injuries to bus passengers, other motorists and pedestrians. Fires involving BRT buses will occur as well but will be greatly outnumbered by EMS/collision incidents. While it is difficult to estimate the number of incidents (by incident type) relating to BRT, it is reasonable to anticipate approximately 200-300 incidents annually involving fall-related injuries, sick persons, cardiac patients, struck pedestrians, and collisions with other vehicles. The distribution of fire-rescue stations and concentration of fire, rescue and EMS resources (i.e., personnel, equipment, and apparatus) in the areas to be served by the CCT

(Phase I) are expected to be adequate; although additional EMS incidents will contribute to an increased need for EMS resources in general due, in part, to other types of risks present in these same areas. Specialized training for MCFRS personnel will be needed to effectively and safely perform passenger extrication and fire suppression involving BRT buses which will have a different design than conventional buses.

STANDARDS OF COVER

The MCFRS' standards of response coverage are identified and described in a document titled "MCFRS Standards of Cover" (a.k.a., SOC). The document has been prepared in accordance with the CFAI guidance publication "Standards of Cover – 5th Edition." The primary purpose of the MCFRS SOC is to describe and quantify the County's fire-rescue risk and related service demand and to set forth the level of response coverage (i.e., station distribution, resource concentration, and response time goals) that will be in place to meet service demand and mitigate the defined risk at a level that is acceptable to the Fire Chief, County Executive, County Council and County residents and business owners.

Standards of response coverage are determined by identifying critical tasks to be performed at the incident scene and then defining staffing levels for various types of apparatus as well as response time goals for assembling required resources (i.e., personnel, apparatus and equipment) at the incident scene. Critical tasks, staffing levels and response time goals are discussed below.

CRITICAL TASKS

The first step in determining appropriate standards of response coverage is to identify the critical tasks that must be performed by fire-rescue personnel to effectively and safely manage and control fire, rescue, EMS and special operations incidents. This is known within accreditation circles as performing a critical task analysis. To streamline the process of identifying critical tasks, the tasks are categorized by incident category (i.e., emergency program – ALS1, ALS2, BLS, fire full- assignment, etc.) and by level of risk (i.e., low, moderate, high, special).

Section C of the MCFRS "Standards of Cover" (SOC) document includes the results of the critical task analyses performed by the Operations Division for each of the risk levels within each of the emergency programs. For each risk level within each emergency program, a table is presented listing the critical tasks to be performed, number of personnel required to complete each task, and the unit or riding position(s) associated with each task. The number of personnel required to complete all critical tasks per risk level within each program is known as the effective response force (ERF) for that risk level/program, ranging from two personnel for a low-risk EMS incident (i.e., BLS incident) up to 31 personnel for a special-risk, fire full-assignment (e.g., high-rise) incident. The ERF can also be described in terms of the number and type of apparatus that deliver that amount of personnel and equipment to the incident scene. For example, a high-risk, fire full-assignment (e.g., house fire) incident requires a minimum response of five engines, two

aerial units, a rescue squad, an EMS unit and two chiefs (i.e., command officers), or a total of 28 personnel, to effectively and safely perform the 11 critical tasks that have been identified for that incident type and associated risk level.

STAFFING LEVELS

The County has established minimum staffing levels for apparatus in Executive Regulation 25-08AM, "Apparatus Staffing Policy," as follows: engine-3 personnel, aerial unit-3, rescue squad-3, ALS unit (e.g., medic unit)-2, BLS unit (e.g., ambulance)-2, tanker-1, brush unit-1, special unit-1. In FY07, MCFRS initiated a strategy to increase staffing on frontline engines, aerial units and rescue squads to the desired staffing level of four personnel; although minimum staffing remained at three for these units. The fourth individual can be a career or volunteer firefighter. With at least one of the four personnel a firefighter-paramedic, these units serve a second function as ALS first-responder apparatus.

At the time this master plan was being written, four-person staffing had been achieved on most frontline engines, except Engines 702, 705, 710, 711, 720, 726 and 740, plus one aerial unit (i.e., Aerial Tower 708). The MCFRS strategy is to complete four-person staffing on the remaining frontline engines, then the remaining frontline aerial units, followed by frontline rescue squads. Once four-person staffing has been achieved on all frontline engines, aerial units and rescue squads, minimum staffing should, by future amended policy, be established as four personnel on these unit types. Minimum staffing on medic units and ambulances would likely remain as two personnel, with a desired staffing level of three. If MCFRS were to implement ALS chase units in place of most medic units, the chase units would have minimum staffing of one person – a paramedic.

RESPONSE TIMES

An important element of the MCFRS standards of cover is response time to incidents. **Response time (a.k.a., "total response time") is the sum of 9-1-1 call processing/dispatch time, turnout time, and travel time**. This definition is consistent with the CFAI accreditation model. **Alternatively stated, total response time is the elapsed time from the point when MCFRS communications personnel[63] begin the 9-1-1 incident triage process with the caller, to the on-scene arrival of MCFRS apparatus**.

Consistent with the CFAI accreditation model, total response time (hereafter referenced as "response time") is viewed by MCFRS in two ways with respect to the number of resources arriving at the incident. It is a common performance measure for fire departments, including MCFRS, to track response time of the first-arriving unit for all incident types. The first-arriving unit can initiate incident scene assessment and communicate this information to ECC for the benefit of other incoming units. There are certain incidents; however, where the first-arriving

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[63] Following implementation of the universal call-taker model under MCP, "MCFRS communications personnel" will be replaced by "universal call-takers" in this definition.

unit will be the sole unit required to handle the emergency such as a BLS incident (e.g., an ambulance handling a patient with a minor injury) or a low-risk fire incident (e.g., engine handling a dumpster fire without exposures). Likewise, it is useful for fire departments, including MCFRS, to track the response time of all units dispatched to an incident whether that be two units, ten units, or more. Alternatively stated, this is the response time of the "effective response force" (ERF) which is based on the response time of the last-arriving unit of the ERF. For higher risk incidents that require more resources, the difference in response time between first-arriving unit and last-arriving unit can be significant.

Also in keeping with the CFAI accreditation model, MCFRS has two sets of response time metrics it tracks and uses for performance measurement – baselines and benchmarks. The CFAI accreditation model requires that response time baselines and benchmarks are established at the 90th percentile[64] rather than the average response time, as 90th percentile indicates a more credible level of performance. The baseline set of metrics are based upon data mining and analysis performed at least annually. Whatever 90th percentile times are derived from that data analysis become the new set of baselines, which will have improved, remained equal or declined compared to the previous set of baselines. Benchmarks are a set of 90th percentile response time goals that are established by MCFRS at a level that will be challenging, but realistic, to achieve at a future date chosen by the department. Benchmarks are meant to be achieved incrementally as a result of planned/implemented enhancements such as additional resources, improved policies and procedures, improved management practices, application of new technologies or innovative approaches, etc. As benchmarks are achieved by the department, they should be reset to further challenge the department to seek continuous improvement.

FIRST-ARRIVING UNIT RESPONSE TIMES

First-arriving unit response time is greatly influenced by station distribution in that travel time of a first-arriving unit is mostly related to distance of travel; although traffic congestion, weather, and lane closures can be factors as well. Station distribution in Montgomery County is based on both population density, building density and level of risk. Stations are closely spaced within areas of metropolitan and urban density, further apart in suburban areas, and furthest apart in rural areas of the County.

MCFRS has identified within its SOC the type of unit per incident category (i.e., emergency program – ALS1, BLS, fire-full assignment, etc.) that meets the criteria for being an appropriate first-arriving unit. For example, the unit meeting the appropriateness criteria for first-arriving unit to an ALS1 or ALS2 incident is an ALS unit (e.g., medic unit or ALS first-responder apparatus such as a paramedic engine) even if some other type of first-responder unit of lesser patient care capability (e.g., ambulance) arrives beforehand. As another example, the unit meeting the appropriateness criteria for first-arriving unit to a fire full-assignment incident is an

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[64] 90th percentile response time indicates that 89.99% of response times analyzed over a period of time were lower (i.e., better) than the 90th percentile value and 10% were worse (i.e., higher).

engine even if another type of unit lacking a pump, water and hoses (e.g., aerial unit, ambulance) arrives beforehand.

FIRST-ARRIVING UNIT BASELINES

Based on FY14 response time data, MCFRS had compiled a set of 90th percentile response time baselines for first-arriving unit for each emergency program and density zone. At the time this master plan was being written, the FY14 first-arriving unit baselines were the most recent set of full fiscal year baselines. First-arriving unit baselines indicate the department's most recent level of performance for comparison to previous baselines as well as to first-arriving unit benchmark goals for the future.

FIRST-ARRIVING UNIT BENCHMARKS

Based on FY13 - FY15YTD[65] response time data as well as future factors such as planned resource and technological enhancements and call load projections, MCFRS has compiled a set of 90th percentile response time benchmark goals for first-arriving unit for each emergency program and density zone. It is envisioned that these benchmarks will be met by 2020 if operational and technological resource enhancements recommended in this master plan were to be fully implemented. The 2020 first-arriving unit benchmarks are shown in Table 3 in Appendix G.

EFFECTIVE RESPONSE FORCE RESPONSE TIMES

Effective response force (ERF) is about resource concentration in relation to risk and service demand. Concentration relates to having sufficient quantities of appropriate apparatus, equipment and personnel to handle the overall risk and service needs of a given area in a timely, effective, efficient and safe manner.

MCFRS has determined an appropriate ERF for each type of incident and risk level based on critical tasks to be performed and has developed a response assignment for each, consisting of specific apparatus to be dispatched. For example, the ERF for a special-risk, high-rise fire requires the response of 5 engines, 3 aerial units, a rescue squad, an EMS transport unit, and two command officers. These units must assemble within a reasonable time frame (as specified below) to control the fire, perform rescues as needed, treat/transport the injured as needed, and minimize property damage. The ERF response time is based on the response time of the last-arriving unit of the ERF, which in the case of the high-rise fire would likely be the fifth-due engine, third-due aerial, or second-due battalion chief traveling the longest distance.

A large concentration of varied resources is needed most within areas of the County having high density and/or high-special risk. This is important for not only the initial incident but for a multiple alarm incident or several concurrent incidents within the same geographic area. The

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[65] FY15 year-to-date was through February 28, 2015 while this master plan was being written.

need for a large concentration of resources in a particular area might be addressed by close distribution of stations and/or deployment of more than one specific type of resource (e.g., two ambulances, two engines, etc.) at a given station.

ERF BASELINES

Based on FY14 response time data, MCFRS had compiled a set of 90th percentile response time baselines for effective response force (ERF) for each emergency program and density zone. At the time this master plan was being written, the FY14 ERF baselines were the most recent set of full fiscal year baselines. ERF baselines indicate the department's most recent level of ERF performance for comparison to previous baselines as well as to ERF benchmark goals for the future.

ERF BENCHMARKS

Based on FY13 through FY15-YTD[66] response time data as well as future factors such as planned resource and technological enhancements and call load projections, MCFRS has compiled a set of 90th percentile ERF response time benchmark goals for each emergency program and density zone. It is envisioned that these ERF benchmarks will be met by 2020 if operational and technological resource enhancements recommended in this master plan were to be fully implemented. The 2020 ERF benchmarks are shown in Table 4 in Appendix G.

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[66] FY15 year-to-date was through February 28, 2015 while this master plan was being written.

PUBLIC HEARING DRAFT
FIRE, RESCUE, EMERGENCY MEDICAL SERVICES,
AND COMMUNITY RISK REDUCTION MASTER PLAN

SECTION 5

ISSUES AND NEEDS

SECTION 5

ISSUES AND NEEDS

Section 5 addresses fire, rescue and EMS issues and needs identified from within the Fire and Rescue Service as well as those identified by the five Citizen Advisory Boards associated with the County's five Regional Services Centers[67]. The discussion on issues and needs is presented below by broad functional categories including preparedness/readiness, resource deployment, planning and assessment, infrastructure and communications, information technology, data analysis and application, training/wellness, support services, and other issue/needs.

Initiatives related to these issues and needs are presented in Section 6 – Initiatives and Priorities.

PREPAREDNESS/READINESS

Issues, needs and priorities pertaining to Fire and Rescue Service preparedness and readiness is presented below under the categories of emergency services, fire and explosive investigations, fire code compliance and engineering services, community outreach/public information, and the Community Emergency Response Team.

EMERGENCY SERVICES

Emergency response-related issues and needs are presented below by emergency response program area. Note: Issues and needs pertaining to emergency response resource deployment and staffing are addressed in a separate heading below by that title.

EMERGENCY MEDICAL SERVICES

1. The ALS delivery model must be modified to improve the availability and reliability[68] of ALS service. With the County's population increasing at a steady rate and also aging, ALS demand will increase as well. To meet this demand and to deliver ALS services within MCFRS response time goals, additional ALS resources must be deployed throughout the

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[67] The five Citizen Advisory Boards include: Bethesda-Chevy Chase/Western County, Silver Spring, East County, Mid-County and Up-County.

[68] Reliability addresses both availability of a specific type of unit and whether its response time is within established 90th percentile goals of the department.

County particularly in the areas of highest population density and areas where stations lack ALS capability on a regular basis.

To maximize efficiency, ALS units should be involved in as few BLS incidents as possible, and ALS units should be returned to service as quickly as possible after each incident response to be ready for the next ALS call. This can be achieved by decreasing or even eliminating the number of ALS and BLS transports handled by ALS units. The best alternative to achieve this goal is to use a vehicle platform that delivers ALS providers and equipment to the incident scene but lacks transport capability. Those vehicles would include ALS chase units and fire suppression and rescue apparatus. Use of paramedic engines and, to a much lesser degree, paramedic aerial units and paramedic rescue squads has been employed since FY07 and should be increased through full implementation of the department's four-person ALS staffing strategy for engines, aerial units and rescue squads. ALS chase units, pilot tested at Stations 3, 8, 25 and 42 during a 12-week period (April 20 – July 12, 2014), proved successful[69] and should be implemented permanently in place of ALS transport units (i.e., medic units) where practicable.

2. The County's BLS call volume is increasing due to increased total population as well as segments of the overall population (e.g., seniors, persons of low income) that heavily utilize BLS services. With increased BLS demand, additional BLS resources are needed, including BLS providers, ambulances and BLS equipment. By expanding BLS resources, BLS patients will receive faster service and there will be more BLS transport units in service to replace medic units which themselves would be replaced for the most part by ALS chase units (see #1 above). A greater number of BLS units would also result in less BLS responses for ALS units which increases the availability and reliability of ALS units for ALS incidents.

    To better address the EMS response to low-severity BLS incidents (i.e., Alpha and Omega categories) and to reduce overcrowding of hospital emergency rooms with patients having this level of BLS need, the MCFRS needs to explore options for delivering assessment and care to these patients which will not involve transport in some cases. An alternative, hybrid type of response capability should be explored for these patients.

3. New-additional fire-rescue stations are needed in several areas of the County as recommended in Phases 3 (Shady Grove), 4 (Northeastern County) and 5 (Eastern County) of the Station Location and Resource Allocation Study. New-additional stations having the highest priority need include the following (listed in sequential station order):

    *   "Shady Grove" Station 36 in the vicinity of Shady Grove and Frederick Roads
    *   "Eastern County" Station 37 in the vicinity of Columbia Pike and Tech Road

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[69] Performance results of the pilot test indicate that ALS unit availability and efficiency had improved, ALS response time improved slightly, and the number of ALS responses by engines, aerial units and rescue squads decreased.

- "Norbeck" Station 38 along the Norbeck Road corridor (to be determined)
- "Montgomery Village" Station 39 in the vicinity of Goshen Road and Rothbury Drive.

In terms of EMS resources, each of the above new stations would need a paramedic engine and BLS transport unit (ambulance). The "Norbeck" Station, with its anticipated proximity to Leisure World, would need an ALS chase unit as well.

4. The EMS Medical Director's position needs to be converted from a part-time, contract position to a fulltime County-employee within the MCFRS. The existing arrangement has several inherent disadvantages:

- Lack of time to address all of the EMS program's needs
- Professional segregation between contractor and a cohesive group of employees
- Limitations to legal protections for service (i.e., tort claims act, indemnification)
- Access to resources readily available to employees (e.g. support staff)
- Certain applications of appropriate medical authority (surveillance, supervision)

Advantages of having a fulltime, County-employed Medical Director (MD) include:

- Strengthening the commitment of the EMS MD to exclusive needs of MCFRS
- Opening doors for closer relationships with the Fire Chief and chief officers
- Creating mechanisms for more real-time field supervision and QA/QI
- Allowing the Office of the Fire Chief to expand utilization of the EMS Medical Director
- Providing oversight within the discretion of the Fire Chief
- Providing the MCFRS the ability to attract and retain a true specialist in EMS Medicine
- Allowing the Office of Medical Oversight to keep pace with a growing EMS program, including oversight tasks entailed in the PSCC modernization and the accreditation of the Fire-Rescue Training Academy.

5. Improvements are needed to the EMS logistics function to increase cost-efficiency and effectiveness. Needs include improved warehousing of EMS equipment/supplies and development of non-durable EMS supplies management. Specific needs include the hiring of a fulltime warehouse manager, moving the existing operation from the Dover Road Warehouse to the future Southlawn Warehouse, and acquisition and implementation of an automated materials management system. For management of non-durable EMS supplies, a system is needed for shelf-life monitoring and rotation of stock – both at the warehouse and in fire stations.

- ## FIRE SUPPRESSION

1. The MCFRS' four-person staffing strategy has not been fully implemented on all frontline engines, aerial units and rescue squads. Implementation of four-person staffing (i.e., adding of a fourth firefighter, who also has paramedic credentials, to a three-person unit) began in

FY07 and has been incrementally phased-in over nine fiscal years, resulting in 28 engines and one aerial unit operating with four-person minimum staffing as of FY15. Twenty seven frontline heavy apparatus, including 7 engines, 14 aerial units and 6 rescue squads[70], still operate (as of FY15) with three-person staffing and therefore each unit needs to be upgraded with a fourth firefighter.

2.   New-additional fire stations are needed in several areas of the County as recommended in Phases 3 (Shady Grove), 4 (Northeastern County) and 5 (Eastern County) of the Station Location and Resource Allocation Study. New-additional stations having the highest priority need include the following (listed in sequential station order):

- "Shady Grove" Station 36 in the vicinity of Shady Grove and Frederick Roads
- "Eastern County" Station 37 in the vicinity of Columbia Pike and Tech Road
- "Norbeck" Station 38 along the Norbeck Road corridor (to be determined)
- "Montgomery Village" Station 39 in the vicinity of Goshen Road and Rothbury Drive.

In terms of fire suppression apparatus, each of the above new stations would need a four-person paramedic engine. An aerial unit could potentially be deployed at the Shady Grove Station (see #3 below) as well.

3.   An aerial unit is needed in the Shady Grove-Derwood area to address aerial services that exceed response time goals in an area where building density has increased greatly since 2000 and will increase further as the area surrounding the Shady Grove Metro Station is redeveloped in accordance with the Shady Grove Sector Plan. An aerial unit located in this area would also alleviate some of the call load from two of the County's busiest aerial units located at Stations 8 and 3. This new aerial unit would need to be deployed at future Shady Grove Station 36 or at Station 28 following expansion or rebuilding of that station to accommodate additional apparatus, equipment and personnel.

4.   An extrication-capable unit is needed at Station 40 to provide faster extrication service to the ICC and along the Georgia Avenue and Route 108 corridors in the Olney area. Each of these highways experiences high-speed collisions, particularly the ICC which has a 60 mph speed limit. The advantage of having an extrication unit close to the recently opened ICC can be realized by deploying an extrication-capable unit at Station 40. As of FY15, these major highways were served by an extrication-capable unit responding from Aspen Hill (i.e., Truck 725) and/or a Rescue Squad responding from Laytonsville (Station 17), Wheaton (Station 42), or Rockville (Station 3).

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[70] The 27 units include: Frontline engines at Stations 2, 5, 10, 11, 20, 26 and 40; aerial units at Stations 3, 6, 10, 15, 16, 18, 19, 23, 24, 25, 31, 34, 35 and 40; and frontline rescue squads as Stations 3, 15, 17, 29, 41 and 42.

- SPECIAL OPERATIONS

    For the overall readiness of MCFRS Special Operations, the Special Operations Section has staffing needs for several new positions. They are listed under the "Resource Deployment and Staffing" heading below.

APPARATUS

1. By 2020, MCFRS will need to have the following minimum frontline apparatus in service to meet daily service demands. The list includes apparatus that was in place as of FY15 as well as apparatus required to meet anticipated service demand by 2020, including apparatus to be deployed at a new-additional station (if open by 2020).

    - 36 paramedic engines (increase of 1 engine vs. FY15 level)[71]
    - 48 ambulances (increase of 23 ambulances vs. FY15 level)[72]
    - 16 aerial units[73] (increase of 1unit over FY15 level)
    - 13 ALS chase units (increase of 13 over FY15 level)[74]
    - 12 brush units
    - 12 rescue boats plus tow vehicles
    - 8 tankers
    - 6 rescue squads
    - 5 all-terrain vehicles (ATVs)
    - 4 brush engines
    - 4 special operations units (some having tow capability for boats)
    - 4 boat support units
    - 2 medic units (decrease of 15 units vs. FY15 level)[75]
    - 2 hazmat units
    - 2 mobile ambulance buses
    - 2 medical care support units

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[71] One additional engine would be deployed at a new-additional fire station if opened by 2020.

[72] Thirteen of the 23 additional ambulances would be former medic units that would be converted to ambulances. Six of the 23 additional ambulances would be deployed at stations lacking a BLS transport unit as of FY15. Three of the 23 additional ambulances would be deployed as second or third ambulances at stations having heavy BLS call loads. One of the 23 new ambulances would be deployed at a new-additional fire station if opened by 2020.

[73] Six of the 16 aerials are tractor-drawn aerials (Trucks 706, 710, 716, 725, 731, 734) that are extrication equipped.

[74] Related to the implementation of the new ALS delivery model, 11 medic units would be replaced by ALS chase units, an ALS chase unit would be deployed at Station 28 (which lacked a medic unit in FY15), and an ALS chase unit could be deployed at a new-additional fire-rescue station if opened by 2020.

[75] The large decrease in medic units would be attributed to their planned replacement by ALS chase units.

- 2 decontamination units
- 2 mobile air units
- 1 bomb unit
- 1 technical rescue unit
- 1 mobile command unit

Some of the above apparatus serve multiple functions, including dedicated support for special operations teams (i.e., hazmat, water rescue, and technical rescue teams). For example, Engines 707, 720 and 728 are hazmat support engines for the Hazmat Team.

2. Replacement of existing apparatus due to age and/or high mileage is addressed under the "Infrastructure, Communications and IT" heading below.

FIRE CODE COMPLIANCE

1. The FireHouse software used for code compliance records management needs to be replaced with a County proprietary records management system.

2. The Code Compliance Section needs to inspect the approximately 6800 multi-family occupancies identified by the Operations Division during FY15Q2 in accordance with FCGO 14-18 ("Multi-Family Inspection Initiative") to ensure that fire detection and suppression systems and devices are in place and functional in accordance with County Fire Code. Inspection results must be recorded in the Code Compliance Section's newly developed records management system (see #2 above).

3. MCFRS needs to continue advocating for the retrofitting of unsprinklered high-rise and mid-rise residential occupancies. Over 80 of these occupancies remain in the County. Efforts must continue to encourage and provide financial incentives to building owners to retrofit these occupancies, as they pose a significant risk to occupants and firefighters.

4. MCFRS needs to develop and implement measures to reduce the number of emergency responses for malfunctioning fire alarms in commercial buildings which needlessly tie up fire suppression resources.

COMMUNITY OUTREACH AND PUBLIC INFORMATION

1. Improvements are needed to the Safety In Our Neighborhood (SION) Program that will address the following Countywide safety and injury-prevention needs:

- Need for expanded delivery of SION in schools, summer camps and other community-based programs, events and activities.

- Need for Countywide awareness of Maryland's new Smoke Alarm Law which becomes effective January 1, 2017. The law calls for replacement of all battery-operated smoke alarms with the type having a sealed-in, lithium battery of 10-year duration.

- Coordination with Montgomery County Public Schools to strategically identify opportunities to provide safety education aligned with State Standards of Learning.

2. Expanded delivery of the Risk Watch Program in public and private schools is needed to deliver injury prevention and safety education to more children.

3. A customized approach of outreach to immigrants is needed to address the steadily increasing immigrant population in Montgomery County. Many immigrants do not speak English at all or do not speak English well; creating difficulty in providing safety-related information to them. Immigrants may also have cultural-related customs and beliefs that may contribute to unsafe practices that need to be addressed through customized, targeted outreach.

4. Improved outreach to seniors is needed to address the steadily increasing senior population in Montgomery County. To address related staffing requirements, a permanent Senior Citizen/Life Safety Educator Outreach position is needed.

5. Cardio-pulmonary resuscitation (CPR) training, including the use of automated external defibrillators (AEDs), needs to be provided to the public to help save the lives of cardiac arrest patients prior to MCFRS arrival and intervention. Studies have shown that persons in cardiac arrest have a much higher chance of survival when CPR is administered within the initial minutes of onset. Provision of CPR training to the public on a large scale would involve a joint effort potentially involving the MCFRS Community Outreach Office, MCFRS Training Section, "CPR Montgomery," CERT, LFRDs, and Montgomery County Public Schools[76] and potentially a partnership with the County's Health Department, American Heart Association and/or the American Red Cross. Having residents trained in CPR and AED use will be especially needed as the County's population ages and, presumably, as cardiovascular diseases become more prevalent in the general population.

6. There is an ongoing Countywide need for the timely dissemination of informative and accurate information to the public concerning significant fire-rescue related incidents and risks threatening the safety and wellbeing of residents. Through the MCFRS Public Information Officer and Community Outreach staff, this information must be disseminated to the public via the broadcast media and social media in a timely manner.

7. MCFRS needs to pursue grant funding on a continuous basis to enhance its community outreach capabilities. Grants of this type are made available annually by the Federal

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[76] The Annotated Code of Maryland, Article – Education, Section 7-205.2 requires that CPR and AED-use be taught in public high schools beginning during the 2015-16 school year.

Government and State Government and periodically by the private sector (e.g., NFPA). MCFRS must continue identifying and applying for these public sector and private sector grants. When grant are awarded to MCFRS, they must be administered by the Community Outreach Office and the Fiscal Management Office in accordance with the grantees' requirements as well as County policies and procedures.

COMMUNITY EMERGENCY RESPONSE TEAM (CERT)

1. MCFRS needs to leverage CERT resources and capabilities to address areas of need such as pre-incident community outreach (e.g., SION Program) and preparedness training (e.g., "Storm Camp" Program) and post-incident operations such as damage assessment, welfare-of-resident checks, accountability of evacuees, triage assistance, and logistics support. Utilization of the hundreds of trained CERT volunteers to address these types of emergency preparedness and response services would be an efficient use of volunteer resources to supplement limited career resources.

2. The CERT Program needs to be periodically evaluated to assess its level of performance and to identify needed improvements. Based on these evaluations, improvements to the program need to be planned and implemented.

RESOURCE DEPLOYMENT AND STAFFING

EMERGENCY MEDICAL SERVICES (EMS)

MCFRS need to expand Emergency Medical Services (EMS) capacity, both Advanced Life Support (ALS) and Basic Life Support (BLS), to meet the needs of an aging population as well as the anticipated increase in overall population county-wide. Every station needs to have at least one guaranteed 24/7 unit that can respond as an ALS unit, whether an ALS first-responder unit (e.g., paramedic engine, paramedic aerial tower), ALS chase unit, or a dedicated medic unit. The number of BLS transport units will also need to be increased to meet BLS service demand county-wide. Specific EMS needs are presented below.

- ADVANCED LIFE SUPPORT (ALS)

MCFRS needs to complete the implementation of four-person guaranteed staffing on frontline engines at Stations 2, 5, 10, 11, 20, 26 and 40, where at least one of the four firefighters on the engine must be a paramedic. Also need to complete the implementation of four-person guaranteed staffing on frontline aerial units at Stations 3, 6, 10, 15, 16, 18, 19, 23, 24, 25, 31, 34, 35 and 40 where at least one of the four firefighters on the unit must be a paramedic. Another need is to establish an ALS chase unit at each of the following Stations: 1, 3, 12, 15, 23, 25, 28, and 41. Furthermore, there is the need to establish two ALS chase units at each of existing Stations 8 and 42 as well as one ALS chase unit at a planned additional station.

- BASIC LIFE SUPPORT (BLS)

MCFRS needs to establish an ambulance at each of the following existing stations lacking an ambulance as of FY15: Stations 6, 7, 9, 18, 19 and 20. Also need to establish one additional ambulance at each of the following existing stations having one ambulance as of FY15: Stations 1, 3, 12, 15, and 32. There is a need to establish two additional ambulances at each of existing Stations 23 and 25 having one ambulance as of FY15 as well. In addition, need to establish one ambulance at each of the following planned Stations: 36 – Shady Grove, 37 – East County, 38 – Norbeck, and 39-North Montgomery Village.

There is a need to examine alternatives for delivery of assessment and care for lowest-risk BLS incidents (i.e., Alpha and Omega levels) to reduce service demand on MCFRS ambulances and to reduce hospital emergency department overcrowding. One alternative would be to establish a limited number (e.g., two or three) of "community paramedicine units" staffed, for example, by a paramedic and physician's assistant or licensed nurse practitioner. These units would respond to frequent/repeat customers reporting chronic, low-risk, medical symptoms requiring assessment but infrequently requiring transport to a hospital. This type of service could be established through a partnership between MCFRS and the County's Department of Health and Human Services (HHS).

FIRE SUPPRESSION

MCFRS needs to deploy a four-person paramedic engine at each of the new/additional stations to be built and operated in the future, including but not limited to Stations 36 ("Shady Grove"), 37 ("East County"), 38 ("Norbeck") and 39 ("North Montgomery Village"). One of these stations may be built and opened by the time this master plan sunsets in 2020.

A four-person paramedic aerial unit needs to be deployed at either Station 28 or new-additional Station 36 to serve the contiguous Shady Grove, King Farm, Redland, Derwood and Washington Grove areas. Further analysis is needed to determine the optimal location (i.e., Station 28 or 36) for this unit.

SPECIAL OPERATIONS

The Special Operations Section has staffing needs for several new positions. As of FY15, management of the Special Operations Section is achieved by a limited staff consisting of an Assistant Chief and Battalion Chief. Each staffing need is described below.

1. The need for supervision of Special Operations field personnel through oversight and coordination provided by an on duty Battalion Chief.

2. The need for supervision of Technical Rescue and Swift Water Rescue Teams through oversight and management provided by an on duty Battalion Chief.

3. The need for improving Special Operations training through better coordination and tracking of training activities by a fulltime Captain on day work serving as Special Operations Training Officer.

4. The need for improving Special Operations logistics by establishing and maintaining a cache of equipment to resupply Special Operations units and by reducing duplicate equipment purchases. This would be the responsibility of a fulltime Master Firefighter on day work serving as Special Operations Logistics Officer.

5. The need for improving planning, coordination and response for special events by a fulltime Master Firefighter on day work serving as Special Operations Events Coordinator.

BOMB SQUAD

The MCFRS Bomb Squad, a specialized unit within the Fire & Explosives Investigations (FEI) Section, is staffed and operated by uniformed FEI investigators. The responsibilities of this discipline have been a collateral duty of FEI personnel who serve as both investigators and certified bomb technicians. Since the inception of the Bomb Squad in 1998, national and regional terrorism has become a greater threat and acts of terrorism have increased significantly. MCFRS Bomb Squad responsibilities have increased over the past decade to a level that requires four fulltime personnel in order to maintain readiness and the ability to mitigate the day- to-day incidents and terrorism-related events.

STAFFING

- OPERATIONAL STAFFING

  The plan for four-person staffing on a 24/7 basis has yet to be achieved on all existing suppression units as of FY15, including seven frontline engines (located at Stations 2, 5, 10, 11, 20, 26 and 40), 14 aerial units (not including a fifteenth aerial unit - AT708 - which already has four-person staffing), and all six frontline rescue squads. Through a combination of County monies and federal grants, the MCFRS four-person staffing plan needs to be fully implemented at existing stations to increase effectiveness of service delivery, maximize efficiency, and improve firefighter safety.

  New-additional stations that will be opened in the future will require four-person staffing on suppression units as well. This will include a four-person engine at each new-additional station and potentially a four-person aerial unit at future Station 36. Ambulances deployed at new-additional stations will each require two-person staffing, and any ALS chase unit to be deployed will require a staff of one.

- ADMINISTRATIVE STAFFING

Additional administrative staff[77] is needed to fill lapsed and unfilled positions as well as new positions in order to keep pace with ever increasing workload related to the MCFRS mission and an increasing number of customers – external and internal – needing services and/or support. Lapsed and unfilled positions resulted from savings plans and hiring freezes initiated by the County during years of reduced County revenues (FY09-11) and reduced expenditures, and many lapsed and unfilled positions have remained through FY15. New positions are needed in certain Sections to address needs created by new or updated responsibilities and mandates.

PLANNING AND ASSESSMENT

Planning and assessment-related needs and concerns of MCFRS are presented individually below under those same subject headings.

PLANNING

- STRATEGIC AND LONG-RANGE PLANNING

The Planning Section needs to prepare the annual strategic plan for FY17, 18, 19, and 20. This is the annual plan for the implementation of Fire, Rescue, Emergency Medical Services and Community Risk Reduction Master Plan priorities.

During FY20, the Planning Section will need to prepare the next Fire, Rescue, Emergency Medical Services and Community Risk Reduction Master Plan that will become effective in FY21. The new plan will replace the plan that will sunset in the Fall of CY2020.

The Planning Section will need to complete by 2020 the remaining phases of the Station Location and Resource Allocation Study, including Phase 6 - Western County and Phase 7 - Norbeck Road Corridor . The Study identifies areas of the County needing additional fire-rescue resources and the need for new or relocated stations. Each phase of the study examines a specific area and its unique risks and needs.

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[77] Administrative staff includes not only employees filling positions classified by County OHR as "administrative" but also professional and technical positions that are needed for the delivery of effective and efficient services to both external and internal customers. Administrative staff is comprised of both civilian (non-uniformed) and uniformed employees assigned to PSHQ, PSTA, CMF, PSCC and other MCFRS work sites.

- SUCCESSION PLANNING

  There is a continuous need for succession planning within MCFRS for those positions identified annually to CountyStat in the Fire Chief's performance and accountability plan as requiring succession planning. These positions include managerial positions – both civilian and uniformed – pertaining to certain administrative services, operational services, and fiscal management. Should the employees occupying these particular positions retire, resign, be promoted, or transfer to another County position, there needs to be a plan/process in place to have a suitably qualified County employee ready to assume the manager's position in order to maintain continuity and efficiency. This plan cannot; however, circumvent the County's OHR regulations and procedures for filling a vacant position competitively, giving all qualified candidates an equal chance. An alternative or supplemental approach is to hire back the incumbent employee under a temporary knowledge-transfer contract to work alongside his/her successor to help bring them up to speed.

  Succession planning for uniformed employees is somewhat restricted due to the merit system competitive promotional process. Candidates are promoted based on where they reside on the promotional eligibility list.

  Related to succession planning is the ongoing need for achieving redundancy for everyday skilled positions. Redundancy is achieved by cross-training personnel to handle a co-worker's duties when they are absent for a day or more and certain tasks must be completed. There are several positions in the department for which there is no built-in redundancy for periods of planned or unplanned absence due largely to a lack of a second position on staff within the section or office, or lack of another employee having appropriate qualifications and/or workload capacity to handle the duties/tasks of the absentee . Examples include the Manager of Capital Projects and Facilities Management, Planning Section Manager, GIS Manager, IT Section Manager, IT Training Manager, and Fleet Section Manager.

- GEOGRAPHIC INFORMATION SYSTEM (GIS)

  Leading up to the department's next reaccreditation in CY2018, the GIS office and other elements of the accreditation team will need to produce more specific and accurate risk data, by risk management zone, for the risk assessment section of the MCFRS Standards of Cover (SOC) document. This will include risk data addressing EMS, fire, and special operations-related risk. Risk data in the 2012-13 version of the MCFRS SOC was based largely on historical incident frequency (to represent probability of occurrence) and general information concerning occupancies and associated hazards (representing consequences presented during incidents). In addition, while the data was the best available at the time, its completeness and accuracy was less than desired. For the next accreditation cycle, the department will need to work diligently to produce risk data that will be more specific, complete and accurate for future editions of the SOC.

Another need of the department is to replace Visio 2003 with newer mapping software for use by firefighters at the station level. Newer software will aid firefighters in preparing comprehensive, accurate maps of their station area and individual box areas showing buildings, doorways, access ways around buildings, fire department connections, fire hydrants, and other important features to assist firefighters with pre-planning as well as tactical decisions and operations during incidents.

- ## LAND RESERVATION/ACQUISITION FOR STATIONS

There is no alternative funding mechanism to the Advanced Land Acquisition Revolving Fund (ALARF) for purchasing land for future fire stations. ALARF is not available until an approved PDF and CIP project, including construction monies, have been established. Without advanced land purchase, desirable sites that are available presently may no longer be available when the County is prepared to fund and proceed with new fire station projects. Phases 3-5 of the Station Location and Resource Allocation Study collectively recommend six new-additional stations , but PDFs and associated CIP projects have not been established and approved; therefore land cannot be purchased and held for these future stations using the only available funding mechanism - ALARF. Montgomery County Public Schools has land that had been purchased many years ago and is being held for future school sites, yet other County departments lack the funding mechanism to do likewise. With available, buildable land becoming increasingly scarce in Montgomery County, the opportunity for siting new or relocated fire stations in suitable, strategic locations is in jeopardy due to an inability to reserve/acquire land in advance.

- ## SITE EVALUATION FOR NEW OR RELOCATED FACILITIES

During the five-year time frame of this master plan, MCFRS will need to work closely with the Department of General Services (DGS) to lead and conduct site evaluations for several new-additional fire stations, including Station 36 – "Shady Grove," Station 37 – "East County," Station 38 – "Norbeck," and Station 39 – "Montgomery Village." These site evaluations would be dependent upon CIP projects being requested and approved for these stations in the FY17-22 or FY19-24 CIPs.

When these site evaluations are conducted, the site evaluation committee will need to use the fire station site suitability criteria developed by MCFRS. [The site suitability criteria are presented in Section 6 under the "Planning and Assessment" heading.]

- ## PLANNING SECTION STAFFING

The Planning Section has staffing needs that will need to be addressed during the five-year time frame of this master plan. One staffing need is to fill the lapsed Senior Planning Specialist position to keep pace with workload relating to regular as well as expanded responsibilities and expectations of the Planning Section. FY08 was the last fiscal year in

which this position was filled. The Planning Section also has need for additional GIS staff to keep pace with growing GIS workload and department-wide expectations.

ASSESSMENT

- PERFORMANCE MEASURES AND DASHBOARDS

To enhance its performance measurement capabilities, MCFRS needs to create additional headline measures to address all major programs and functions. Presently, the department's headline measures are primarily focused on response time, fire confinement, civilian fire casualties, STEMI patient care, child safety seat installation, and accreditation. Additional EMS-related measures are needed considering that 75% or more of the incident call load is of an EMS nature. Additional community outreach measures are needed as well. Furthermore, performance measures addressing code compliance, fire/explosive investigation, special operations, and firefighter-rescuer training, safety, and wellness need to be developed.

MCFRS needs to continue developing and refining a uniform management process for tracking and implementing goals, objectives and related initiatives. As a component of this process, the department needs to continue use and improvement of performance dashboards prepared by the Sections as required by the Fire Chief and Division Chiefs. Dashboards need to be updated at least quarterly by Section Managers and presented to the FRS management team at quarterly briefings. Presently, goals, objectives and specific actions related to objectives are tracked by Section Managers using their own form of tracking in the absence of a standardized departmental form or report.

- PROGRAM APPRAISAL

Closely related to performance measures and dashboards are program appraisals. An appraisal of each major program is a requirement of CFAI accreditation, with an appraisal to be performed at least annually. MCFRS lacks a uniform program appraisal process and instead relies primarily on the use of dashboards which themselves are not uniform across the department. To address this situation, a uniform appraisal process must be developed and implemented within MCFRS for appraising all major programs. Program appraisals will need to be performed annually during the five-year time frame of this master plan and thereafter.

- ACCREDITATION COMPLIANCE

MCFRS will need to maintain its agency accreditation status for the period of 2016-2020 by preparing and submitting to CFAI the required Annual Compliance Report (ACR) in suitable manner to receive an approval from CFAI. An annual fee must also be paid to CFAI. During the five-year time frame of this master plan, ACRs must be submitted in 2016 and

2017. Provided that reaccreditation is awarded to MCFRS by CFAI in 2018, then ACRs must be submitted in 2019 and 2020 as well.

To achieve agency reaccreditation status in 2018, MCFRS will need to prepare and submit to CFAI a new Self-Assessment Manual in accordance with the latest edition of the CFAI *Fire and Emergency Service Self-Assessment Manual* guidebook and update the MCFRS Standards of Cover in accordance with the latest edition of the CFAI *Standards of Cover* guidebook. The award of accreditation status would be made by the CPSE/CFAI Board of Directors based largely upon the recommendation of the Peer Assessment Team that will have performed a site visit and document validation during the Spring of 2018.

To lead the department's accreditation process and manage/coordinate the myriad tasks that prepare MCFRS for reaccreditation, a dedicated Accreditation Manager is needed. Presently, the Accreditation Manager duties are assigned to a part-time County contractor as there is no qualified MCFRS employee who can handle this work load as a collateral duty. To address the long-term need for an Accreditation Manager and to ensure continuity of leadership, MCFRS needs to create a dedicated fulltime position (i.e., County employee) to serve as Accreditation Manager.

INFRASTRUCTURE, COMMUNICATIONS AND IT

Infrastructure, Communications and IT needs and concerns of MCFRS are presented below under the headings: Facilities; Apparatus Maintenance, Rehab and Replacement; Equipment Maintenance and Replacement; Emergency Communications; and Information Technology.

FACILITIES

Major facility-related needs of the MCFRS are presented below under the subject headings: New-Additional Stations; Station Relocations; Station Renovations, Expansions and Rebuilds; and Other Facility Relocations and Renovations. For some of these, CIP projects had been approved and were underway as this Fire-Rescue Master Plan was being written, while others will be requested during the period of FY17-22. "Level of Effort" CIP Project[78] needs are not addressed in this master plan.

- NEW-ADDITIONAL STATIONS

Several new-additional fire stations are needed in the County for which CIP projects will need to be requested by MCFRS during the five-year period of this master plan. They are described below and presented in station numerical order.

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[78] "Level of Effort" projects include replacement of HVAC systems, generators, roofs, safety systems; addition of female facilities; parking lot resurfacing; etc.

STATION 36 – SHADY GROVE

As recommended in the MCFRS Station Location and Resource Allocation Study – Phase 3 Report as well as the Shady Grove Sector Plan, a new-additional fire station is needed in the Shady Grove area to address risk associated with existing and future development as well as demographic factors and response times above MCFRS goals. A Shady Grove fire station will also place less demand on surrounding Stations 3, 8 and 32 – among the busiest stations in the County – and place much needed EMS and suppression resources in that immediate area. The Shady Grove Sector Plan likewise recommends that a fire station be located at the intersection of Frederick Road and Shady Grove Road or a nearby suitable site[79]. To serve the fire-rescue needs of the Shady Grove/King Farm area, a paramedic engine, special service (i.e., aerial unit or rescue squad), and two ambulances will be needed at Station 36.

As the Duty Operations Chief and MCFRS Scheduler need to be centrally located within the County and the Battalion Chief, Battalion EMS Duty Officer, and Battalion Code Compliance inspector need to be centrally located within the 3rd Battalion, this station – due to its proximity to the geographical center of the County and 3rd Battalion - would be the logical facility to accommodate these personnel and their vehicles.

The Fire and Explosive Investigations (FEI) Section also needs to be centrally located within the County to allow for strategic deployment of investigators as well as the Bomb Squad.   If a sufficiently large property can be identified and acquired, the Shady Grove Fire Station property could also accommodate a separate building[80] to house FEI in its entirety, including investigators, their vehicles, and Bomb Squad apparatus and equipment.

STATION 37 – "EAST COUNTY"

As recommended in the MCFRS Station Location and Resource Allocation Study – Phase 5 Report as well as the White Oak Science Gateway Master Plan, a new-additional fire-rescue station is needed in the vicinity of Columbia Pike and Tech Road to address risk associated with existing and future development as well as demographic factors and response times above MCFRS goals within portions of the area. An East County fire station would also place less demand on surrounding Stations 12 and 15 – among the busiest stations in the County – and place much needed ALS resources in that immediate area. Resource needs at this new station would include a paramedic engine, ambulance and potentially an ALS chase unit.

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[79] Reference: *Shady Grove Sector Plan* (adopted by County Council on 1/17/06), pages 26, 101 and 102
[80] FEI will require a separate building from the fire station to address its unique security requirements regarding safeguarding of investigation records, evidence storage, specialized equipment, etc.

STATION 38 – "NORBECK"

There is a need for a new-additional fire-rescue station along the Norbeck Road corridor to address EMS and fire risk, call load and response times along this corridor. One area of high EMS and fire risk and having an exceptionally high EMS demand is the 1.1 square mile, 8500-resident Leisure World senior community (Fire Box Area 25-09) located east of Georgia Avenue and south of Norbeck Road. The Leisure World community averages over five EMS incidents daily (i.e., 3.3 BLS/day and 2.0 ALS) and averages one fire adaptive incident or fire full assignment every two days. While Station 25 units respond to the majority of these incidents, they have a large call load throughout their remaining first-due area as well. Station 25 is typically the third busiest station in the County. While Phase 7 of the Station Location and Resource Allocation Study addressing the Norbeck Road corridor must still be conducted, there is a clear need for a "Norbeck" Fire Station that will help address the EMS/fire risk and associated call load in Leisure World.

A future site evaluation process for the "Norbeck" Fire Station will identify and rank candidate sites. The station will need to accommodate a paramedic engine, ALS chase unit, ambulance, and have space for a potential 2nd EMS transport unit of the future. As this station is not yet in the CIP, there is a clear need for inclusion of a CIP project in the FY17-22 CIP to address site evaluation and facility planning. Until the "Norbeck" Station is built and becomes operational, there is great need for deploying another EMS transport unit at Station 25.

STATION 39 – "MONTGOMERY VILLAGE"

As recommended in the MCFRS Station Location and Resource Allocation Study – Phase 4 Report, Montgomery Village is in need of a fire station in the central-northern portion of the Village. Presently the Village is situated predominantly within Station 8's first-due area and partially within Station 17's and 34's first-due areas. With its diverse population, including many immigrants and seniors, and many of its single-family homes, townhouses and garden apartments lacking sprinkler protection, Montgomery Village has one of the County's highest levels of risk and incident call loads for both EMS and fire incidents. Considering the potential redevelopment of the golf course into a residential community, the high call load present throughout Montgomery Village and Gaithersburg, and the location of Station 8 in Gaithersburg near the southwest boundary of the Village, there is a clear need for a new fire station in the central-northern portion of Montgomery Village.

Resource needs at this new station would include a paramedic engine and ambulance, and there would likely be the need for a 2nd ambulance in the future. With these units deployed at the Montgomery Village Fire Station, response times in the central, northern and eastern portions of the Village would improve significantly and be in line with MCFRS response time goals.

- ## STATION RELOCATIONS

Three fire stations require relocation during the five-year period of this master plan. An approved CIP project is in place for each of these stations. They are described below and presented in numerical order.

STATION 18 – KENSINGTON-GLENMONT

There is a need for relocating Kensington-Glenmont Station 18 to a site in close proximity to the original Station 18 previously located at the southeast corner of Georgia Avenue and Randolph Road. The relocation is necessary for the reconstruction of the intersection into a wider, grade-separated interchange. Fire and EMS risk as well as the location of surrounding fire-rescue stations dictates that Station 18 be sited near the former location. The new station will need to accommodate existing Paramedic Engine 718 and Aerial Tower 718, plus a future ambulance and reserve apparatus.

STATION 23 – ROCKVILLE - "PIKE DISTRICT" (formerly "White Flint")

Rockville Fire Station 23 needs to be relocated to the Pike District (formerly known as "White Flint") to a County-owned site at the southeast corner of Montrose Parkway and Chapman Avenue (formerly "Maple Avenue"). This new location will position Station 23 in the high-density Pike District which is expected to become its highest incident call load area upon build out. New Station 23 will need to accommodate its present apparatus complement, including a paramedic engine, aerial tower, and two EMS transport units, plus an ALS chase unit and another transport unit. The new station will need to be larger than current Station 23 to accommodate the additional apparatus and personnel. The White Flint Sector Plan has a recommendation to collocate the fire station with other County uses and residential uses in the same building. This project has been included in the County's FY15-20 CIP.

Future use of existing Station 23, located at 121 Rollins Avenue, will need to be determined. Upon relocation of apparatus and personnel to new Station 23, the existing station could be used for one or more purposes such as storage of reserve apparatus, equipment storage, and/or housing of one or more in-service EMS transport units and personnel to operate them.

STATION 35 - CLARKSBURG

There is a need for a permanent Clarksburg Fire Station that would replace the interim station located in an office park on Gateway Center Drive since 2005. The new station will need to accommodate existing resources, including a paramedic engine, aerial tower, and EMS transport unit, plus a tanker, and brush unit. While a site near the Frederick Road/Clarksburg Road intersection had been purchased by the County for this facility, an alternate site is being pursued at the direction of County elected officials due to new environmental restrictions that were established in 2014 for the Ten Mile Creek watershed with adoption of the Ten Mile Creek Area Limited Amendment to the Clarksburg Master Plan and Hyattstown Special

Study Area. The alternate site will need to be centrally located within Clarksburg to address a high-density community that will straddle I-270 upon build out, with approximately 75% of development located east of I-270 and 25% west of I-270.

- STATION RENOVATIONS, EXPANSIONS AND REBUILDS

Six fire-rescue stations are in need of renovation, expansion or rebuilding. An approved CIP project is in place for four of these stations. For the other two stations, the need for County CIP projects is not anticipated as the two LFRDs plan to fund the projects on their own. The six station projects are described below and presented in numerical order.

STATION 3 – ROCKVILLE

Station 3, located at 380 Hungerford Drive and owned by the Rockville Volunteer Fire Department (RVFD), is in need of an extensive renovation or rebuilding (possibly relocation[81]) as determined by the RVFD Board of Directors. This project has been included in the County's FY15-20 CIP. The first-due area covered by Station 3 has a high level of fire, EMS, and hazmat risk and typically has the 2nd highest incident call load in Montgomery County.   If relocated, Station 3 will need to be sited in close proximity of the existing site, preferably along Rockville Pike/Hungerford Drive. The renovated or rebuilt (possibly relocated) station will need to accommodate all existing apparatus, equipment, and career and volunteer personnel. Existing apparatus includes a paramedic engine, rescue engine, aerial tower, rescue squad, and two EMS transport units. A future, frontline ALS chase unit will need to be housed at Station 3 as well.

STATION 6 – BETHESDA

Station 6, located at 6600 Wisconsin Avenue and owned by the Bethesda Fire Department (BFD), is in need of renovation or rebuilding on site as determined by the BFD Board of Directors who are considering selling a portion of this property. The first-due area covered by Station 6 has a high level of fire and EMS risk due to its high population density and many high-rise buildings. Density would increase under the Bethesda Downtown Plan which was being written concurrently with this Fire-Rescue Master Plan. The renovated or rebuilt station will need to accommodate all existing frontline and reserve apparatus (i.e., paramedic engine, ladder truck, battalion chief, and reserve engine), equipment, and personnel, plus a future ambulance and potentially an ALS chase unit.

STATION 11 – GLEN ECHO

Station 11, located at 5920 Massachusetts Avenue and owned by the Conduit Road Fire Board and Glen Echo Volunteer Fire Department, is in need of an extensive renovation. This project has been included in the County's FY15-20 CIP. As recommended in the MCFRS

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[81] It is possible this project could be a station relocation should a suitable site be found nearby.

Station Location and Resource Allocation Study – Phase 2B Report, Station 11 can best serve the Glen Echo area by remaining at its present site but requires a major renovation to address its size and functionality limitations. The renovated/expanded station will need to accommodate the existing apparatus complement, including an engine, ambulance, ATV, and utility unit.   The preparation and signing of an MOU between the County and the Conduit Road Fire Board will need to precede planning and design of the Station 11 renovation.

STATION 25 – KENSINGTON-ASPEN HILL

Station 25, located at 14401 Connecticut Avenue in the Aspen Hill area, is in need of an extensive expansion and renovation. This project has been included in the County's FY15-20 CIP.   The first-due area covered by Station 25 has a high level of fire and EMS risk and typically has the 3rd highest incident call load in Montgomery County. The EMS call load is very high due to the large Leisure World retirement village and several other health care facilities located in Station 25's area.   The CIP project provides for an additional 13,443 square feet of space for two additional apparatus bays and associated storage, additional administrative offices, Battalion Chief's office, dormitory space, and living and dining areas. A renovation of the existing interior finishes and a HVAC replacement are also included in the project. The renovated and expanded station will need to accommodate all existing frontline apparatus, including a paramedic engine, ladder truck, battalion chief, two EMS transport units, rescue boat and special operations unit, plus a future ALS chase unit and potentially another EMS transport unit.

STATION 30 – CABIN JOHN

Station 30, located at 9404 Falls Road in Potomac and owned by the Cabin John Park Volunteer Fire Department (CJPVFD), is in need of an expansion and renovation. This project has been included in the County's FY15-20 CIP. As recommended in the MCFRS Station Location and Resource Allocation Study – Phase 2A Report, Station 30 should remain at its present site but requires a major renovation to address its size (smallest station in the County) and functionality limitations. The renovated/expanded station will need to accommodate the existing apparatus complement, including a paramedic engine, EMS transport unit, tanker, brush unit, and rescue boats. The preparation and signing of an MOU between the County and the CJPVFD Board of Directors will need to precede planning and design of the Station 30 renovation.

STATION 41 – BETHESDA-CHEVY CHASE RESCUE SQUAD

Station 41, located at 5020 Battery Lane and owned by the Bethesda-Chevy Chase Rescue Squad (BCCRS), is in need of rebuilding (possibly relocation[82]) as determined by the BCCRS Board of Directors who are considering selling a portion or all of this property. If relocated, Station 41 will need to be sited in close proximity of the existing site, preferably

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[82] It is possible this project could be a station relocation should a suitable site be found nearby.

along a major thoroughfare in Downtown Bethesda. The new station will need to accommodate all existing personnel, equipment, and apparatus, including two rescue squads, a fleet of EMS transport units, command and utility vehicles, plus a future ALS chase unit.

- OTHER FACILITY RELOCATIONS AND RENOVATIONS

  PUBLIC SAFETY TRAINING ACADEMY

  The Public Safety Training Academy (PSTA) needs to be relocated in accordance with the Great Seneca Science Corridor Master Plan which calls for redevelopment of the PSTA property, located at 9710 Great Seneca Highway, with mixed-use development. The County had purchased the Webb Tract located on Snouffer School Road, across from Alliston Hollow Way, to serve as the site for a new PSTA and other County facilities. DGS was managing CIP Project #471102 to construct the new Academy with guidance and oversight provided by MCFRS and MCP. PSTA construction began in FY15Q3 while this master plan was being written. Apparatus, equipment, supplies, etc. will need to be moved from the existing PSTA to the new facility upon its completion in FY17.

APPARATUS MAINTENANCE AND REPLACEMENT

MCFRS has an ongoing need for the maintenance and replacement of its apparatus fleet as described in the Apparatus Management Plan.

As an integral component of the MCFRS Apparatus Management Plan, the MCFRS Fleet Section has identified the need for annual replacement of apparatus by breed; although the number of each breed to replace varies from year to year based on actual need. Over the six year period of FY15-20, the following units (101 total) had been proposed for replacement through the CIP; although some variation may occur based on actual needs:

- 60 ambulances
- 21 engines
- 10 aerial units
- 4 all-wheel drive brush units
- 4 rescue squads
- 2 tankers

The MCFRS Fleet Section has the need to identify and propose a staffing model for performing preventative maintenance and repairs that does not require the need for vendors to perform routine maintenance and repairs. This staffing model should lead to greater cost efficiencies and quicker turnaround on apparatus maintenance and repair. Likewise, the Fleet Section needs to examine alternative service delivery models for both the Central Maintenance Facility (CMF) and its road services to improve overall apparatus maintenance services. The Section also needs

to determine its overall training needs and related sources and methods of training, followed by the implementation of regular/ongoing training for Fleet Management staff.

There is also a need for identifying and implementing industry best practices for apparatus parts management to include introduction of a cyclical parts inventory and the execution of contracts for select parts. Associated with this need is the need for creating a Parts Manager position and a Supply Technician position to manage the parts supply function.

EQUIPMENT MAINTENANCE AND REPLACEMENT

The need exists for continuous monitoring and evaluation of new tools, equipment, hose, and appliance ("TEHA") technologies and for regular replacement of obsolete TEHA to meet current standards. There is also need for executing additional TEHA contracts and ensuring that all required testing of TEHA is performed in accordance with NFPA standards.

Replacement of self-contained breathing apparatus (SCBA) for all career and volunteer firefighter-rescuers is another major need of the department. Existing SCBA is collectively in need of replacement due to age/years of use and associated wear and tear. New SCBA will feature the latest technology and will offer greater protection for our firefighter-rescuers. Due to the significant expense associated with SCBA replacement, the department will need to pursue funding sources.

EMERGENCY COMMUNICATIONS

- COMMUNICATIONS SYSTEMS

The County needs to replace its technologically obsolete emergency communications system with 21st century technology to maximize efficiency and performance. This includes the radio system utilized by many County departments (public safety and non-public safety departments), computer-aided dispatch (CAD) systems used by MCFRS and MCP, and the fire station alerting (FSA) system[83]. As these communication systems are used by many County departments, primary responsibility for their replacement falls upon the Department of Technology Services (DTS), with user departments such as MCFRS and MCP having secondary role in assisting DTS with planning, design, testing and training. At the time this master plan was being written, DTS was leading the "Public Safety Systems Modernization" (PSSM) CIP Project to replace the County's emergency radio system, CAD, and FSA systems. MCFRS continues to be a major participant in this project. PSSM is described in greater detail in Section 6 of this plan.

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[83] The existing FSA system (**Mo**torola **S**upervisory **C**ontrol **a**nd **D**ata Acquisition - MOSCAD) is old, tied to aging infrastructure in the stations, and is not "heart healthy," having loud bells, Claxton horns and bright lights. MOSCAD has limited alerting capabilities, cannot be managed via the web, and lacks the capability to notify personnel of system issues.

While not part of the PSSM-related needs, the MCFRS ECC has the need for an internet/satellite based weather tracking system to provide redundancy to its landline interface with the National Area Warning Alert System (NAWAS). Through NAWAS, the ECC is capable of receiving manual alerts from the National Weather Service of severe weather events; however, there are no primary[84] early warning systems for weather and other types of emergency events that report automatically into the ECC.

- COMMUNICATIONS EFFICIENCIES

Needs relating to increased efficiencies within MCFRS emergency communications include needs for improving call processing and dispatch times, improving compliance with Priority Dispatch protocols, and consolidating MCFRS and MCP call-taking and dispatch functions in accordance with the Universal Call-Taking model.

MCFRS and MCP recognize the value of agency accreditation and should also pursue accreditation for the emergency call-taking and dispatch function. This accreditation process should result in improved performance and efficiency in call-taking/dispatch and lead to continuous improvement over the long-term. The accrediting organization is the Accreditation Center for Excellence (ACE) of the International Academy of Emergency Dispatch (IAED). One of the benefits of ACE accreditation is that it is a pre-requisite for establishing and using the Emergency Communication Nurse Service (ECNS)[85] at the Emergency Communications Center for which MCFRS has the need and intention of establishing at the ECC. ECNS is a nurse triage system comprised of over 200 protocols designed to be implemented within an EMS communications center and used in conjunction with IAED's Medical Priority Dispatch System to provide alternative care for callers having low-acuity (Omega-level) determinant codes.

- COMMUNICATIONS PERSONNEL

Personnel related needs of the Emergency Communications Center (ECC) include recruitment and training of civilian public safety communications specialists to replace uniformed dispatchers, training of uniformed personnel to fill uniformed vacancies at ECC, and developing and providing in-service training for ECC personnel – civilian and uniformed.

INFORMATION TECHNOLOGY

The Information Technology (IT) Section needs to enhance its productivity and capabilities by:

- Filling positions with personnel possessing appropriate knowledge, skills and abilities.

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[84] The Regional Incident Communication and Coordination System (RICCS) is a secondary notification system for regional events and warnings.

[85] ECNS is considered IAED's "fourth pillar of care" along with EMD, EFD, and EPD.

- Utilizing new technologies to improve IT capabilities, effectiveness and efficiency.

- Providing adequate training for IT staff, including the use of new technologies.

- Developing redundancy of IT capabilities, including cross-training of IT personnel.

The IT Section must support existing automation systems by providing effective and timely IT end-user training, evaluating IT systems and equipment, collaborating with DTS and other agencies and organizations at the County and regional levels, and maintaining and improving interoperability.

Moving forward, the IT Section will need to embrace and implement new systems and equipment, including the upgrading of the data center to improve reliability and maintainability, providing effective and timely training on new systems/equipment for IT staff and end-users, and evaluating and documenting applications and systems. There is also the need for enhancing and enabling data mining and analysis capabilities (see separate heading below) and improving automated reporting.

Specific IT system, equipment and software application needs include:

- Replacement of mobile devices for eMeds (potentially through PSSM Project)
- Tablets for all Battalion Chiefs
- Replacement of RMS for fire code inspections
- Replacement of Property Tracker and SCBA Tracker with integration to PosiChek
- Migration of Telestaff database engine from SQLAnywhere to MS SQLServer
- Implementation of fire station network security enhancement
- Implementation of Online Analytical Processing (OLAP) system
- Installation of station security cameras
- Consolidation of personnel and staff management databases
- Creation of a department-wide correspondence tracking system

DATA ANALYSIS AND APPLICATION

The department has a major need for improving the consistency, completeness, accuracy and reliability of data across all divisions and sections to ensure that data is meaningful and valid upon which to draw conclusions and base decision-making. While the quality of data has improved considerably over the past ten years, there is need and opportunity for additional improvement. There exists a related need for improving data analysis capabilities brought about by lack of staff dedicated solely to this important function.

PUBLIC HEARING DRAFT
FIRE, RESCUE, EMERGENCY MEDICAL SERVICES,
AND COMMUNITY RISK REDUCTION MASTER PLAN

To address this overall need, the department will need to begin by developing a plan for improving the department's identification, collection, analysis, reporting and application of data. The plan will need to address the following components:

- Identification of all required and desirable data sets.

- Improved data collection processes, addressing completeness, accuracy and reliability of data to produce more meaningful and usable data.

- Improved data analysis capabilities, including the creation of a dedicated data analysis capability (i.e., organizational unit) within the department

- Improved and expanded data reporting within MCFRS as well as to external departments, agencies and organizations at the local, State, federal and private sector levels as required.

- Improved and expanded use/application of data for operational, logistical, administrative, planning, assessment, and educational purposes and for continuous overall improvement of the department.

Upon completion of the plan, the department will need to implement the plan beginning with the creation of a dedicated data analysis capability, including the hiring of a fulltime data analyst to support department-wide needs.

TRAINING AND WELLNESS/SAFETY

Training and wellness initiatives are presented below under the subject headings of Training and Wellness & Safety.

TRAINING

MCFRS must relocate the Fire-Rescue Training Academy (FRTA) to its new location on the Webb Tract as part of the new Public Safety Training Academy. Upon completion of the state-of-the-art training facility in FY17, the physical operation of the FRTA will need to be relocated from the existing facility in Rockville to the new Academy in Gaithersburg.

Operating from its new Training Academy, MCFRS will need to conduct a sufficient number of recruit classes annually to address attrition, to hire firefighter-rescuers that will staff any new station that is opened during the FY16-21 time frame, and to train new firefighters hired with SAFER Grant monies (if awarded to MCFRS during the FY16-21 time frame).

The FRTA has an ongoing need to maintain the Fire-Rescue Training Academy's status as a CAAHEP-accredited paramedic training institution. The accreditation will allow MCFRS to continue training its paramedics to meet the increasing ALS service demand in the County. The FRTA also has an ongoing need to achieve a passing evaluation rating and certification every five years from the Maryland Institute for Emergency Medical Services Systems (MIEMSS) in order for the FRTA to provide its EMS training programs. FRTA must also achieve a passing evaluation rating and certification for its fire and rescue training programs from the National Board on Fire Service Professional Qualifications (a.k.a., "Pro Board").

WELLNESS AND SAFETY

As the Safety Section consists only of an Assistant Chief on day work to manage the Section and one on-duty shift Captain serving as Safety Officer, the Safety Section needs additional staff. Staffing needs include a 2nd on-duty Shift Safety Captain to serve as a 2nd Safety Officer per shift to divide the workload and create redundancy. Each of the two Safety Officers would also be assigned an area of responsibility within the Health and Safety Program to manage. Each Safety Officer would be responsible for conducting collision and illness/injury investigations and conducting periodic risk consultations with station personnel within the battalions assigned to each Safety Officer.

An additional daytime Battalion Chief position is also needed to assist with the day-to-day management of the Safety Section. This individual would administer safety programs and assist with updating of existing MCFRS health and safety policies as well as creating new health and safety policies to ensure compliance with OSHA/MOSH and NFPA Standards.

MCFRS must reduce the number and severity of apparatus collisions which have reached unacceptable and unprecedented levels in recent years. About half of these collisions have been at-fault collisions, some resulting in serious injury to fire-rescue personnel as well as other motorists and many resulting in significant damage to fire-rescue apparatus and private vehicles. Even for collisions where MCFRS drivers were not at fault, there needs to be greater effort to minimize the incidence of personal injury and apparatus damage to the greatest extent possible.

Concerning firefighter wellness, the FROMS/OHR data collection, storage and retrieval process needs to be improved to efficiently track results of physicals and related data, including individualized blood testing results, cardiac risk factors, immunization schedules, appointment times for future physicals and follow-up visits. To address this need, new or upgraded software will be needed for use by FROMS staff.

SUPPORT SERVICES

Support services issues and needs are presented below under the headings: Fiscal Management, Procurement, Logistics, and Human Resources.

FISCAL MANAGEMENT

- EMST

  The Emergency Medical Services Transport (EMST) program, which is expected to collect approximately $17 million in revenues during FY15, has the following needs:

  - Need for the billing vendor to replicate billing data to an MCFRS server.

  - Need for staying abreast of regulatory changes in the ambulance billing industry and continually reevaluate the program's compliance with relevant standards and regulations.

- GRANTS

  There is an ongoing need for federal, State and private sector grant funding for equipment, apparatus, facilities, program administration and the hiring of firefighters. Tax-supported revenues; revenues associated with issuing of permits, fire inspections, and fire code violation fines; and EMST revenues do not meet all of the MCFRS funding needs. Various grants have provided vital funding to MCFRS and LFRDs in past years and, if awarded in the future, will provide additional funding for the hiring of firefighters, administration of community outreach programs and for the purchase of equipment and apparatus as well as to help fund facility upgrades.

PROCUREMENT

The Procurement Section has several needs to address during the five-year time frame of this master plan, including the following:

- Enhancing Procurement Section productivity and capabilities.

- Assisting Local [Volunteer] Fire-Rescue Departments (LFRDs) with entering into existing County contracts.

- Increasing MCFRS' participation in the Local Small Business Reserve Program (LSBRP) by at least 10 percent.

LOGISTICS

The Logistics Section has the need for determining whether MCFRS should centralize multiple functions under the Logistics Section such as the acquisition, storage and distribution of EMS supplies and small tools. This centralization would have the potential for achieving improved management, administration and oversight of all logistical items used by MCFRS and may also result in cost savings.

The Logistics Section also has the need for determining whether certain logistical items, such as clothing and shoes, can be ordered by and distributed directly to MCFRS personnel without them having to visit the Logistics Storeroom in person. This option might allow career and volunteer personnel to more actively choose items from an approved item list, allow quicker receipt of items, and provide a greater size selection. Individual ordering and shipping of items may cut down on staff time used for ordering, inventorying, and distributing items, and free up storage space in the storeroom.

HUMAN RESOURCES

In FY15, the Human Resources (HR) Section was comprised of only six personnel handling the HR needs of a large County department of nearly 1300 career employees – both uniformed and civilian. The HR Section greatly needs additional staff to meet its present and future workload and responsibilities.

HR's Employee Services Section is in need of the following new positions:

- Program Manager II to oversee Employee Services and policy development.

- Administrative Specialist III to serve as Hiring Manager and to handle civilian recruitment and retention and compensation negotiation.

- Administrative Specialist II to handle all Oracle Actions for pay, transfer and promotions.

HR's Administration Section is in need of a HR Specialist to draft disciplinary actions and grievance responses, administer usage/tracking of the Family Medical Leave Act, and to serve as the HR Liaison for collective bargaining.

Another HR need is for a career Captain to head the Recruitment Section to manage and oversee all aspects of recruitment for uniformed firefighter-rescuers, including all recruitment activities /events and testing of career applicants. This position was formerly a civilian Manager III position that was reassigned during FY15 to the MCFRS Logistics Section leaving the Recruitment Section without a manager.

Beyond staffing needs, the MCFRS Human Resources Section has an ongoing need for administering the career firefighter-rescuer hiring process. The process must be fair/unbiased to ensure that all applicants are given an equal chance of being hired. Furthermore, the process must result in the hiring of a high-performing, diverse work force to meet the needs of County residents and people conducting business in the County. Regarding diversity, MCFRS needs to intensify its efforts to attract minority and female applicants in an attempt to create a work force that is more reflective of the diversity of County residents.

OTHER ISSUES AND NEEDS

There are several other issues and needs of the MCFRS that reside outside the organizational and functional headings shown above. They are presented below.

TECHNOLOGY AND INNOVATION

MCFRS has the ongoing need to leverage evolving technologies and innovations throughout all aspects of the Fire-Rescue Service to improve readiness, service delivery, and internal support services. For example, the Public Safety System Modernization project to be implemented between FY16 and FY18 will replace the CAD, radio system, and station alerting system with the latest technologies. The department also has a related ongoing need for adequate training for our personnel in the use/application of new technologies that have been acquired or developed to ensure proficiency of use.

Along with technologies, MCFRS must develop and implement innovative concepts, policies and procedures to maximize efficiency and effectiveness within all functional areas of the MCFRS. Coordination between MCFRS and the County's Innovation Program will help to identify and develop innovations for pilot-testing and potential or eventual use.

ETHNIC-CULTURAL AND SPECIAL NEEDS AWARENESS

MCFRS needs to develop and implement ethnic-cultural awareness and sensitivity training for firefighters, EMS providers, investigators, inspectors, community outreach personnel and other personnel to improve interaction with the County's increasingly diverse population; resulting in improved communications and better outcomes during incidents and other encounters.

A key component of this overall need is overcoming the language barrier between MCFRS personnel and those needing MCFRS services. With about 15% of the County population over 5 years of age having limited English proficiency and almost 40% of the population speaking a language other than English at home, the language barrier issue is encountered on a daily basis. Lack of effective communications between the 9-1-1 caller and MCFRS communications staff can lead to long phone-to-dispatch times and misunderstanding of the reported emergency.

Although the Language Bank can be of assistance to call-takers, use of the service prolongs phone-to-dispatch time.

Ineffective on-scene communications due to a language barrier between the person(s) in need of assistance and response personnel can lead to delayed or less effective emergency services provided. For example, a foreign speaking individual having chest pains who cannot communicate effectively with English-speaking EMS providers; thus delaying appropriate assessment and care. Language barriers can also impact effective communication between MCFRS personnel who are not emergency responders (e.g., fire code compliance inspectors and community outreach personnel) and their customers. Montgomery County pays employees, including firefighters and 9-1-1 call-takers, who speak foreign languages additional pay, encouraging multi-lingual employees who can provide translation services when needed. MCFRS has a limited number of employees who are multi-lingual.

A second component of ethnic-cultural awareness and sensitivity is for MCFRS personnel to have better awareness of ethnic and cultural practices, rituals, customs, beliefs, values and priorities that might impact interaction and/or intervention and might have an impact on incident or business outcomes as well. For example, some cultures perform rituals involving candles or perform cooking in areas of the home other than the kitchen using portable heating devices, both of which may pose a high risk of fire in the home. With some cultures, it is considered disrespectful for male EMS providers to touch female patients whereas a female EMS provider would be preferred by the patient and her family. With other cultures, firefighters should be aware that occupants may remain inside or return into burning structures to claim valuables, even their lifetime savings in some cases, because they do not trust banks to safeguard their valuables and instead hide them inside their homes and businesses.[86] It is beneficial for MCFRS personnel to have awareness and to exhibit sensitivity regarding these and other ethnic-cultural practices that they will occasionally encounter while serving a highly diverse population; however, there will be circumstances when cultural preferences cannot be accommodated but should be recognized by MCFRS personnel.

MCFRS has the need for developing and implementing special needs awareness and sensitivity training for its personnel to improve interaction with special needs populations (i.e., seniors, physically and/or mentally handicapped individuals, etc.); resulting in more favorable outcomes during incidents and other encounters. With an aging population (projected to reach almost 16% of total County population by 2020) and a likely increase in the number of other special needs residents, encounters with individuals having special needs will increase in the years ahead. Individuals having special needs will require extra patience and may require special attention and care due to reduced sensory and/or cognitive capabilities. In addition, the department needs to examine its standard operating procedures and business practices to determine whether adjustments might be needed to better serve customers having special needs.

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[86] Source: "Multicultural Health and Safety Research Project Final Report," published by Fire 20/20 in 2007

OTHER

There is a need for MCFRS to initiate and maintain coordination with M-NCPPC and its Parks Department to ensure existing and future recreational trails have adequate fire-rescue vehicle access and are outfitted with adequate trail signage to enable trail users to accurately report the location of emergency events. Many hiking, biking and horseback trails in Montgomery County lack adequate trail markings with trail name and mileage markers; thus making it difficult for trail users to pinpoint their location when reporting an emergency event. This also increases the difficulty for emergency responders to locate individuals requiring assistance which, in turn, increases response time. This situation can have serious consequences for persons having life-threatening medical conditions or for property in the path of an advancing brush fire.

Lack of adequate fire-rescue vehicle access to trails is another issue that should be addressed. Access points are needed at strategic locations along trails to enable quick and unobstructed access by all-wheel drive and all-terrain emergency vehicles. Access points should also have, wherever feasible, hard-surface areas where larger fire-rescue vehicles that cannot navigate trails (e.g., rescue squads, tankers) and/or smaller vehicles lacking all-wheel drive (e.g., ambulances) can safely park without obstructing traffic. These parking areas must be able to withstand the loads applied by heavy fire-rescue vehicles.

SECTION 6

INITIATIVES AND PRIORITIES

SECTION 6

INITIATIVES AND PRIORITIES

Section 6 identifies the initiatives and their corresponding priorities that address the issues and needs described in Section 5. Initiatives are presented below under the subject headings: Preparedness/Readiness, Resource Deployment and Staffing, Planning and Assessment, Infrastructure and Communications, Data Analysis and Application, Training/Wellness, Support Services, and Other Initiatives.

The priorities shown below have been divided into levels A, B and C. Priority A is the highest level, Priority C the lowest, and Priority B in between them. While initiatives identified below as Priority A are of the highest priority and will therefore receive the quickest and greatest attention, Priorities B and C should not be viewed as medium or low priorities as they should all be addressed within the 5-year time frame of this master plan.

PREPAREDNESS/READINESS

Preparedness/Readiness initiatives are presented below under the subject headings: Emergency Services, Volunteer Services, Fire and Explosives Investigations, Fire Code Compliance, and Community Outreach and Public Information.

Table 5 in Appendix H summarizes facility, resource and staffing initiatives for 2016-2020.

EMERGENCY SERVICES

EMERGENCY MEDICAL SERVICES

1. [*PRIORITY A*] Implement modified ALS delivery model:

   A. Replace the majority of medic units with one-person (or, in limited cases, two-person) ALS chase units; thus allowing for the county-wide redistribution of a limited number of ALS providers. ALS chase units will not normally be dispatched on BLS incidents nor will they transport patients; thus improving the availability of ALS units and reliability[87] of ALS service.

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[87] Reliability addresses both availability of a specific type of unit and whether its response time is within established 90th percentile goals of the department.

- Replace medic units, except Medic 713 (Damascus) and Medic 714 (Upper Montgomery)[88], with ALS chase units each operated by one paramedic, or in limited cases two paramedics)[89]; thus deploying ALS chase units at Stations 1, 3, 8 (two chase units), 12, 15, 23, 25, 41 and 42 (two chase units). This will involve redeploying the paramedic from each medic unit to an ALS chase unit.

- Convert medic units, except Medics 713 and 714, to BLS transport units (i.e., ambulances). This will involve adding a second BLS provider (EMT) to the former medic unit; thus creating a two-person ambulance, with the remaining BLS provider from the medic unit paired with the second BLS provider.

B. Initiate ALS chase unit service at two stations:
  - Station 28 – Deploy an ALS chase unit, while having Ambulance 728 remain
  - One of the planned new-additional stations if open by 2020

C. Continue and upgrade ALS first-responder apparatus (AFRA) service delivery:
  - Continue deployment of paramedic engines at 28 stations.
  - Add firefighter-paramedic to remaining seven engines lacking ALS capability to create four-person paramedic engines at Stations 2, 5, 10, 11, 20, 26 and 40.
  - Deploy four-person paramedic engines at future stations.
  - Continue deployment of Paramedic Aerial Tower 708 at Station 8.
  - Add firefighter-paramedic to remaining 14 aerial units to create four-person paramedic aerial units at Stations 3, 6, 10, 15, 16, 18, 19, 23, 24, 25, 31, 34, 35 and 40.
  - Add firefighter-paramedic to all six rescue squads to create four-person paramedic rescue squads at Stations 3, 15, 17, 29, 41 and 42.

2. [*PRIORITY A/B*] Increase BLS transport capacity to meet increasing BLS service demand and to transport ALS patients accompanied by a paramedic from an ALS unit.

  - [**A**] Deploy an ambulance at each of Stations 6, 7, 9, 18, 19 and 20 where this type of unit is currently lacking. Consider deployment of a BCCRS ambulance at each of Stations 6, 7 and 20 and a WVRS ambulance at each of Stations 18 and 19.

  - [**A**] Convert 11 medic units to BLS transport units at 9 stations (i.e., Stations 1, 3, 8, 12, 15, 23, 25, 41 and 42) as a result of the ALS chase unit deployment (see above).

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[88] Medics 713 and 714 will remain to provide ALS transport in their respective rural areas where BLS transport units (i.e., ambulances) are not be readily available to handle timely transport of ALS patients.

[89] A limited number of ALS chase units may be staffed by two paramedics as needs dictate in certain high call volume areas of the County.

- [**A**] Convert four medic units to BLS transport units at four stations (i.e., Stations 29, 30, 31 and 35), with ALS service provided to these station areas by Paramedic Engines 729, 730, 731 and 735 as well as Rescue Squad 729 upon upgrade to four-person ALS capability.

- [**A**] Deploy an additional ambulance at each of Stations 8, 15, 23, 25 and 32 to meet increasing EMS service demand.

- [**A**] Deploy an ambulance at future Stations 36-39. Prior to "Norbeck" Station 38 becoming operational, deploy an additional ambulance at Station 25. When Station 38 has been completed, an analysis and decision will be needed on whether to move this ambulance to Station 38, or have it remain at Station 25 while deploying a new ambulance at Station 38.

- [**B**] Consider and evaluate the potential deployment of one or more EMS transport units at existing Station 23 after the new Station 23 is opened in the Pike District with apparatus relocated from the existing station.

3. [*PRIORITY A*] Enhance EMS management, oversight and supervisory capabilities:

   A. Establish a fulltime, County-employed Medical Director.

   B. Establish three additional[90] EMS Duty Officer positions (shift work) at the Captain or Lieutenant rank so that each of the five battalions has an EMS Duty Officer. When the 6th Battalion is created, another EMS Duty Officer position (shift work) will need to be established.

4. [*PRIORITY B*] Examine options to establish and deliver "community paramedicine" service for the assessment and care of low-Alpha/Omega-level BLS patients in order to reduce EMS service demand as well as hospital overcrowding:

   - Establish mobile integrated healthcare transport units (optimal number to be determined) staffed with a paramedic and Physician's Assistant or Licensed Nurse Practitioner to respond to customers having low-severity BLS needs. The approach might involve a partnership with County HHS.

   - Establish the "Emergency Communication Nurse Service"[91] capability at ECC.

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[90] In FY15 when this master plan was being written, there were only two EMS Duty Officer positions (shift work) covering the entire County (i.e., five battalions).

[91] ECNS is a nurse triage system comprised of over 200 protocols designed to be implemented within an EMS communications center and used in conjunction with IAED's Medical Priority Dispatch System to provide alternative care for callers having low-acuity (Omega-level) determinant codes.

5. [*PRIORITY B*] Improve EMS logistical functions to improve efficiency and cost effectiveness:

   A. Improve warehousing of EMS equipment/supplies:
      - Establish central supply at Southlawn Warehouse
      - Obtain automated materials management system
      - Hire fulltime warehouse manager

   B. Develop non-durable supplies management:
      - Develop system to monitor shelf life
      - Implement program to ensure rotation
      - Rotate stock at stations

FIRE SUPPRESSION AND HEAVY RESCUE

1. [*PRIORITY A*] Complete the implementation of four-person staffing of fire suppression and heavy rescue apparatus. A total of 27 frontline units lack a guaranteed fourth person:

   - Engines at Stations 2, 5, 10, 11, 20, 26 and 40
   - Aerial units at Stations 3, 6, 10, 15, 16, 18, 19, 23, 24, 25, 31, 34, 35 and 40
   - Rescue Squads as Stations 3, 15, 17, 29, 41 and 42

2. [*PRIORITY C*] Implement the following new deployments to improve fire suppression readiness:

   - Paramedic Engines at future Stations 36-39 with 4-person staffing, including a firefighter-paramedic
   - Aerial unit at existing Station 28 or future Shady Grove Station 36

3. [*PRIORITY C*] Establish extrication capability at Station 40 by replacing Truck 740 with a tractor-drawn aerial –the desired platform for extrication equipment - when that truck is scheduled for replacement.

Table 5 in Appendix H summarizes facility, resource and staffing initiatives for 2016-2020.

SPECIAL OPERATIONS

1. [*PRIORITY B*] Improve supervision of Special Operations field personnel through oversight and coordination provided by an on duty Battalion Chief. This will be achieved by funding/staffing a Battalion Chief's position on shift work.

2. [*PRIORITY C*] Improve supervision of Technical Rescue and Swift Water Rescue Teams through oversight and management provided by an on duty Battalion Chief. This will be achieved by funding /staffing a Battalion Chief's position on shift work.

3. [*PRIORITY C*] Improve Special Operations training through better coordination and tracking of Special Operations training activities. This will be achieved by funding/staffing a fulltime Captain position on day work to serve as Special Operations Training Officer.

4. [*PRIORITY C*] Improve Special Operations logistics by establishing and maintaining a cache of equipment to resupply Special Operations units and by reducing duplicate equipment purchases. This will be achieved by funding/staffing a fulltime Master Firefighter position on day work to serve as Special Operations Logistics Officer.

5. [*PRIORITY C*] Improve planning, coordination and response for special events by funding/staffing a fulltime Master Firefighter position on day work to serve as Special Operations Events Coordinator.

APPARATUS

3. [*PRIORITY A*] MCFRS plans to have in service, dependent upon appropriated funding, the following minimum frontline daily apparatus complement by 2020. As new-additional stations are opened, additional frontline apparatus will be added to this daily requirements list.

- 48 ambulances (increase of 23 ambulances vs. FY15 level)[92]
- 36 engines (increase of one engine vs. FY15 level)[93]
- 16 aerial units[94] (increase of one unit over FY15 level)
- 13 ALS chase units (increase of 13 over FY15 level)[95]
- 13 brush units
- 8 rescue boats
- 8 tankers

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[92] Thirteen of the 23 additional ambulances would be former medic units that would be converted to BLS transport units (i.e., ambulances). Six of the 23 additional ambulances would be deployed at stations lacking a BLS transport unit as of FY15. Three of the 23 additional ambulances would be deployed as second or third ambulances at stations having heavy BLS call loads. One of the 23 new ambulances would be deployed at a new-additional fire station if opened by 2020.

[93] The one additional engine would be deployed at a new-additional fire station if opened by 2020.

[94] Six of the 16 are tractor-drawn aerials (Trucks 706, 710, 716, 725, 731, 734) and are extrication equipped.

[95] Related to the implementation of the new ALS delivery model, 11 medic units would be replaced by ALS chase units, one ALS chase unit would be deployed at Station 28 (which lacked a medic unit in FY15), and one chase unit would be deployed at a new-additional fire-rescue station if opened by 2020.

- 6 rescue squads
- 5 boat support units
- 2 special operations units (vans)
- 2 medic units (decrease of 15 units vs. FY15 level)[96]
- 2 hazmat units
- 2 ambulance buses
- 2 medical support units
- 2 air units
- 1 bomb unit
- 1 command post bus

Some of the apparatus listed above serve multiple functions, including dedicated support for special operations teams (hazmat, water rescue, and technical rescue teams).

4. [*PRIORITY A*] Apparatus replacement, an important component of operational readiness, is addressed under the "Infrastructure, Communications and IT" heading below.

FIRE AND EXPLOSIVES INVESTIGATIONS

1. [*PRIORITY A*] Ensure rapid and reliable response to hazardous devices and weapons of mass destruction events through the Bomb Squad:

    A. Ensure all Bomb Squad personnel are proficient in rapid response to events, including equipment use, personal protective equipment selection and donning, SWAT operations, and rapid assessment techniques.

    B. Ensure adherence to National Bomb Squad Guidelines requirements for training and certifications.

    C. Ensure adherence to Metropolitan Washington Council of Government-adopted METROTECH guidelines for response and equipment.

    D. Utilize Bomb Squad staffing to provide:
       - Training to certified MCFRS command officers
       - Training to all MCFRS personnel via the annual recertification/training process
       - Monthly training for all hazardous device technicians

2. [*PRIORITY B*] Increase number of personnel assigned to the Section to create a dedicated, fulltime Bomb Squad.   [See "Bomb Squad" under the "Resource Deployment and Staffing" heading for further details.]

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[96] The large decrease in medic units would be attributed to their replacement by ALS chase units.

3. [*PRIORITY C*] Hire a civilian (non-uniformed) analyst to provide administrative support to the Section to maintain case data, analyze data to assist investigators with case closure, and to handle community and insurance company requests.

FIRE CODE COMPLIANCE

5. [*PRIORITY B*] Replace existing FireHouse software used for code compliance with a County proprietary records management program (RMP):

    A. Integrate the established workflow of Fire Code Compliance inspectors and administrative staff into a proprietary RMP.

    B. Identify and document all commercial occupancies in Montgomery County.

    C. Provide data for all metrics for all FCC activities.

6. [*PRIORITY A*] Complete the Multi-Family Inspection Initiative (ref. FCGO 14-18):

    A. Inspect every multi-family building identified during FY15Q1 by Operations personnel to ensure that fire detection and suppression systems and devices are in place and functional in accordance with County Fire Code.

    B. Record inspection results in the Code Compliance Section's records management system.

7. [*PRIORITY B*] Operate and embrace a robust quality assurance/quality control program that results in the reduction of emergency responses by fire suppression units for malfunctioning fire alarms:

    A. Continuously refine the Occupancy Checklists to ensure consistent application of the Fire Code and FCC inspections.

    B. Reduce the number of emergency responses by 50% for malfunctioning fire alarms in commercial buildings.

COMMUNITY OUTREACH AND PUBLIC INFORMATION

1. [*PRIORITY A*] Improve the Safety in Our Neighborhood (SION) program as follows:

    A. Improve the overall delivery model and data collection capability.

    B. Expand delivery of the department's safety programs in schools, summer camps, and other community-based programs, events and activities.

C. Work with Montgomery County Public Schools to strategically identify opportunities to provide safety education aligned with State Standards of Learning.

D. Raise awareness of Maryland's new Smoke Alarm Law which becomes effective January 1, 2017.

2. [*PRIORITY B*] Expand delivery of the Risk Watch Program in public and private schools to deliver injury prevention and safety education to more children.

3. [*PRIORITY B*] Develop and implement a customized approach of safety-related outreach to immigrants to address the steadily increasing immigrant population in Montgomery County. Efforts must address language barriers as well as cultural-related customs and beliefs. The approach   must encompass face-to-face contact (e.g., SION, community events), social media, and handout materials.

4. [*PRIORITY A*] Improve outreach to seniors to address the steadily increasing senior population in Montgomery County. Efforts must address the unique safety needs of seniors and their age-related handicaps. To address staffing requirements for implementation of this initiative, reinstate the permanent Senior Citizen/Life Safety Educator Outreach position within the Community Outreach Office.

5.   [*PRIORITY C*] In conjunction with other emergency services and health agencies /organizations, provide CPR and AED training to interested County residents to help save the lives of cardiac arrest patients prior to MCFRS arrival and intervention. Participating agencies and organizations will need to establish a set of goals for number or percentage of residents trained by specific dates. Included in these goals would be training of approximately 10,000-12,000 public high school students per year through the Montgomery County Public Schools (MCPS) CPR/AED training program.[97] Provision of CPR and AED training to the public on a large scale would involve a joint effort involving MCFRS (i.e., Community Outreach Office, MCFRS Training Academy, CERT, and LFRDs), CPR Montgomery, MCPS, and potentially a partnership with the County's Health Department, American Heart Association and/or American Red Cross.

6. [*PRIORITY A*] Provide accurate and timely media relations and public information services:

A. Provide accurate and timely information and updates to local and national media outlets.

B. Coordinate MCFRS media relations, messaging, branding and safety campaigns.

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[97] The Annotated Code of Maryland, Article – Education, Section 7-205.2 requires that CPR and AED-use be taught in Public High Schools beginning during the 2015-16 school year.

C. Serve as the official public liaison through which accurate and timely information can be obtained in compliance with the Maryland Public Information Act and HIPAA law.

D. Manage the dissemination of information through the department's website and social media tools.

7. [*PRIORITY B*] Identify, apply for, and administer federal, State and/or private sector grants for community outreach:

A. Coordinate with the Budget Section to submit grant applications.

B. Ensure all grant awards are in compliance with grant directives and completed on time and within allocated budget.

C. Manage performance reporting, expenditures, reconciliations and completion of required reports and audits.

VOLUNTEER SERVICES

1. [*PRIORITY A*] Reduce instances of failures-to-respond (FTRs) to < 1% of all unit responses at Sandy Spring Volunteer Fire Department (SASVFD) during the FY16-20 time frame:

A. Perform a strengths, weaknesses, opportunities and threats (SWOT) analysis to analyze the staffing pattern, standby policy, and personnel management plan of SASVFD's Station 40.

B. Using the results of the SWOT analysis, make necessary changes to SASVFD's personnel management plan that will:

- Address more efficient use of existing personnel in meeting staffing needs

- Identify training needs and a training plan that will lead to the filling of all riding positions (e.g., unit officer, master firefighter, firefighter, EMS provider, etc.) with qualified personnel

- Address the recruiting and mentoring of additional volunteer members

C. Develop a dashboard to be used by the LFRD consisting of the data sets that need to be measured related to FTR reduction. Utilize the dashboard to track results for SASVFD over a 5-year period.

D. Using the dashboard results, perform an evaluation of SASVFD capability to reduce its FTRs below 1%, including quarterly meetings between DVS and LFRD personnel.

2. [*PRIORITY B*] Expand resources at three LFRDs, including Damascus, Hillandale and Takoma Park, to create enhanced staffing and resources to assure that MCFRS customers receive the best service possible by:

   A. Placing additional trained members on all units currently staffed 5 nights per week at Stations 2, 12, and 13

   B. Adding additional unit staffing such as staffing a second EMS unit, second engine, or tanker with a driver and 2nd person.

VOLUNTEER SERVICES - COMMUNITY EMERGENCY RESPONSE TEAM

1. [*PRIORITY B*] To leverage CERT resources and capabilities to the maximum extent, compare CERT capabilities to MCFRS areas of need and use trained CERT volunteers to assist MCFRS with those needs. Areas of need that have already been identified include the Safety in Our Neighborhood (SION) program, damage assessment, welfare-of-resident checks, accountability of evacuees, triage assistance, and logistics support.

   A. Identify the training needs of CERT to safely and effectively communicate SION messages and perform SION tasks such as smoke alarm installations. Develop and implement such training as a recurrent CERT monthly training module. Using CERVIS, build and test a "SION Team" roster and communication plan.

   B. Use trained CERT volunteers to assist MCFRS in conducting damage assessment after storms or other high impact events.

   C. Use trained CERT volunteers to assist MCFRS with Mobile Ambulance Bus (MAB) and Medical Support Unit (MSU) usage at mass casualty incidents and other high impact events.

2. [*PRIORITY B*] Conduct four to six "Storm Camp" events during the FY16-20 time frame, building upon the successful pilot test of the Storm Camp Program.

   A. Apply data and feedback from annual evaluations to improve the Storm Camp Program.

   B. Promote Storm Camp by:
      - Increasing media awareness and partnership
      - Utilizing the assistance of the MCFRS PIO and CERT outreach team to make initial contacts
      - Producing a list of community groups and business groups that will provide CERT students.

3. [*PRIORITY B*] Evaluate the overall CERT program and make improvements as needed:

   A. Using best practices and evaluation models, conduct biannual surveys and interviews with stakeholders to determine areas and needs that the CERT Program adequately meets as well as those they could address in the future through program modifications and/or enhancements.

   B. Evaluate survey results in relation to existing CERT capabilities and formulate recommendations for program modifications and/or improvements.

   C. Based on these recommendations, make adjustments and/or improvements to the CERT program, including funding requests, training, and program commitments (i.e. CERT class frequency, Storm Camp, etc.) to address the recommendations.

RESOURCE DEPLOYMENT AND STAFFING

Resource Deployment and Staffing initiatives are presented below under the subject headings: Operations, Emergency Medical Services, Fire Suppression, Special Operations, Bomb Squad, Staffing, and Facilities.

Table 5 in Appendix H summarizes facility, resource and staffing initiatives for 2016-2020.

OPERATIONS

1. [*PRIORITY A*] Eliminate current staffing deficiencies by ensuring minimum staffing at all stations on all primary units:

   A. Correct availability/reliability deficiencies, and prevent future deficiencies in areas of the County with projected growth.

   B. Ensure minimum staffing on all primary units, including engines, aerial units and rescue squads.

2. [*PRIORITY B*] Correct span-of-control deficiencies at the Battalion Chief level:

   A. Ensure no Battalion Chief supervises more than 7 stations.

   B. Reconfigure the County into six battalions (versus current five), staff a 24/7 Battalion Chief position (Battalion 706), and strategically site a battalion office at one of the fire stations in the 6th Battalion.

EMERGENCY MEDICAL SERVICES (EMS)

1. [***PRIORITY A***] Improve Advanced Life Support (ALS) response time by minimizing the percentage of Basic Life Support (BLS) patient care provided by paramedics and by greatly reducing patient transport via medic units to hospitals:

    A. Incrementally and strategically replace medic units, except Medics 713 and 714, with ALS chase units staffed by one paramedic, or in certain stations two paramedics, per chase unit.

    B. Place a total of 13 ALS chase units in service in stations having the highest demand for ALS services, including Stations 1, 3, 8 (two units), 12, 15, 23, 25, 28, 41, 42 (two units) and future "Norbeck" Station 38. This will involve redeploying the paramedic from each of these medic units to a chase unit; although this will not apply in the case of Station 28 which does not presently have a medic unit but will have an ALS chase unit in accordance with the ALS chase unit strategy.

2. [***PRIORITY A***] Further improve ALS capacity and response time by completing the four-person staffing plan which will add a firefighter-paramedic around the clock to 7 engines, 14 aerial units and six rescue squads[98] lacking ALS first-responder capability as of FY15.

3. [***PRIORITY C***] Amend Executive Regulation 25-08AM (Apparatus Staffing Policy) to establish one-person staffing (i.e., a paramedic) as the minimum staffing requirement for ALS chase units.

4. [***PRIORITY A***] Improve BLS transport capacity and response time by deploying additional ambulances as follows:

    A. Ensure that each fire station has at least one BLS transport unit; thus requiring the deployment of an ambulance at Stations 6, 7, 9, 18, 19 and 20 (each station lacking an ambulance as of FY15), including the staffing of two BLS providers per ambulance.

    B. As medic units are converted to BLS transport units at eleven stations as a result of the ALS chase unit deployment (see above), these eleven additional ambulances will each require one additional BLS provider to complete two-person staffing. This staffing need will be created when the paramedic from the medic unit is reassigned to an ALS chase unit, leaving only one BLS provider on the ambulance (i.e., former medic unit).

    C. Due to projected service demand, an additional ambulance will be deployed at each of Stations 8, 15, 23, 25 and 32, including the staffing of two BLS providers per ambulance.

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[98] Through FY15, the following 3-person units designated for 4-person staffing had not yet been upgraded to four-person staffing: Engines 702, 705, 710, 711, 720, 726, 740; Aerial Units 703, 706, 710, 715, 716, 718, 719, 723, 724, 725, 731, 734, 735, 740; and Rescue Squads 703, 715, 717, 729, 741 and 742 - a total of 27 units.

D. Prior to future Station 38 ("Norbeck Station") becoming operational, deploy an additional (i.e., second) ambulance at Station 25, including the staffing of two BLS providers around the clock.

5. [*PRIORITY A*] Ensure adequate supervision and training of EMS responders by staffing an EMS Supervisor position for each battalion. This would require the addition of three EMS Supervisor positions to the current two positions as of FY15 for a total of five positions. Upon the 6th Battalion being established, one additional EMS Supervisor position will be required for a total of six.

FIRE SUPPRESSION

1. [*PRIORITY A*] Implement four-person minimum staffing for primary suppression and heavy rescue units having three-person minimum staffing as of FY15:

    A. Engines 702, 705, 710, 711, 720, 726, 740;
    B. Aerial Units 703, 706, 710, 715, 716, 718, 719, 723, 724, 725, 731, 734, 735, 740
    C. Rescue Squads 703, 715, 717, 729, 741, 742

2. [*PRIORITY B*] Deploy a 4-person paramedic engine at future Stations 36-39.

3. [*PRIORITY C*] Deploy a 4-person paramedic aerial unit at Station 28 or future Shady Grove Station 36 (location to be determined).

4. [*PRIORITY C*] Amend Executive Regulation 25-08AM (Apparatus Staffing Policy) to establish 4-person staffing as the minimum staffing requirement for engines, aerial units and rescue squads.

SPECIAL OPERATIONS

1. [*PRIORITYC*] Create and staff the following positions within the Special Operations Section to improve management, supervision and readiness of Special Operations assets:

    A. Battalion Chief's position (shift work) to supervise Special Operations personnel in the field.

    B. Battalion Chief's position (shift work) to supervise the Technical Rescue and Swift Water Rescue Teams.

    C. Fulltime Captain position (day work, M-F) to serve as Special Operations Training Officer.

D. Fulltime Master Firefighter position (day work, M-F) to serve as Special Operations Logistics Officer.

E. Fulltime Master Firefighter position (day work, M-F) to serve as Special Operations Events Coordinator.

BOMB SQUAD

1. [**PRIORITY C**] Add four fulltime, shift positions to the Fire & Explosives (FEI) Section to establish a fulltime, dedicated Bomb Squad. The four positions would include a Captain and three Lieutenants or Master Firefighters (to be determined). These personnel would be required to have or obtain Bomb Technician certification. A fulltime Bomb Squad will ensure improved readiness, quicker response, and allow FEI investigators to focus solely on investigations without having to devote time to preparing for and responding to bomb incidents.

2. [**PRIORITY C**] Provide specialized protective gear and equipment for personnel staffing the four Bomb Squad positions (see above). This gear and equipment will allow Bomb Squad personnel to handle their duties safely and effectively.

FACILITIES

Major facility-related needs of the MCFRS are presented below under the subject headings: New-Additional Stations; Station Relocations; Station Renovations, Expansions and Rebuilds; and Other Facility Relocations and Renovations. For some of these, CIP projects had been approved and were underway as this Fire-Rescue Master Plan was being written, while others will be requested during the period of FY16-21. "Level of Effort" CIP Project needs are not addressed in this master plan.

Table 5 in Appendix H summarizes facility, resource and staffing initiatives for 2016-2020.

PLANNING AND ASSESSMENT

Planning and assessment-related initiatives are presented individually below under those same subject headings.

PLANNING

Planning initiatives are presented below under the headings: Strategic and Long-Range Planning, Succession Planning, Site Evaluation, Land Reservation/Acquisition for Stations, and Geographic Information System (GIS).

- STRATEGIC AND LONG-RANGE PLANNING

    1. [***PRIORITY A***] Prepare an annual strategic plan between FY16 and FY20 for implementing Fire-Rescue Master Plan priorities as well as emergent priorities.

    2. Complete remaining phases of the Station Location and Resource Allocation Study [***PRIORITY B***]:

        A. Phase 6 - Western County – area west of Stations 9, 22, 30, 31, 33, and 35.

        B. Phase 7 - Norbeck Road Corridor – between Gude Drive and MD Route 650.

        C. Any additional phases that are identified for study.

    3. [***PRIORITY C***] Prepare a new Fire-Rescue Master Plan to replace the 2016-2020 plan when it sunsets in late 2020.

- SUCCESSION PLANNING

    1. [***PRIORITY B***] Complete succession planning for the positions identified to the CountyStat Office in the Fire Chief's performance plan. These include administrative managerial positions – civilian and uniformed – requiring specialized knowledge, skills, abilities. Absent a qualified successor for each of these positions, the MCFRS' administrative and technical service functions could suffer a significant reduction in effectiveness and efficiency should the incumbent manager retire, resign or take another position within MCFRS or the County Government.

    2. [***PRIORITY B***] Achieve redundancy for everyday skilled positions to ensure key business functions and processes are achieved thoroughly, accurately, seamlessly and on time during periods of absence by employees occupying these skilled positions. This will involve the identification of skilled positions requiring redundancy and the training of staff to be proficient in the duties of these specified positions as collateral duties. In certain cases, these positions have already been identified and personnel have been trained to assume the duties when circumstances arise; however, redundancy remains to be fully achieved with respect to other skilled positions.

- SITE EVALUATION/SELECTION

1. [***PRIORITY A/B***–As shown below] Participate in site evaluation/selection for the following new-additional fire stations:

    - [***B***] Station 36 – "Shady Grove" – in the vicinity of Shady Grove and Frederick Roads
    - [***B***] Station 37 – "East County" – in the vicinity of Columbia Pike and Tech Road

- [*B*] Station 38 – "Norbeck" – along the Norbeck Road corridor at a site to be determined
- [*A*] Station 39 – "Montgomery Village" – in the vicinity of Goshen Road and Rothbury Drive.

The site evaluation process is led by DGS and includes MCFRS, OMB, and M-NCPPC representatives, applicable Regional Services Center Director, and residents of the impacted community as selected by the Regional Services Center Director. The site evaluation committee identifies and ranks suitable sites for consideration by the County Executive who then selects the site on which the station will be built.

2. [*PRIORITY B*] Use the following list of site location and site suitability criteria during site evaluations for fire-rescue stations:

A. Site Location Criteria:
- Response time – in relation to MCFRS benchmark goals
- Population – total and density within specific geographical areas
- Special needs populations – e.g., seniors, handicapped, immigrants
- Incident call load – EMS, fire, and special operations categories
- Area of coverage – square mileage within specific geographical area
- Proximity to surrounding stations
- Risk – levels of risk, with emphasis on high and special risk
- Water supply for fire suppression – hydrants vs. no hydrants

B. Site Suitability Criteria:
- Size – 3.5 - 5 acres preferred; 2 – 3 acres minimum depending on station size
- Shape/dimensions – sufficient width and depth
- Topography – level preferred; non-level acceptable on case-by-case basis
- Quick access to major roadways – preferably both north-south and east-west
- Egress and ingress of fire-rescue apparatus and privately owned vehicles
- Not located on or at the bottom of a steep grade or on a sharp curve
- Pedestrian safety
- Compatibility with surrounding land-uses
- Soil composition/stability
- Utility hookups – electricity, water/sewer, gas, communications systems
- Well and septic suitability, only if municipal water/sewer hookups are not feasible
- Availability and ease of acquisition
- Cost (if other than County-owned or land proffered by developer)
- Special considerations – environmental issues, historic designation
- Traffic signalization, and any egress issues onto roadway

- LAND RESERVATION/ACQUISITION FOR STATIONS

  1. [*PRIORITY B*] Coordinate the reservation and/or acquisition of land for new fire-rescue stations with DGS and M-NCPPC planners, OMB managers, and Directors of Regional Services Centers whose service areas require new stations. County-owned land or land proffered by developers is preferable, but in cases where the County must purchase one or multiple parcels for a station, there must be an approved CIP project and/or the station must be recommended in community master/sector plans to access ALARF monies for the land purchase.

  2. [*PRIORITY C*] For large developments being proposed by developers, MCFRS should work with the County to require or entice the proffering of land by developers for fire stations. This would reserve land for future stations at no cost to the County.

- GEOGRAPHIC INFORMATION SYSTEM (GIS)

  1. [*PRIORITY B*] Produce more specific, complete and accurate risk data by risk management zone for the risk assessment section of the MCFRS Standards of Cover document. This will include risk data addressing EMS, fire, and special operations-related risk. Greater detail will be sought concerning hazards and their consequences with regard to type of occupancy, number of floors, construction type, number of occupants, special needs occupants, etc. Determination of the probability of occurrence for a given incident will also be given greater attention so that incident frequency is not the sole basis for probability. The completeness and accuracy of risk data will be improved as well.

  2. [*PRIORITY B*] Replace Visio 2003 with more up-to-date mapping software for use by firefighters at the station level.

- PLANNING SECTION STAFFING

  1. [*PRIORITY B*] Fill the lapsed Senior Planning Specialist position to keep pace with workload relating to regular as well as expanded responsibilities and expectations of the Planning Section.

  2. [*PRIORITY B*] Hire additional GIS staff (e.g., IT Specialist I or II with GIS skills) to keep pace with growing GIS workload and department-wide expectations.

ASSESSMENT

MCFRS assessment initiatives are presented below under the following headings: Performance Measures and Dashboards, Program Appraisal, and Accreditation Compliance.

- PERFORMANCE MEASURES AND DASHBOARDS

  A. [***PRIORITY B**]* Develop additional headline performance measures to address all major programs and functions of the department. Emphasis will be placed on developing additional headline measures addressing EMS, community outreach, and code compliance, each of which has significant outcomes for the community at large. Also examine current performance measures for needed modifications to ensure their maximum use and benefit over time.

  B. [***PRIORITY B**]* Continue developing and refining a uniform management process for tracking and implementing goals, objectives and related initiatives and programs. This initiative also involves regular use of the process and associated record keeping system.

  C. [***PRIORITY B**]* Continue use and improvement of performance dashboards to be updated at least quarterly by MCFRS Section Managers and presented to the MCFRS management team at quarterly briefings. Dashboards may also be useful to demonstrate performance and program appraisal to peer assessors associated with accreditation.

- PROGRAM APPRAISAL

  A. [***PRIORITY A**]* Develop a uniform program appraisal process, including, to the greatest extent possible, standardized criteria and record keeping, to be used by all program managers. The appraisals will be used in relation to CFAI- published competencies that must be addressed in the department's Self-Assessment Manual prior to re-accreditation in 2018.

  B. [***PRIORITY B**]* Using the uniform process described above, program managers will prepare, at least annually during the period FY16-20, an appraisal of each of the programs they lead and submit the written appraisal to their supervisor. Program appraisals for FY18 will be summarized in the department's Self-Assessment Manual prior to agency re-accreditation in 2018.

- ACCREDITATION COMPLIANCE

  A. [***PRIORITY A**]* Maintain agency accreditation status for the period of 2015-2020 by preparing and submitting to CFAI the required Annual Compliance Report (ACR) in suitable manner to receive an approval from CFAI. (Note: An ACR is not required in 2018, the year when MCFRS will pursue reaccreditation.)

  B. [***PRIORITY B**]* Achieve agency re-accreditation status in 2018 when the five-year cycle dating back to the 2013 award of accreditation status ends. This will involve

the preparation of a new MCFRS Self-Assessment Manual (SAM) in accordance with the latest edition of the CFAI *Fire and Emergency Service Self-Assessment Manual* (*FESSAM*) guidebook as well as the updating of the MCFRS Standards of Cover (SOC) in accordance with the latest edition of the CFAI *Standards of Cover* guidebook. The award of accreditation status would be made by the CPSE/CFAI Board of Directors based largely upon the recommendation of the Team Leader of the Peer Assessment Team that will have performed a site visit and document validation during the Spring of 2018.

    C. [*PRIORITY B*] Create a dedicated fulltime position (i.e., County employee) to serve as Accreditation Manager for the department. This position should be assigned to either the Office of the Fire Chief or Planning Section (to be determined).

INFRASTRUCTURE, COMMUNICATIONS AND IT

Infrastructure and Communications initiatives are presented below under the subject headings: Facilities/CIP; Apparatus Maintenance, Rehab, and Replacement; Equipment Maintenance and Replacement; Emergency Communications; and Information Technology.

FACILITIES/CIP

1. [*PRIORITY A*] Provide adequate facilities and associated equipment to effectively and efficiently deliver emergency services from all departmental sites:

    A. Conduct an initial facilities audit of each worksite to highlight problems such as deferred maintenance and end-of-life-cycle for building systems

    B. Obtain a reliable data stream from the work order system, being implemented in FY16, for interpreting maintenance needs, determining priorities, and to assist with building a business case for future funding

2. [*PRIORITY B*] Establish and implement CIP projects on a timely basis. This will involve planning for the addition of capital needs into the 6-year Capital Improvement Program (CIP) for formal recognition and funding.

3. [*PRIORITY B*] Coordinate CIP projects for stations and other facilities, including new-additional stations, station relocations, station renovations and expansions, and other facilities:

- NEW-ADDITIONAL STATIONS

Several new-additional fire stations are needed in the County for which CIP projects will be requested by MCFRS during the five-year period of this master plan (i.e., FY17-22 CIP and FY19-24 CIP). They are described below and presented in station numerical order.

STATION 39 – "MONTGOMERY VILLAGE" [*PRIORITY A*]

Develop a PD and POR for the "Montgomery Village" Fire Station[13] and request this project be included in the FY17-22 CIP Budget. Assuming this is approved as a CIP Project, conduct (with DGS) a site evaluation by 2020 for this station to be sited in the vicinity of Goshen Road and Rothbury Drive. Also in coordination with DGS, prepare a Program of Requirements (POR) for this station by 2020. The station will need to accommodate a paramedic engine, ambulance and a future 2nd EMS unit.

STATION 36 – SHADY GROVE [*PRIORITY A*]

Develop a Project Description (PD) and Program of Requirements (POR) for the Shady Grove Fire Station, and request this project be included in the FY17-22 CIP Budget. Assuming this facility is approved as a CIP Project, conduct (with DGS) a site evaluation for this station to be sited in the vicinity of Shady Grove Road and Frederick Road. Also in coordination with DGS, prepare a Program of Requirements (POR) for this station by 2020.

To serve the fire-rescue needs of the local community, Station 36 will need to accommodate a paramedic engine, a special service (aerial unit or rescue squad), and two ambulances. As this station will be centrally located within the County and have excellent access to a network of major north-south and east-west highways (I-370, I-270, MD200, MD355 and Shady Grove Road), this station should be designed to also accommodate the Duty Operations Chief, Scheduler, Battalion Chief, Battalion EMS Duty Officer, and Battalion Code Compliance inspector, including their assigned vehicles (i.e., 3 light-duty command vehicles and a Code Compliance vehicle), plus one heavy-duty special unit (e.g., command post bus, ambulance bus, hazmat unit, etc.). If a sufficiently large property can be identified and acquired, this property should also accommodate a separate building[99] to house the Fire and Explosive Investigations (FEI) Section in its entirety, including investigators and associated offices, kitchen, dining area, dormitory, living areas, FEI vehicles (i.e., three pickup trucks for on-duty investigators), Bomb Squad apparatus (Bomb Unit 700 and two pickup trucks with trailers), Bomb Squad equipment, and FEI/Bomb Squad storage.

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[99] FEI will require a separate building from the fire station to address its unique security requirements regarding safeguarding of investigation records, evidence storage, specialized equipment, etc.

STATION 37 – "EAST COUNTY" [***PRIORITY B***]

Develop a PD and POR for the "East County" Fire Station[100], and request this project be included in the FY17-22 CIP Budget. Assuming this is approved as a CIP Project, conduct (with DGS) a site evaluation for this station to be sited in the vicinity of Columbia Pike and Tech Road. The station will need to accommodate a paramedic engine and ambulance and have adequate space for a future 2nd EMS unit.

STATION 38 – "NORBECK" [***PRIORITY B***]

Develop a PD and POR for the "Norbeck" Fire Station[13], and request this project be included in the FY17-22 CIP Budget. Assuming this is approved as a CIP Project, conduct (with DGS) a site evaluation by 2020 for this station to be sited along the Norbeck Road corridor in accordance with recommendations resulting from the future 7th Phase of the Station Location and Resource Allocation Study. The station will need to accommodate a paramedic engine, ALS chase unit, ambulance, and space for a potential 2nd ambulance. Until the "Norbeck" Station is built and becomes operational, a 2nd ambulance should be deployed at Station 25.

- STATION RELOCATIONS

Three fire stations require relocation during the five-year period of this master plan. An approved CIP project is in place for each of these stations. They are described below and presented in numerical order.

STATION 18 – KENSINGTON-GLENMONT [***PRIORITY A***]

In coordination with DGS, oversee the construction of new Station 18 (CIP Project #450900) on the site of the former Glenmont Elementary School located at Georgia Avenue and Randolph Road, across from former Station 18. Construction is scheduled to be completed in early FY17. This project is the 3rd priority among MCFRS FY17-22 CIP projects to be requested.

This project provides for an approximately 22,600 sq ft fire station to replace the current station located at the intersection of Georgia Avenue and Randolph Road. The project includes four apparatus bays, gear storage, decontamination room, day room, kitchen, dining room, dormitory, bathrooms, locker rooms, offices, training room, storage and watch office. An interim station at the former Wheaton Volunteer Rescue Squad on Grandview Avenue will be operated during construction. The station will house existing Paramedic Engine 718 and Aerial Tower 718, plus a future ambulance and reserve apparatus.

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[100] Actual station name to be determined

STATION 23 – ROCKVILLE - "PIKE DISTRICT" (a.k.a., "White Flint") [***PRIORITY A***]

In coordination with DGS, coordinate construction of the fire station portion of the mixed-use high-rise building (CIP Project #451502) to be located at Montrose Parkway and Chapman Ave (formerly Maple Avenue) in the Pike District (formerly "White Flint"). This will effectively relocate Station 23 about 0.6-mile south of its existing site on Rollins Avenue near its intersection with Rockville Pike. This project is the 2nd highest priority among MCFRS FY17-22 CIP projects to be requested.

STATION 35 – CLARKSBURG [***PRIORITY A***]

Initiate planning and design for permanent Clarksburg Fire Station #35 (CIP Project #450300) to replace Interim Station 35 at a nearby location. The site will likely have been selected by the County by the time this fire-rescue master plan has been approved. This project is the 5th priority among MCFRS FY17-22 CIP projects to be requested.

- ## STATION RENOVATIONS, EXPANSIONS, REBUILDS

Six fire-rescue stations require renovation, expansion or rebuilding. An approved CIP project is in place for four of these stations. For the other two stations, the need for County CIP projects is not anticipated as the two LFRDs plan to fund the projects on their own. The six station projects are described below and presented in numerical order.

STATION 3 – ROCKVILLE [***PRIORITY C***]

In coordination with the Rockville Volunteer Fire Department (owner of Station 3), initiate planning and design for an extensive renovation or relocation[101] of Station 3 (CIP Project #450105) located at 380 Hungerford Drive at the intersection with Beall Avenue. The renovated or relocated station will accommodate all existing frontline apparatus, equipment, and career and volunteer personnel. This project is the 8th priority among MCFRS FY17-22 CIP projects to be requested.

STATION 6 – BETHESDA [***PRIORITY C***]

Without County involvement or funding, the Bethesda Fire Department will continue its planning and design of an extensive renovation or rebuilding on site of Station 6 located at 6600 Wisconsin Avenue at the intersection with Bradley Boulevard. The renovated station will need to accommodate all existing frontline and reserve apparatus, equipment, and personnel, plus an ambulance and potentially an ALS chase unit if determined to be needed at Station 6.

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[101] It is possible this project could be a station relocation should a suitable site be found nearby.

<u>STATION 11 – GLEN ECHO</u> [*PRIORITY B*]

In coordination with the Conduit Road Fire Board, Glen Echo Volunteer Fire Department, and County departments/agencies, conduct planning and design for an extensive renovation of Station 11 (CIP Project #450702) located at 5920 Massachusetts Avenue at the intersection with Sangamore Road. This project is the 7th priority among MCFRS FY17-22 CIP projects to be requested. The preparation and signing of an MOU between the County and the Conduit Road Fire Board will precede planning and design of the Station 11 renovation.

The project provides for a renovation of the existing 10,800 sq ft station, including complete interior renovation, improvements in all living areas of the station, replacement of all building systems (HVAC, electrical and life safety systems), and correction of code and ADA compliance issues.   In addition, the project also provides for a 360 sq ft apparatus bay extension, 500 sq ft gear storage, and a 200 sq ft covered patio.   The project also provides for a temporary station during construction.

<u>STATION 25 – KENSINGTON-ASPEN HILL</u> [*PRIORITY A*]

In coordination with the Kensington Volunteer Fire Department, DGS and other County departments/agencies, complete the planning, design and construction of an extensive renovation /expansion of Station 25 (CIP Project #450903), a 12,000 sq ft fire station located at 14401 Connecticut Avenue at the intersection with Bel Pre Road. This project provides for an additional 13,443 square feet of space for two additional apparatus bays and associated storage, additional administrative offices, Battalion Chief's office, dormitory space, and living and dining areas. A renovation of the existing interior finishes and a HVAC replacement are also included in the project. The Station 25 renovation is scheduled for completion in FY18. This project is the 4th priority among MCFRS FY17-22 CIP projects to be requested.

<u>STATION 30 – CABIN JOHN</u> [*PRIORITY B*]

In coordination with the Cabin John Park Volunteer Fire Department (CJPVFD), DGS and other County departments/agencies, initiate planning and design for an extensive renovation of Station 30 (CIP Project #450500) located at 9404 Falls Road near the intersection with Oaklyn Drive in Potomac. This project is the 6th priority among MCFRS FY17-22 CIP projects to be requested. The preparation and signing of an MOU between the County and the CJPVFD will precede planning and design of the Station 30 renovation.

This project provides for demolition of 2367 square feet of living and administrative areas, construction of 8485 square feet of new living and administrative spaces, and minor renovation of the existing 4526 sq. ft. apparatus bays. The new construction will provide the functional space requirements for the day room, dining room, fitness room, dormitory, female facilities, administrative offices, training room, storage, and other support rooms.

The new construction also includes replacement of mechanical, electrical, and life safety systems. Minor renovations to the existing apparatus bays must be performed for the station to comply with current code and life safety requirements. This includes the installation of sprinklers, alarms, vehicle exhaust removal, and other life safety systems. The new addition will include storage space for rescue boats and water rescue gear and equipment.

STATION 41 – BETHESDA-CHEVY CHASE RESCUE SQUAD [*PRIORITY C*]

Without County involvement or funding, the Bethesda-Chevy Chase Rescue Squad will continue its planning and design of a new BCCRS station either on its existing property located at the intersection of Battery Lane and Old Georgetown Road or on an alternative site in Bethesda. The new station will need to accommodate all existing frontline apparatus, equipment, and career and volunteer personnel.

- OTHER FACILITY RELOCATIONS, RENOVATIONS AND REUSES

PUBLIC SAFETY TRAINING ACADEMY [*PRIORITY A*]

In coordination with DGS, County Police and other applicable County departments/agencies, oversee/monitor the construction of the new Public Safety Training Academy (CIP Project #471102) on the Webb Tract located at 8751 Snouffer School Road, across from Alliston Hollow Way, in Gaithersburg. Construction is scheduled for completion in FY17. Upon completion, apparatus, equipment and supplies will be moved from the existing Training Academy to the new facility.

The project includes an academic building with classrooms/training rooms; EMS training facility; fire training building; simulation area; Cityscape; gymnasium; indoor firing range; canine facility; offices; locker rooms; graphics and video development area; Emergency Vehicle Operation Center (EVOC); driver training classroom, simulation room, skid pan, skills pad, and driver track; and staff and visitor parking. A future phase may include the addition of a lecture hall.

STATION 23 [**PRIORITY B**]

In coordination with the Rockville Volunteer Fire Department, discuss and evaluate the feasibility of reuse of existing Station 23 upon relocation of apparatus and personnel to new Station 23 in the Pike District (see above). The existing station could be used for one or more purposes such as storage of reserve apparatus, equipment storage, and/or housing of one or more in-service EMS transport units (i.e., 24/7 unit and/or flex unit) and the personnel to operate it/them. The latter use would require an analysis of EMS service demand in 2020 to determine the need at that time for additional EMS resources in south Rockville.

APPARATUS MAINTENANCE AND REPLACEMENT

1. [*PRIORITY A*] Manage the acquisition of apparatus through the Apparatus Replacement Program (CIP Project 451504) – a program for the ongoing, minimum replacement of fire, rescue and EMS apparatus. Over the six year period of FY15-20, the following units (101 total) are proposed for replacement; although some variation may occur based on actual MCFRS needs:

   - 60 ambulances
   - 21 engines
   - 10 aerial units
   - 4 all-wheel drive brush engines/units
   - 4 rescue squads
   - 2 tankers

   The annual replacement of apparatus is an integral component of the MCFRS Apparatus Management Plan adopted by County Council. CIP Project 451504 is the MCFRS' highest priority CIP Project for FY15-20.

2. [*PRIORITY B*] Continue to refine an ongoing apparatus replacement plan by analyzing and refining available fleet management and call load data using real time data analysis and by reviewing data available from other sources (e.g., peer organizations, EFO projects).

3. [*PRIORITY A*] Identify and propose a staffing model for performing preventative maintenance and repairs that does not require the need for vendors to perform routine maintenance and repairs. This will be achieved through researching fleet measurements pertaining to staffing levels and requesting funding for staffing levels, including support personnel, plus space, tools, etc. to support them.

4. [*PRIORITY A/B* – as shown below] Implement industry best practices for apparatus parts management:

   A. Create a Parts Manager position and a Supply Technician position to manage the parts supply function. [*A*]
   B. Introduce a cyclical parts inventory [*B*]
   C. Execute contracts for parts that are most advantageous to FRS [*B*]

5. [*PRIORITY B*] To examine and recommend alternative service delivery models for maintenance facilities and enhanced road service to improve fleet services.

6. [*PRIORITY B*] Determine training needs and training sources/methods and then implement regular training for Fleet Management staff for both automotive and vocational components of fire apparatus and EMS units.

EQUIPMENT MAINTENANCE AND REPLACEMENT

1. [*PRIORITY A*] Management of tools, equipment, hose, and appliances ("TEHA"):

   A. Execute additional contracts for TEHA
   B. Ensure that all TEHA requiring testing is performed in accordance with NFPA standards.
   C. Continuously monitor and evaluate new TEHA technologies and for regular replacement of obsolete TEHA to meet current standards.

2. [*PRIORITY A*] Replacement of self-contained breathing apparatus (SCBA) for all career and volunteer personnel. New SCBA will feature the latest technology and will offer greater protection for our firefighter-rescuers. Due to the significant expense associated with SCBA replacement, the department will need to pursue funding sources. The replacement SCBA could be purchased through a vendor or leased through a master lease contract.

EMERGENCY COMMUNICATIONS

- COMMUNICATIONS SYSTEMS

As a partner in the Department of Technology Services' Public Safety Systems Modernization (PSSM) Project, assist DTS in implementing each PSSM component (i.e., Computer-Aided Dispatch, Fire Station Alerting, and Radio System) as it pertains to MCFRS, while meeting established benchmarks as follows:

- Computer-Aided Dispatch (CAD): Operational by January 2016
- Fire Station Alerting (FSA): Operational by July 2017
- Radio System: Operational by July 2018

1. [*PRIORITY A*] The CAD system will include the following components:
   - Priority Dispatch – with Emergency Medical Dispatch (EMD), Emergency Fire Dispatch (EFD), Emergency Police Dispatch (EPD) and Proactive Quality Assurance (Pro-QA)
   - Automatic Vehicle Locator (AVL) and Automated Vehicle Response Recommendation (AVRR)
   - Deccan® Suite including CAD Analyst, Box Area Run-card Builder (BARB), Live Move Up Monitor (Live MUM), and Hyper Cube Apparatus Deployment Analysis Module (HPC ADAM)
   - Summit 7 – CAD dashboard tool

2. [*PRIORITY A*] The PSSM radio system will be designed to Association of Public Safety Communications Officials (APCO) "Project 25" standards. Project 25 (P25) is a partnership between the public safety communications community and industry manufacturers whose shared goal is to satisfy the communication needs of users for interoperable, narrowband

Land Mobile Radio equipment and systems. P25 is a user-driven standardization process with technical and operational requirements established through the participation of its public safety stakeholders. Users and manufacturers participating in the P25 process develop voluntary, consensus communications standards under the auspices of the Telecommunications Industry Association. P25 standards establish the basis upon which: manufacturers develop, implement, and competitively offer P25 equipment and systems; recognized laboratories conduct P25 compliance testing; and users specify, procure, and operate P25 radios and communications.

3. [*PRIORITY A*] The new Fire Station Alerting (FSA) system will be a significant improvement over the existing FSA system, with emphasis on efficiency, safety, health/wellness, and convenience. The new system will include the following features, with items marked with an asterisk (*) denoting features new to MCFRS:

- Ramping volume pre-alerts, with unit specific tones*
- Two-tone paging
- Text to speech pre-alert and dispatch announcements*
- Night vision lighting for bunkrooms and halls leading to apparatus bays*
- Large, flat-panel monitors throughout the station displaying incident address for personnel to view while walking to apparatus*
- Mapping feature on station control unit screen in Watch Office*
- Five-color light indicators indicating specific unit being dispatched*
- Security camera with two-way audio for front door conversations tied to ECC in case a walk-up customer is seeking help and firefighters are not in-station. Camera also allows firefighters in-station to monitor the front door for safety reasons.*
- Turnout timers in apparatus bays giving firefighters a visual cue of the time taken to depart the station after an alert is received*
- "Rip-and-run" printers giving firefighters a printout of dispatch information within 10 seconds of dispatch. [Goal is to have thermal printers; thus saving money on paper and printer supplies.]
- Strobe lights tied to alerting in high-noise areas such as apparatus bays and PT room*
- Remote alert activation in station (i.e., button) to notify personnel of a walk-up patient or an injury in the PT room*
- Dorm controllers for individual bunkrooms, allowing personnel to specify the alerts they will hear based on their apparatus assignment*
- Multiple failover capabilities to ensure continuous operation*
- Manual operation at ECC in case CAD system goes down
- Duplicate systems at ECC and AECC to ensure redundancy
- Station Control Unit that can be managed remotely via the web*
- System will be independent of current infrastructure (other than electrical panels)
- System provides notification of system issues via web applications.

- COMMUNICATIONS EFFICIENCIES

1. [*PRIORITY A*] Improve emergency call-processing and dispatch times by reducing call-taking and dispatch times for fire full-assignment and Echo/ALS2 events to comply with NFPA 1221 and CFAI requirements.

2. [*PRIORITY B*] Improve compliance with Priority Dispatch Protocols:

   A. Utilizing a standardized quality assurance process, reduce errors in call-processing for fire full-assignment and Echo/ALS2 events.

   B. Achieve greater than 90% average protocol compliance scores for call-taking on all fire full-assignments and Echo/ALS2 events in compliance with Priority Dispatch EMDQ and EFDQ guidelines.

3. [*PRIORITY A*] Achieve successful consolidation of call-taking and dispatch functions under Montgomery County Police (MCP) ECC by developing a transition plan to consolidate all fire/rescue call-taking and dispatch services under the MCP ECC.

4. [*PRIORITY B*] In partnership with MCP, achieve and maintain ACE accreditation for the joint MCP /MCFRS call-taking and dispatch function at the Public Safety Communications Center.

- COMMUNICATIONS PERSONNEL

1. [*PRIORITY B*] Train personnel to fill uniformed operations vacancies at ECC. This will involve training at least eight uniformed personnel each year at the rank of Firefighter /Rescuer III to maintain a field reserve pool of ECC-Q personnel, to fill any ECC roster vacancies, to allow personnel to transfer out of ECC with an immediate replacement available, and to provide for promotional opportunities and succession planning.

2. [*PRIORITY A*] Recruit and train civilian personnel to replace uniformed dispatchers. This will involve recruiting and training at least nine civilians annually as Public Safety Communications Specialists.

3. [*PRIORITY B*] Develop an in-service training program for ECC personnel that will provide at least 20 hours of specific, verifiable, realistic, and on-going training each year.

INFORMATION TECHNOLOGY

1. [*PRIORITY A*] Enhance IT Section productivity and capabilities:

   A. Fill positions with personnel possessing appropriate knowledge, skills and abilities.

   B. Utilize new technologies – systems and equipment – to improve IT capabilities, effectiveness and efficiency.

   C. Provide adequate training for IT staff, including the use of new technologies.

   D. Develop redundancy of IT capabilities, including cross-training of IT personnel.

2. [*PRIORITY A*] Support existing automation systems:

   A. Provide effective and timely IT end-user training.

   B. Evaluate IT systems and equipment.

   C. Collaborate with DTS and other agencies/organizations at the County and regional levels.

   D. Maintain and, where possible, improve interoperability.

3. [*PRIORITY A*] Embrace and implement new systems/equipment and upgrades:

   A. Upgrade the data center to improve reliability and maintainability.

   B. Provide effective, timely training on new systems/equipment for IT staff and end-users.

   C. Evaluate and document applications and systems.

   D. Implement the following IT system, equipment and software application projects:

   - Replace mobile devices for eMeds (potentially through PSSM Project)
   - Provide tablets for the five career Battalion Chiefs' command vehicles
   - Replace RMS for fire code inspections
   - Replace Property Tracker and SCBA Tracker with integration to PosiChek
   - Migrate Telestaff database engine from SQLAnywhere to MS SQLServer
   - Implement fire station network security enhancement
   - Implement Online Analytical Processing (OLAP) system
   - Install station security cameras
   - Consolidate personnel and staff management databases
   - Create a department-wide correspondence tracking system.

4. [*PRIORITY B*] Support the department's initiatives to prevent the 9-1-1 call and to meet our standards of response coverage:

   A. Enhance and enable data mining and analysis capabilities (see heading below).

   B. Improve automated reporting (e.g., Daily Report for highest priority incidents).

DATA ANALYSIS AND APPLICATION

1. [*PRIORITY A*] Develop a plan for improving the department's identification, collection, analysis, reporting and use/application of data, addressing the following:

   A. Identification of all required and desirable data sets for:
      - fulfilling reporting mandates
      - planning, operational, logistical, administrative and educational purposes
      - assessment purposes (i.e., performance measurement, benchmarking, accreditation)
      - decision-making purposes.

      This will also serve to identify the specific data sets that must be produced at regular intervals and will identify data sets that can be used by multiple organizational units; thus reducing duplication of effort in producing data.

   B. Improved data collection processes, addressing completeness, accuracy and reliability of data to produce more meaningful and usable data.

   C. Improved data analysis capabilities, including the creation of a dedicated data analysis capability (i.e., organizational unit) within the department, allowing for:
      - thorough and timely analysis
      - greater level of analytical complexity
      - more meaningful performance metrics
      - formulation of data-driven conclusions and recommendations to support sound decision-making.

   D. Improved and expanded data reporting within MCFRS as well as to external departments, agencies and organizations at the local, State, federal and private sector levels as required. This will improve data sharing; thus increasing the availability of data to those needing it or those not needing it but nonetheless finding it beneficial to their programs.

   E. Improved and expanded use/application of data for operational, logistical, administrative, planning, assessment, and educational purposes and for continuous overall improvement of the department.

2. [*PRIORITY B*] Implement the data improvement plan beginning with the creation of a dedicated data analysis capability, including the hiring of a fulltime data analyst to support department-wide needs. This position will be assigned to either the Planning Section or IT Section (to be determined).

TRAINING AND WELLNESS/SAFETY

Training and wellness initiatives are presented below under the subject headings of Training and Wellness & Safety.

TRAINING

1. [*PRIORITY A*] Relocate the Fire-Rescue Training Academy to its new location on the Webb Tract as part of the new Public Safety Training Academy (PSTA):

   A. Identify the needs of all stakeholders including joint Fire-Rescue and Police training coordinators, OMB and DGS to build a strategically located, cost-effective PSTA.

   B. Work with independent construction contractors to seek competitive bids and timelines in reference to the project.

   C. Complete and open the joint Fire-Rescue and Police Academy by the end of CY2016.

2. [*PRIORITY A*] Complete two recruit classes annually at the Fire-Rescue Training Academy. This will be necessary to address attrition, to hire firefighter-rescuers that will staff any new station(s), and to train new firefighters hired with SAFER Grant monies (if awarded to MCFRS).

3. [*PRIORITY A*] Work in cooperation with the State of Maryland, the Commission on Accreditation of Allied Health Education Programs (CAAHEP), and the Committee of Accreditation of Educational Programs for the Emergency Medical Services Professions (COAEMSP) to maintain the Fire-Rescue Training Academy's status as an accredited paramedic training institution:

   A. Integrate the attainment of college credits through an equivalency agreement from in-state colleges and universities for students completing the MCFRTA Paramedic program.

   B. Develop a partnership with the other Paramedic/Emergency Health Services programs throughout Maryland.

C. Enhance the paramedic training program to advance the professionalism of MCFRS students, faculty and the overall program.

4. [*PRIORITY A*] Achieve a passing evaluation rating and certification every five years from the Maryland Institute for Emergency Medical Services Systems (MIEMSS) that will allow the FRTA to provide its EMS – both BLS and ALS - training programs.

5. [*PRIORITY A*] Achieve a passing evaluation rating and certification every five years from the National Board on Fire Service Professional Qualifications (a.k.a., "Pro Board") that will allow the FRTA to provide its fire and rescue training programs.

WELLNESS AND SAFETY

1. [*PRIORITY B*] Restore and/or add positions within the Safety Section to:

   A. Assist with the day-to-day management of the Safety Section

   B. Focus and administer safety specific programs

   C. Assist with updating of existing MCFRS health and safety policies

   D. Assist with creating new MCFRS health and safety policies to ensure compliance with OSHA/MOSH and NFPA Standards.

2. [*PRIORITY B*] To support the Section's goals and objectives, add a Shift Safety Captain position within the Safety Section:

   A. Add a second 24-hour Shift Safety Captain position.

   B. Divide the MCFRS Battalions equally among the two Shift Safety Captains to distribute the work load equally.

   C. Assign each Shift Safety Captain an area of responsibility within the Health and Safety Program to manage.

   D. Produce safety matrices to support each program area.

   E. Conduct all collision and illness/injury investigations and produce corrective action plans to reduce frequency and severity of collisions and events of illness and injury.

   F. Conduct periodic risk consultations with all stations and shifts, including volunteer and civilian personnel.

3. [*PRIORITY A*] Implement recommendations of the Collision Reduction Committee appointed by the Fire Chief to reduce the number and severity of MCFRS apparatus collisions and minimize the incidence of personal injury and apparatus damage to the greatest extent possible.

4. [*PRIORITY B*] Improve FROMS/OHR data collection process by updating current computer system to efficiently track results of physicals and related data, including individualized blood testing results, cardiac risk factors, immunization schedules, appointment times for future physicals and follow-up visits. This will be accomplished by:

   A. Using new or upgraded medical software to collect and store vital medical data for analyzing the overall health and wellness of MCFRS firefighters.

   B. Reviewing and analyzing medical data from examination results provided by FROMS contract staff to ensure yearly medical examination requirements are met, vaccination and immunization records are updated, and return-to-work examination guidelines are followed.

   C. Evaluating data and determining trends regarding occupational diseases common to firefighter-rescuers.

   D. Providing group and individual wellness and injury prevention guidance based upon data collected and analyzed from the previous three objectives (A, B and C above) which will encourage firefighters to maintain healthy and active lifestyles.

SUPPORT SERVICES

Support services initiatives are presented below under the subject headings: Fiscal Management, Procurement, Logistics, and Human Resources.

FISCAL MANAGEMENT

- EMS TRANSPORT FEE COLLECTION

1. [*PRIORITY]* The billing vendor will be tasked with replicating billing data on an MCFRS server.

2. The Fiscal Management Section will stay abreast of regulatory changes in the ambulance billing industry and continually reevaluate the program's compliance with relevant standards and regulations.

- GRANTS

[*PRIORITY A*] Apply for federal, State and private sector grants upon announcement:

A. Federal Grants for which MCFRS will apply include the following:

- Department of Homeland Security:

    o Assistance to Firefighters Grant (AFG): The primary goal of this federal grant is to meet the firefighting and emergency response needs of fire departments and non-affiliated emergency medical service organizations. Since 2001, AFG has helped firefighters and other first responders obtain critically needed equipment, protective gear, emergency vehicles, and training. For example, MCFRS submitted an application for an FY14 AFG for ten digital vehicle repeater systems to enhance emergency communications in the field.

        ▪ Fire Prevention and Safety (FP&S) Grants: These federal grants are part of the AFG. FP&S Grants support projects that enhance the safety of the public and firefighters from fire and related hazards.

    o Staffing for Adequate Fire and Emergency Response (SAFER) Grant: An annual grant that provides federal funding directly to a limited number of fire-rescue departments across the nation, using a competitive process, to help them increase or maintain the number of trained frontline firefighters available in their communities. SAFER Grants had been awarded to MCFRS in FY06 (for 12 firefighter positions), FY08 (12 positions), and FY11 (23 positions). As this master plan was being written, MCFRS had submitted an application for a FY14 SAFER Grant for 17 firefighter positions to increase minimum staffing to four personnel on Engines 702 (Takoma Park), 705 (Kensington – Plyers Mill Road), 720 (Bethesda – W. Cedar Lane) and 726 (Bethesda – Democracy Blvd.). These engines are located in densely populated areas of the County with large numbers of unsprinklered high-rises in their first and second-due areas.

    o Urban Area Security Initiative (UASI) – Federal grant administered by Montgomery County OEMHS for County public safety and health departments. UASI funding is provided to high-risk, nonprofit organizations under the *Department of Homeland Security Appropriations Act, 2014* (Public Law 113-76). The program integrates nonprofit preparedness activities with broader State and local preparedness efforts and promotes coordination and collaboration in emergency preparedness activities among public and private sector representatives as well as State and local government agencies. MCFRS has used UASI grant monies to purchase an array of personal protective gear and specialized equipment to increase readiness for major events occurring in Montgomery County as well as the National Capital Region. Examples of two

UASI grants that were in place during FY15 that will extend into the five-year time frame of this master plan include a grant for radiological incident readiness (under the "Securing the Cities Program") and a grant for maintenance of hazmat detection/monitoring meters.

- DOT – Grants addressing emergency vehicle safety and hazardous materials response capabilities for hazmat transport incidents, including training of responders. MCFRS had applied for a DOT grant in FY15 for hazmat training.

B. State of Maryland Grants:

- Senator Amoss Grant – Annual grant of $10-12 million to the State's volunteer fire departments for equipment, apparatus and facilities. Montgomery County's annual grant, divided among the 19 volunteer departments, has been $1.3-1.5 million in recent years, with a grant of $1.5 million in FY15. Amoss funds are automatically distributed annually based on a State-wide formula, as long as MCFRS has met the State's many reporting and other requirements for the previous year's award.

- Federal grants administered by MEMA – For example, a DOT grant for hazmat training.

- MIEMSS – Grants for EMS equipment (e.g., defibrillators) and training (e.g., ALS training, Emergency Medical Dispatch training). MCFRS must submit an application describing need to MIEMSS annually for each of three grants.

- MD-DOT/MVA – Grants for vehicle safety (e.g., child safety seats).

C. Private:
- NFPA - grants as announced
- Others - grants as announced

PROCUREMENT

1. [*PRIORITY B*] Enhance Procurement Section productivity and capabilities by developing redundancy of payment processing and P-Card administration capabilities, including cross-training of Section personnel.

2. [*PRIORITY B*] Assist Local [Volunteer] Fire-Rescue Departments (LFRDs) with entering into existing County contracts:

A. Determine the most urgently needed facility-related goods and services provided to the LFRDS that should be under County contract.

B. Determine the most urgent fleet-related goods and services provided to the LFRDS that should be under County contract.

3. [*PRIORITY C*] Increase MCFRS' participation in the Local Small Business Reserve Program (LSBRP) by at least 10 percent by attending outreach events to increase awareness of the LSBRP program and encouraging current local vendors to register in the LSBRP program.

LOGISTICS

1. [*PRIORITY B*] Determine whether MCFRS should centralize multiple functions under the Logistics Section such as the acquisition, storage and distribution of EMS supplies, small tools, etc. through the following steps:

    A. Key players representing the Office of the Fire Chief, EMS Section, Apparatus Section and Logistics Section will meet to explore the issue of centralization.

    B. Site visits to other large departments with centralized Logistics will be made.

    C. A fiscal analysis of the impact of centralizing Logistics operations will be completed.

    D. Staffing changes and need for additional staffing will be evaluated.

2. [*PRIORITY C*] Determine whether certain logistical items, such as clothing and shoes, can be ordered by and distributed directly to MCFRS personnel without them having to visit the Logistics Storeroom in person. This option might allow personnel to more actively choose items from an approved item list, allow quicker receipt of items, and provide a greater size selection. Individual ordering and shipping of items may cut down on staff time used for ordering, inventorying, and distributing items, and free up storage space in the storeroom. This initiative will be achieved as follows:

    A. Logistics Section staff will determine which items could be provided directly from the vendor to the employee.

    B. The use of vendors to drop ship items to employee's homes will be explored.

    C. Vendors with websites and systems in place to allow for individual ordering and fulfillment will be evaluated.

    D. A fiscal analysis of the impact of allowing individual ordering will be conducted.

HUMAN RESOURCES

1. [***PRIORITY B***] Administer a fair, unbiased hiring process that results in high performing, diverse firefighter-rescuers as follows:

    A. Schedule entrance exams at least a year in advance

    B. Modify class spec to include additional hiring criteria

    C. Create greater opportunity for applying for a vacancy

    D. Modify background disqualifying criteria to ensure no adverse impact on qualified candidates

    E. Modify CPAT to facilitate greater and consistent participation which will result in a higher success rate

    F. Ensure selection process will be a holistic approach that targets desirable qualities in firefighter-rescuers.

2. [***PRIORITY B***] Implement successful, innovative diversity outreach programs that can be promoted to other departments and industry stakeholders. This will result in the recognition of the MCFRS Recruiting Section as an industry leader in the effort to attract, support and retain diversity. This initiative will be achieved as follows:

    A. Attract and retain committed, driven staff that champion diversity both personally and professionally and place them into the Recruiting Section for a minimum of two years.

    B. Institutionalize a yearly evaluation of MCFRS' hiring process to ensure the process remains conducive for diverse applicants to be hired.

    C. Engage in conversations on diversity with diverse groups both internally and externally to further promote the Recruiting Section's goals.

    D. Actively promote the successes of MCFRS's diversity initiatives in trade magazines and publications.

    E. Promote the Recruiting Section's successes, strategies, and methods at national conferences attended by fire department personnel.

3. [***PRIORITY B***] Hire additional HR staff to address present and future needs as follows:

   A. Recruiting Section – Captain position (daytime) to manage and oversee all aspects of recruitment for uniformed firefighter-rescuers, including all recruitment activities/events and testing of career applicants.

   B. Employee Services - Program Manager II to oversee Employee Services and policy development; Administrative Specialist III to serve as Hiring Manager and to handle civilian recruitment and retention and compensation negotiations; and Administrative Specialist II to handle all Oracle Actions for pay, transfer and promotions.

   C. HR Administration - Human Resources Specialist to draft disciplinary actions and grievance responses, administer usage/tracking of the Family Medical Leave Act, and to serve as the HR Liaison for collective bargaining.

OTHER INITIATIVES

1. [***PRIORITY A***] Leverage evolving technologies throughout all aspects of the Fire-Rescue Service, and provide adequate training in the use of new technologies to be implemented such as those listed below or others that evolve:

   - EMS technologies such as the "Lucas 2 CPR Device," "Patient Tracking Device," and portable video laryngoscopes
   - Fire suppression and life-saving technologies such as the latest thermal imaging cameras
   - Surveillance drones for special operations such as hazmat and swift water rescue reconnaissance
   - Explosive device detection, analysis and mitigation technologies
   - Hazardous materials detection, analysis and mitigation technologies
   - IT systems and applications for operational, administrative and management uses
   - Emergency communications systems/devices for operational use.

2. [***PRIORITY B***] Develop and implement innovative concepts, policies and procedures to maximize efficiency, effectiveness and safety within all functional areas of the MCFRS. Coordination between MCFRS and the County's Innovation Program will help to identify and develop innovations for pilot-testing and eventual use.

3. [***PRIORITY C***] Develop and implement ethnic/cultural awareness and sensitivity training for firefighters, EMS providers, investigators, inspectors and other personnel to improve interaction with the County's increasingly diverse population; resulting in better communications and outcomes during incidents and other encounters. One aspect of this initiative is overcoming language barriers between MCFRS personnel and those needing

MCFRS services. A joint approach to this type of training with County law enforcement (i.e., Police and Sheriff's Departments) should be explored.

4. [*PRIORITY C*] Develop and implement special needs awareness and sensitivity training for firefighters, EMS providers, investigators, inspectors and administrative personnel to improve interaction with the County's special needs populations (i.e., seniors, young children, physically and/or mentally handicapped individuals, etc.); resulting in more favorable outcomes during incidents and other encounters.   In addition, the department should examine its standard operating procedures to determine whether they require modification to better serve customers having special needs. A joint approach to this type of training with County law enforcement departments should be explored.

5. [*PRIORITYB*] Initiate and maintain coordination with M-NCPPC and its Parks Department to ensure existing and future recreational trails have adequate fire-rescue vehicle access and are outfitted with trail signage identifying trail name and mileage marks to enable trail users to accurately report the locations of emergency events occurring along trails.