



Seniors at Risk:

*Creating a Culture of
Fire Safety*

*Senior Citizen Fire Safety Task Force
Final Report*

September 2008



DEDICATION

The Senior Citizen Fire Safety Task Force dedicates this report to those seniors who tragically lost their lives to fire in Montgomery County. The Task Force extends its heartfelt condolences to the families and friends of these victims. All of these unfortunate incidents were thoroughly studied and analyzed by the Task Force and have directly resulted in the formal recommendations included in this report. These loved ones did not die in vain.



SENIOR CITIZEN FIRE SAFETY TASK FORCE

County Executive Leggett:

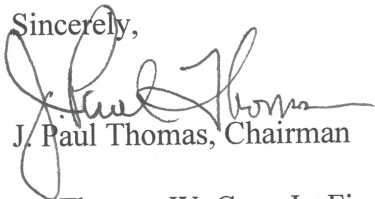
On behalf of the Senior Citizen Fire Safety Task Force, I am pleased to transmit this unanimously approved final report titled, "Seniors at Risk: Creating a Culture of Fire Safety," describing the Task Force activities from June 1, 2006 through May 31, 2008. The Task Force members, along with the outstanding Montgomery County Fire and Rescue Service liaison and support staff, have worked diligently throughout the Task Force term to establish sound, "state of the science" recommendations as the foundation for an effective strategy to improve senior citizen fire safety in Montgomery County.

Recent tragic fire incidents involving senior citizens demanded urgent action. Accordingly, the Task Force adopted a rapid response schedule to produce a purposeful yet realistic fire safety plan. The Task Force provided advice on implementation of high priority recommendations during the second year's operation, refined those recommended actions and added new ones during further study. This final report is being submitted on schedule at the close of the second year as mandated by the executive order.

I bring to your attention the 37 recommendations developed by the Task Force. The five core recommendation focus directly on changing culture as the report title implies. The technical recommendations are organized by the Task Force mission in the following topic areas: (1) building technology and standards, (2) community characteristics and demography, (3) public and service provider education, and (4) advocacy and legislation. Most of these recommendations are offered with a unanimous consensus, while several of the more controversial recommendations reflect strong majority opinion. All recommendations have been assigned a priority ranking for guidance in their implementation.

Your fine staffs of the Office of County Executive and Fire Chief have provided outstanding administrative and technical support in guiding the deliberations and activities of the Task Force. It has been a privilege to serve your esteemed offices and the fine citizens of Montgomery County in recommending improvements in fire safety standards, prevention programs, and advocacy efforts. We trust this report and the technical recommendations contained therein will meet with your approval for timely implementation.

Sincerely,



J. Paul Thomas, Chairman

cc: Thomas W. Carr, Jr. Fire Chief

Table of Contents

Transmittal Letter to County Executive	ii
Table of Contents	iii
Table of Figures	v
Executive Summary	1
Final Report - The Problem: Senior Citizen Fire Fatalities	13
Senior Citizen Population Growth	14
Senior Citizens Living Alone	16
Where Seniors Reside	18
Decline in the Number of Caregivers	19
Economic Factors Affecting Seniors	20
Senior Citizen Risk Factors	22
Sensory Impairments and Disabilities of Aging	23
Sensory Impairments	23
Physical Disabilities and Mobility Impairments	24
Other Demographic Characteristics Affecting Senior Citizens	24
Limited Income	24
Alcohol and Prescription Drugs	25
Misuse of Smoking Materials	25
Organization and Mission of the Senior Citizen Fire Safety Task Force	26
Purpose	26
Composition	26
Public Members	28
Ex Officio Members	28
Organizational Members	29
Staff Liaison	29
Planning, Strategy and Methodology	30
Task Force Objectives	30
Methodology	30
Result Oriented Strategy	31
Task Force Study and Resources	33
Benchmarking	33

Expert Presentations	35
Senior Fire Incident Presentations	36
Literature and Resource Identification	37
Task Force Recommendations	39
Rationale for Prioritization of Recommendations	39
Core Recommendations	39
Introduction	39
Public and Service Provider Education Recommendations	41
Introduction	41
Rationale	42
Community Characteristics and Demographics Recommendations	42
Introduction	42
Rationale	44
Building Technology and Standards Recommendations	44
Introduction	44
Rationale	45
Recommendations Requiring Advocacy and Legislation	46
Introduction	46
Rationale	48
Conclusion	49
Bibliography and Information Sources	50
Appendix A – Fire Sprinkler Data	51
Appendix B – Senior Housing and Care Facility Definitions	58
Appendix C – Benchmarking Comparison Tables	60
Appendix D – NFPA 1, Uniform Fire Code, Section 13.3.2.24 High Rise Buildings	69

Table of Figures

Figure 1-Page 15 Actual/Projected Population Growth 1980-2030 All Ages

Figure 2-Page 15 Actual/Projected Population Growth 1980-2030 Age 65+

Figure 3-Page 16 Percentage of Age Groups Living Alone 1994-1997-2003

Figure 4-Page 17 Seniors Living Alone Per Square Mile

Figure 5-Page 17 Household Population by Age/Gender 2000 & 2010

Figure 6-Page 18 Household Population by Age/Gender 2000 & 2030

Figure 7-Page 19 Senior Citizen Type of Residence

Figure 8-Page 19 Projected Change in Senior Population by Planning Area 2000-2010

Figure 9-Page 20 Ratio of Working Age Adults Per Senior 1995-2050

Figure 10-Page 21 Percentage of Seniors Living Below the Poverty Line

Figure 11-Page 21 Percentages of Ethnic Groups Living Below the Poverty Line

Figure 12-Page 22 Senior Citizens with Self-Reported Disability

Figure 13-Page 34 Senior Citizen Fire Fatality Data Comparison by Benchmark Jurisdiction

Executive Summary

The Senior Citizen Fire Safety Task Force urges Montgomery County policy makers to initiate an immediate campaign to implement the recommendations of the Task Force and save senior citizens from the all too frequent catastrophe of fire death or injury. Members of society must understand that fire safety begins with them.

The key to success in preventing senior citizen fire fatalities in Montgomery County is changing socio-cultural attitudes regarding fire safety. These attitudinal shifts are detailed in this report and focus on several approaches as follows: (1) educate senior citizens, particularly those living alone and aging in place, about the vulnerabilities of seniors and the necessity of responding appropriately in the event of an emergency; (2) orient families, friends and neighbors of seniors to be responsible for installation and routine maintenance of fire safety devices such as smoke alarms; (3) educate seniors and their families about appropriate residential placement options given potential impairments and disabilities that mitigate full functional independence for response in emergencies; (4) instill in all citizens, regardless of age, background and national origin, that fire safety is an individual responsibility of all members of society and that negligent behavior in causing fire fatalities and injuries may have a legal consequence; and (5) improve the capacity of emergency responders to better understand the potential functional impairments associated with aging and to communicate more effectively in assisting seniors in emergency situations.

Montgomery County is experiencing a crisis in senior citizen fire fatalities. During the past six years, 22 of Montgomery County's fire fatalities were senior citizens over the age of 65. Thirty-three senior citizens, age 65 or over, have succumbed to fire incidents in the past 12 years. In the years 2005-07 alone, the County experienced 14 fire fatalities all of which were senior citizens living independently.

All of the fires involving seniors occurred at home. Montgomery County has a wide variety of housing types – single family, duplexes, garden apartments, townhouses, hi-rise apartment buildings of 7 floors or more, as well as low-rise apartment buildings of 6 floors or fewer. Seniors are found residing in each of these housing types with most living in single-family homes. More than one-third of the County's high-rise residents are senior citizens.

Of utmost importance as people age they undergo physical, sensory and cognitive changes that can impair their abilities to prevent or respond to fires and emergency situations. Many older adults incur mobility impairments that make their ability to escape emergency situations more difficult. Substance and medication impairments, including alcohol consumption, can result in increased risks for fire fatality and injury. The effect of these physical and cognitive impairments will have a significantly increasing impact on the risk of fires that result in injuries and fatalities to older citizens.

According to the U.S. Census Bureau, four percent of the population in 1900 were adults age 65 years and older. By 2000, older adults made up 12 percent of the U.S. population and exceeded

35 million persons. Our senior population is anticipated to double with more than 85 million, or 21 percent of the national census by 2050.

Approximately half of older Americans were between 65 and 74, with one-third between 75 and 84 and one-sixth over 85 in 2000. This oldest grouping age 85 and older is the most rapidly increasing age group among seniors. Between 1960 and 2000, their numbers increased by more than 350 percent! By 2050, the oldest seniors will number more than 20 million, or 24 percent of the over age 65 population.

Senior citizens occupy 21 percent of all Montgomery County homes. Seventy-eight percent of seniors between the ages of 75 and 84 live alone. Seniors over the age of 65 experience a fire death rate nearly twice the national average for that age group; the rate of fatalities for seniors over 75 years of age jumps to three times the national average.

Organization and Mission of the Senior Citizen Fire Safety Task Force

Recognizing the alarming upward trend of senior citizen fire related deaths and injuries across Montgomery County, then County Executive Douglas Duncan and Fire Chief Thomas Carr, Jr. determined that the best approach to identify effective fire safety strategies and procedures for this target population was to convene a focused, geographically representative task force. A formal committee was established with citizens with fire suppression experience, individuals representing senior citizen interests and organizations to study the recent tragic incidents and recommend preventative actions. The work of the Task Force has been carried on under the direction of County Executive Isiah Leggett.

Effective March 24, 2006, the Senior Citizen Fire Safety Task Force was established as an executive advisory committee. The Task Force was composed of 25 members appointed by the Executive. A majority of the public members are senior citizens and were appointed for a two-year term.

The Executive appointed the following ex officio members from the designated public agencies:

- Two members from the Montgomery County Fire and Rescue Service
- Two members from the Department of Health and Human Services
- Two members from the County's Commission on Aging
- One member from the Housing Opportunities Commission staff or residents
- One member from the County's Commission of People with Disabilities
- One member from the Department of Liquor Control

- One member from the Offices of the County Executive

The remaining 16 members include representatives of the following:

- The Burn Center at Washington Hospital Center
- Apartment Owners and Builders Association (AOBA)
- Management of major senior housing complexes in the County
- Senior citizen organizations
- Residents of the County

The Executive designated J. Paul Thomas of Fairland as Chair and Jacqueline Rabinow of Leisure World as Vice-chair of the Task Force. The Montgomery County Fire and Rescue Service provided administrative support to the Task Force.

The Senior Citizen Fire Safety Task Force, supported by the Task Force leadership and staff liaison, immediately initiated plans to accomplish the charge of Executive Order #103-06.

It was agreed that the mission objectives would require the partitioning of the Task Force into focused topic oriented sub groups as follows:

1. Building Technology and Standards
2. Community Characteristics and Demographics
3. Public and Provider Education
4. Advocacy and Legislation

Task Force Objectives

Based on this organizational approach, the Task Force objectives were established as follows:

- Identify strategies to reduce fire risk among senior citizens
- Identify strategies to reduce fire casualties and fatalities among senior citizens
- Identify changes to building and fire codes and standards for new and existing structures that anticipate/acknowledge the aging population and appropriate changes to incorporate safety features
- Explore the addition of new use “independent living” group within the national building and fire model codes and standards
- Identify new and emerging off-the-shelf technologies that bridge the gap between code-compliant new buildings and non-compliant existing buildings

- Identify demographic changes and community changes that affect the safety of senior citizens
- Identify personal and community based procedures and requirements that senior citizens and caregivers can adopt and practice to increase senior citizen fire safety

Task Force Technical Recommendations

The Task Force members felt strongly that in order to facilitate management and implementation of their 37 approved recommendations a ranking method was in order. Therefore, the following method was unanimously agreed upon to suggest priority rankings for implementation: (1) immediate, (2) short term, and (3) long term.

During the course of the Task Force deliberations it was determined that special attention was required to bring about cultural attitudinal changes in fire and life safety. Accordingly, the Task Force identified a number of socio-cultural issues that were demonstrated in the analysis of Montgomery County's senior fire fatalities. The Task Force formulated a core set of recommendations that should receive highest priority for implementation and that have significant potential for preventing many future fire incidents.

A. Core Senior Citizen Fire Safety Task Force Recommendations

1. **Establish a senior citizen fire safety staff position** for leadership in fire safety training and implementation of Task Force recommendations.
2. **Support and encourage the immediate implementation of the existing joint Montgomery County Fire and Rescue Service staff training and community focused public education program titled "Safety in the Neighborhood"** cited in the Montgomery County Fire and Rescue Service 2008 Strategic Plan as a key initiative in facilitating a culture of fire safety for high risk seniors living independently and/or those with reduced capacity due to functional impairments and disabilities.
3. **Enhance the training of Montgomery County Fire and Rescue Service personnel:**
 - a. To respond to, and communicate more effectively with, persons who require assistance due to reduced capacity for effective response to emergency situations because of cognitive, behavioral, physical mobility, or sensory impairments. Emphasis should be given to naturally occurring senior communities where seniors are living independently and aging in place.
 - b. By requiring that the Montgomery County Fire and Rescue Service establish minimum certification requirements in fire prevention and fire and life safety for promotion to all positions.
4. **Form a coalition of industry partners** to assist the Montgomery County Fire and Rescue Service to achieve its fire safety awareness communication goals including a network of relevant public agencies and private sector organizations.

5. **Create a multi-disciplinary Senior Citizen Fire Risk Prevention Team**, including social workers from Adult Protective Services, fire marshals from Fire Code Enforcement, and inspectors from Housing Code Enforcement to:
 - a. Develop a protocol for training Aging & Disability staff, working directly with clients, to recognize basic signs of fire risk; provide basic safety training/materials to clients and families; and determine when to make referrals to Fire Code or Housing Code Enforcement.
 - b. Develop a protocol to train fire marshals and housing code inspectors about working with cognitively, mentally or physically impaired individuals and when to make appropriate referrals to Aging & Disability Services for joint intervention.
 - c. Evaluate current fire codes to determine additional legislation needed to give fire marshals the authority to gain entry and enforce codes when clients refuse voluntary interventions. Request assistance of the County Attorney in drafting such legislation.
 - d. Initiate an ongoing multi-disciplinary, multi-agency Senior Fire Reduction Team, consisting of a rotating group of social workers, fire marshals and housing code inspectors, to meet monthly to review referrals from Aging & Disability Services, Fire Marshal or Housing Code inspectors. The team would review level of fire risk and potential barriers, such as competency, to be considered in developing an appropriate intervention. The team would develop a care plan and return recommendations to referral source to achieve care plan goals.

B. Public and Service Provider Education Recommendations (PSPE)

Immediate Implementation (PSPE):

1. **Develop a fire prevention publicity campaign** with Task Force guidance to include press releases, public service announcements, video news releases, a unique Montgomery County Fire and Rescue Service frequently asked questions site, aging featured brochures for targeted distribution, and a speaker's bureau. Develop a specific marketing strategy for senior citizen fire safety to include community service volunteers drawn from public and private high schools.
2. **Utilize media events** of senior related fire incidents as a means to educate citizens, care givers, family members and service professionals about special causes and hazards.

Short Term Implementation (PSPE):

3. **Initiate a public educational program** to encourage the installation of approved automatic fire sprinkler protection in all existing residential properties with special emphasis on seniors living independently throughout Montgomery County.
4. **Identify target audiences and user groups** residing in senior living communities, senior centers, and other residential facilities for priority attention via direct and media contact to convey fire prevention messages on smoking materials, kitchen and cooking behavior, heating/electrical equipment, and maintenance of approved alerting devices and systems.
5. **Initiate a senior life saving information program** including the utilization of Montgomery County Fire and Rescue Service light duty personnel and training academy and recruit classes continually to conduct a direct door-to-door offering of services to senior citizens, such as free home visits on safety, evaluation of existing home smoke alarm equipment and installation when necessary, and promotion and installation of cooking safety equipment and hood-based extinguishing systems.

Long Term Implementation (PSPE):

6. **Adopt senior literacy and safety training** to assist those seniors who may not have adequate skills in reading or comprehension to receive ethnically and culturally diverse safety training related to independent living options in later years.
7. **Suggest residential selection criteria** for use in public/caregiver programs to assist seniors and their families in selecting appropriate residential living options for seniors who are functionally impaired.

C. Community Characteristics and Demographics Recommendations (CCD)

Immediate Implementation (CCD):

1. **Identify homebound seniors and those with disabilities to offer information on fire safety and provide assistance with the installation of approved smoke alarms appropriate to their needs**, for example, alarms linked to visual and/or tactile alerting devices, long life alarms, alarms equipped so that the battery can be tested with a remote control device, and new and emerging technologies, such as low frequency or multiple frequency smoke alarms.
2. **Increase collaboration between Montgomery County Fire and Rescue Service and professional organizations** providing services for persons with physical, mental, cognitive and sensory impairments to encourage their members to provide clients with information on fire safety education for affected individuals and their families, as well as provide smoke alarm devices most appropriate to their impairment.

Short Term Implementation (CCD):

3. **Establish a partnership with the Alzheimer’s Association, National Capital Chapter** to develop fire prevention and safety education information for individuals with cognitive impairment and their families.
4. **Establish partnerships with appropriate service organizations representing mobility impairments and disabilities** including, but not limited to, multiple sclerosis, arthritis, cerebral palsy and spina bifida, and with eldercare programs such as AARP, to develop fire safety education information and training for individuals with limited mobility.
5. **Request that Montgomery County Department of Health and Human Services & Department of Liquor Control work** to develop innovative alcohol and substance abuse prevention, education, and treatment programs designed for senior citizens
6. **Develop a small grants program** to enable under-served populations such as lower income communities and ethnic and culturally diverse communities within the County to design and implement fire safety awareness and prevention programs appropriate to their communities.

Long Term Implementation (CCD):

7. **Develop by the Montgomery County Fire and Rescue Service those policies and procedures** that will require home health agencies and providers of oxygen, assistive equipment and home care services to notify Montgomery County Fire and Rescue Service of the need for a home safety assessment.

D. Building and Technology Recommendations (BT)

1. **Establish a goal that Montgomery County adopt the requirements of the Uniform Fire Code, (NFPA 1), Chapter 13.3.2.24 (See Appendix D)** which states: “All high-rise buildings shall be protected throughout by an approved, supervised automatic fire sprinkler system in accordance with 13.3.2.24.”

Attainment of this goal by public agencies and non-profit organizations is dependent upon funds being made available to assist these housing providers with the cost of compliance. Responsible parties will take steps to mitigate the cost of displacement and other economic impact on households affected by this goal.

2. **Establish a goal that all existing one and two family homes in Montgomery County will install an approved automatic fire sprinkler system by January 1, 2030.** This goal shall be achieved by:
 - a. Requiring the installation of an approved, automatic fire sprinkler system at the time of re-sale of one and two family homes beginning January 1, 2015.
 - b. Montgomery County Government negotiating an agreement on technical specifications and price guidelines for the installation of an approved fire sprinkler system.

- c. Achieving an agreement with the Washington Suburban Sanitary Commission and other water authorities that approved residential fire sprinkler systems would be connected before the properties' water meter to prevent unnecessary loss of pressure.
- d. Modifying the Montgomery County Code to require local water flow alarms on approved residential fire sprinkler systems to signify sprinkler actuation.

See Advocacy and Legislation Recommendations. The additional recommendations developed by the Building and Technology Task Group have been placed in the Advocacy and Legislation section below. In the group's extensive study of current advocacy, legislative and code requirements there were gaps found in protection to assure adequate building life and fire safety for senior citizens.

E. Recommendations Requiring Advocacy and Legislation (RAL)

Immediate Implementation (RAL):

1. **Require that the County develop a program to assist in financing the implementation of the requirement to install approved fire sprinkler systems in existing residential facilities** owned by not-for-profit housing providers, public agencies, and in residential facilities where more than 20 percent of the units are income restricted or have rents controlled under a public program.
2. **Request that County officials work with public utilities to develop policies to enable utility companies to alert County public safety officials when utilities are to be shut off in the residence of a senior citizen.**
3. **Require that any improvement to single family or duplex houses with modification costs exceeding 50 percent of the assessed structural value include the installation of an approved fire sprinkler system throughout the structure within three years of issuance of a building permit.**

Short Term Implementation (RAL):

4. **Increase funding for the Montgomery County Fire and Rescue Service budget to reflect the increased demand for fire and rescue services and urgent needs for public education and other related services** due to the rapidly expanding senior citizen population.
5. **Require that the owner(s) of any building of more than four stories** designate to the Fire Chief a qualified individual responsible for life and fire safety for that building(s) to insure compliance with applicable life and fire safety codes, standards and procedures. Such buildings shall include:
 - a. Housing for senior citizens
 - b. Institutional occupancies

- c. Educational occupancies, or
 - d. Other buildings as may be required by the authority having jurisdiction
6. **Require that all new assisted living facilities, group homes and licensed residential facilities install an approved fire sprinkler system.**
 7. **Explore the feasibility of enabling persons with disabilities to voluntarily register with the Montgomery County 911 system** so that in the event of an emergency pertinent mobility impairment information is transmitted to first arriving emergency personnel.

Long Term Implementation (RAL):

8. **Require that all existing residential buildings with three or more living units, regardless of ownership, shall have an approved fire sprinkler system installed throughout** within five years of the effective date of the requiring legislation.
9. **Require that all licensed residential facilities will have a contract with a licensed installer to install an approved fire sprinkler system within one year of their license renewal date**, after the passage of the requiring legislation, to be reviewed by the Fire Marshal. The authority having jurisdiction will take into consideration the scope, finances and size of the structure. The approved fire sprinkler system must be installed within three years of the signing of the contract unless the time is extended for extenuating circumstances as determined by the Fire Marshal.
10. **Require that all licensed residential facilities install new or upgrade existing detection/alarm systems to meet current code requirements.**
11. **Require the installation of smoke barriers to form at least two smoke compartments on each level of new and existing residential properties** having 50 or more occupants on each level of the structure.
12. **Require that all new and existing panic/fire exit door hardware be easily distinguishable with reflective markings** installed at the lowest level of each exit door in all common areas of buildings.
13. **Require that exit stairways in new residential occupancies be constructed 72 inches wide** so that a full size occupied wheelchair and a fully equipped firefighter or emergency worker may pass in either direction and that exterior exit egress be able to accommodate mobility impaired occupants.
14. **Require that all new residential occupancies housing non-ambulatory individuals that are 75 feet in height from fire department access or higher, have at least 50 percent of their elevator assemblies constructed in a rated, “hardened” positive pressured manner** to provide safe egress in an emergency.

15. **Support a fire safety legislative initiative placing criminal liability on those occupants/residents/owners whose demonstrated grossly negligent, willful or proven intentional disregard** by individual action or lack thereof, causes directly related property damage, personal bodily injury and/or loss of life as a result of any residential fire in Montgomery County, Maryland.
16. **Support a fire safety legislative initiative enabling the Montgomery County Department of Fire and Rescue Service**, pursuant to the Fire Safety Code, to require persons found responsible for causing an unsafe fire or fire related incident, by either act or omission, to participate in a fire safety education program and perform an appropriate number of hours of life and fire safety community service.

Conclusion

The Senior Citizen Fire Safety Task Force urges Montgomery County policy makers to initiate an immediate campaign to implement the recommendations of the Task Force and significantly reduce the all too frequent catastrophe of fire death or injury.

The key to success in preventing senior citizen fire fatalities in Montgomery County is changing socio-cultural attitudes regarding fire safety. These attitudinal shifts are detailed in this report and focus on several approaches as follows: (1) educate senior citizens, particularly those living alone and aging in place, about the vulnerabilities common among seniors and the necessity of responding appropriately in the event of an emergency; (2) orient families, friends and neighbors of seniors to be responsible for installation and routine maintenance of fire safety devices such as smoke alarms; (3) educate seniors and their families about appropriate residential placement options given potential impairments and disabilities that mitigate full functional independence for response in emergencies; (4) instill in all citizens, regardless of age, background and national origin, that fire safety is an individual responsibility of all members of society and that negligent behavior in causing fire fatalities and injuries may have a legal consequence; and (5) improve the capacity of emergency responders to better understand the potential functional impairments associated with aging and to communicate more effectively in assisting seniors in emergency situations.

All members of society must understand that fire safety begins with them. It is essential for policy makers to understand and accept their role in effectively implementing timely strategies to address the cultural attitudinal shifts required for seniors, regardless of functional capacity, to be safe in their residential environments. No amount of technological architectural modifications can effectively address the numerous causes of fire fatality and injury or remove those seniors with reduced functional capacity from exposure to fire in residential settings. To assure that the individual's responsibility for fire safety is recognized, legal and other measures may be required to penalize those persons who commit careless and grossly negligent acts. These punitive measures are essential to protect those senior citizens who are most vulnerable to fire incidents.

Attention must be given to the realities demonstrated by actual statistics involving senior fire fatalities in Montgomery County. As described in the report, most fire fatalities in the County involved careless smoking behavior or improperly discarded smoking materials, the use or abuse of alcohol and/or prescription medications, and related reduced capacity from cognitive, psychological, physical or sensory impairments. The Task Force members believe that the implementation of these recommendations will be a major step toward addressing the senior citizen fire safety crisis in the County.



Chairman J. Paul Thomas calls a Senior Citizen Fire Safety Task Force meeting to order at the Up County Service Center



An organizational meeting of the Senior Citizen Fire Safety Task Force

Final Report of the Senior Citizen Fire Safety Task Force

The Problem: Senior Citizen Fire Fatalities

Montgomery County is experiencing a crisis in senior citizen fire fatalities. During the past six years, 22 of Montgomery County's fire fatalities were senior citizens over the age of 65. Thirty-three senior citizens, age 65 or over, have succumbed to fire incidents in the past 12 years. In the years 2005-07 alone, the County experienced 14 fire fatalities all of which were senior citizens living independently.

All of the fires involving seniors occurred at home. Montgomery County has a wide variety of housing types – single family, duplexes, garden apartments, townhouses, hi-rise apartment buildings of 7 floors or more, as well as low-rise apartment buildings of 6 floors or fewer. Seniors are found residing in each of these housing types with most living in single-family homes. More than one-third of the County's high-rise residents are senior citizens.

Of utmost importance as people age, they undergo physical and cognitive changes that can impair their ability to prevent or respond to fires and emergency situations in which fire is likely. Many older adults incur mobility impairments that make their ability to escape emergency situations more difficult. Substance and medication impairments, including alcohol consumption, can result in increased risks for fire fatality and injury. The effects of these physical and cognitive impairments will have a significantly increasing impact on the risk of fires that result in injuries and fatalities to older citizens.

According to the U.S. Census Bureau, four percent of the population in 1900 were adults age 65 years and older. By 2000, older adults made up 12 percent of the U.S. population and exceeded 35 million persons. Our senior population is anticipated to double with more than 85 million, or 21 percent of the national census by 2050.

Approximately half of older Americans were between 65 and 74, with one-third between 75 and 84 and one-sixth over 85 in 2000. This oldest grouping age 85 and older is the most rapidly increasing age group among seniors. Between 1960 and 2000, their numbers increased by more than 350 percent! By 2050, the oldest seniors will number more than 20 million, or 24 percent of the over age 65 population.

Senior Citizens occupy twenty-one percent of all Montgomery County homes. Seventy-eight percent of seniors between the ages of 75 and 84 live alone. Seniors over the age of 65 experience a fire death rate nearly twice the national average; the rate of fatalities for seniors over 75 years of age jumps to three times the national average.

The key to success in preventing senior citizen fire fatalities in Montgomery County is changing socio-cultural attitudes regarding fire safety. These attitudinal shifts are detailed in this report and focus on several approaches as follows: (1) educate senior citizens, particularly those living alone and aging in place, about the vulnerabilities common among seniors and the necessity of responding appropriately in the event of an emergency; (2) orient families, friends and neighbors

of seniors to be responsible for installation and routine maintenance of fire safety devices such as smoke alarms; (3) educate seniors and their families about appropriate residential placement options given potential impairments and disabilities that mitigate full functional independence for response in emergencies; (4) instill in all citizens, regardless of age, background and national origin, that fire safety is an individual responsibility of all members of society and that negligent behavior in causing fire fatalities and injuries may have a legal consequence; and (5) improve the capacity of emergency responders to better understand the potential functional impairments associated with aging and to communicate more effectively in assisting seniors in emergency situations.

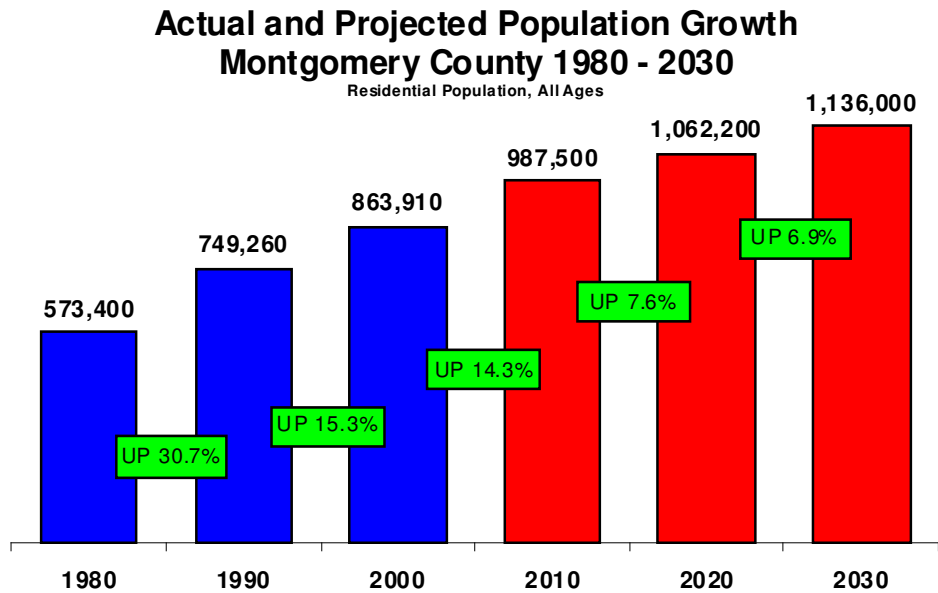
Senior Citizen Population Growth

The number of senior citizens in the United States is rapidly increasing. The U.S. population age 65 and over is expected to double in size within the next 25 years. Baby Boomers, those born between 1946 and 1964 begin to turn 65 in 2011. It is anticipated that the 13 percent of the population that are seniors will increase to 20 percent in 2030.

Montgomery County is no exception to this phenomenon. In the year 2000 there were 92,503 individuals in the County 65 years of age or older. By 2005, that number increased to more than 100,000 and is projected to grow by another 12,000 by 2010. The County's senior population will continue to grow at an exceptionally high pace for years to come (see Figures 1 & 2).

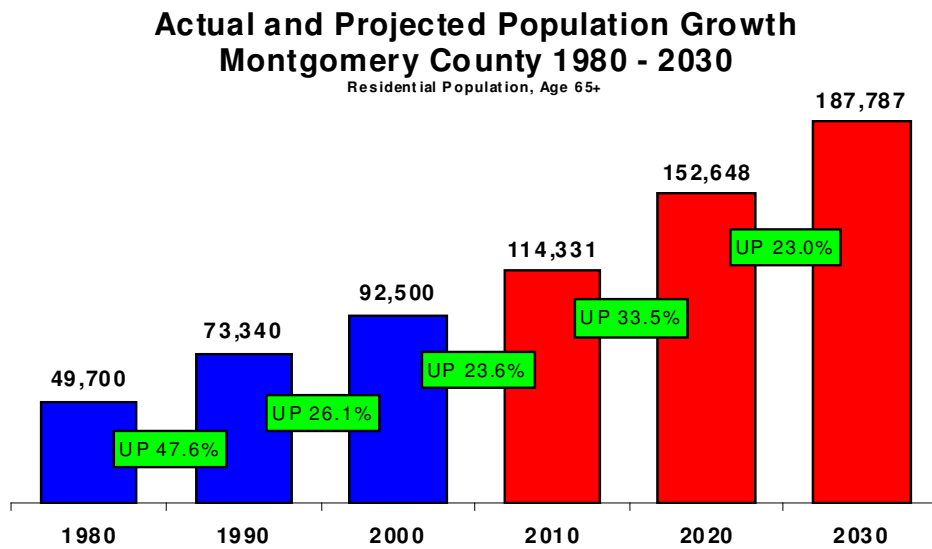
The senior population, over 65 years of age, is projected to increase 23 percent compared to the overall population growth of 6.9 percent. It is incumbent on policy makers to understand these changing demographics and significantly modify approaches to fire safety measures to meet these needs.

Figure 1: Actual/Projected Population Growth 1980-2030 All Ages



Source: U.S.Census 2000

Figure 2: Actual/Projected Population Growth 1980-2030 Age 65+



Source: U.S. Census 2000

Senior Citizens Living Alone

As seniors age in Montgomery County they increase their likelihood of living alone. Overall, 25 percent of county seniors age 65 and older live alone; by the time one reaches 85 years of age 65 percent of seniors are living alone (see Figures 3 & 4). Older women are more likely to live alone than older men.

In 2000, there were 3,928 households headed by women age 65 and older, with no spouse present. Only 1,057 households headed by men age 65 and older had no spouse present (see Figures 5 & 6).

Figure 3: Percentage of Age Groups Living Alone 1994-1997-2003

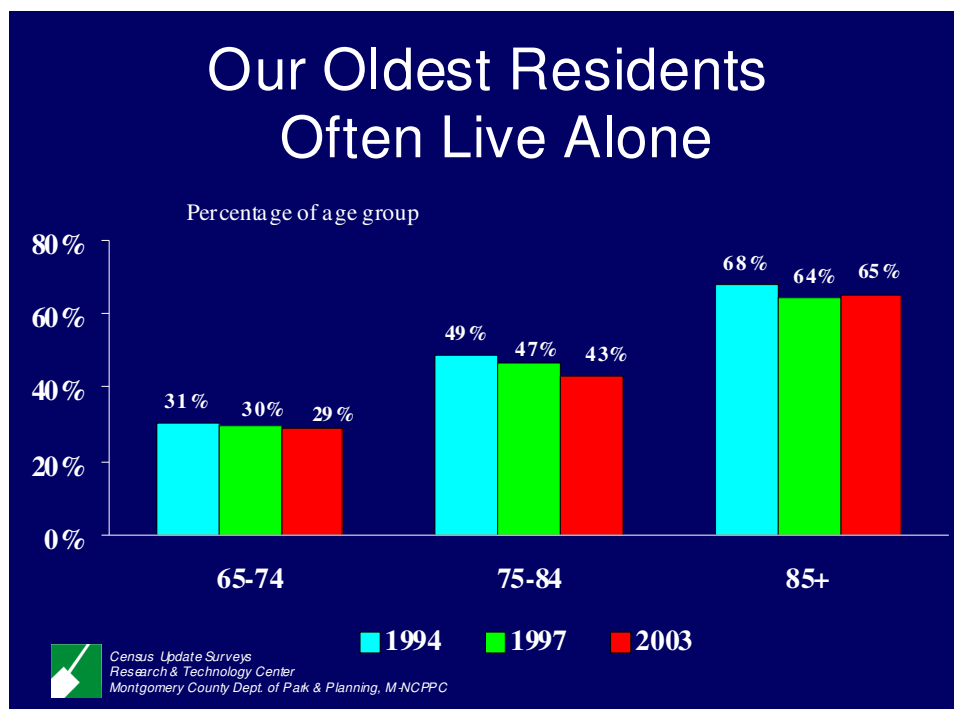
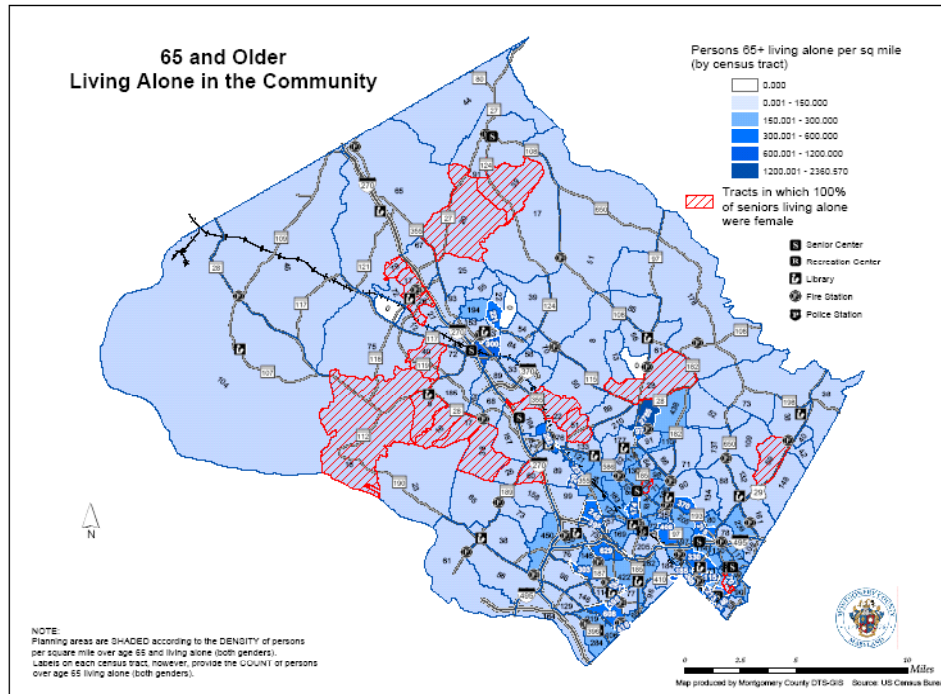


Figure 4: Seniors Living Alone Per Square Mile



Source: U.S. Census 2000

Figure 5: Household Population by Age/Gender 2000 & 2010

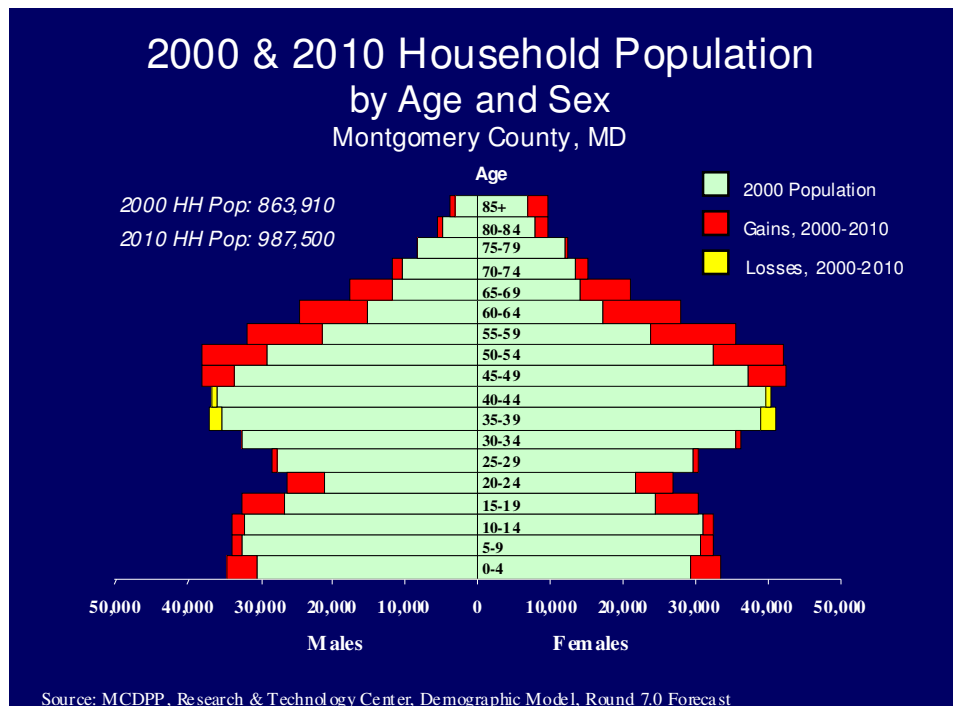
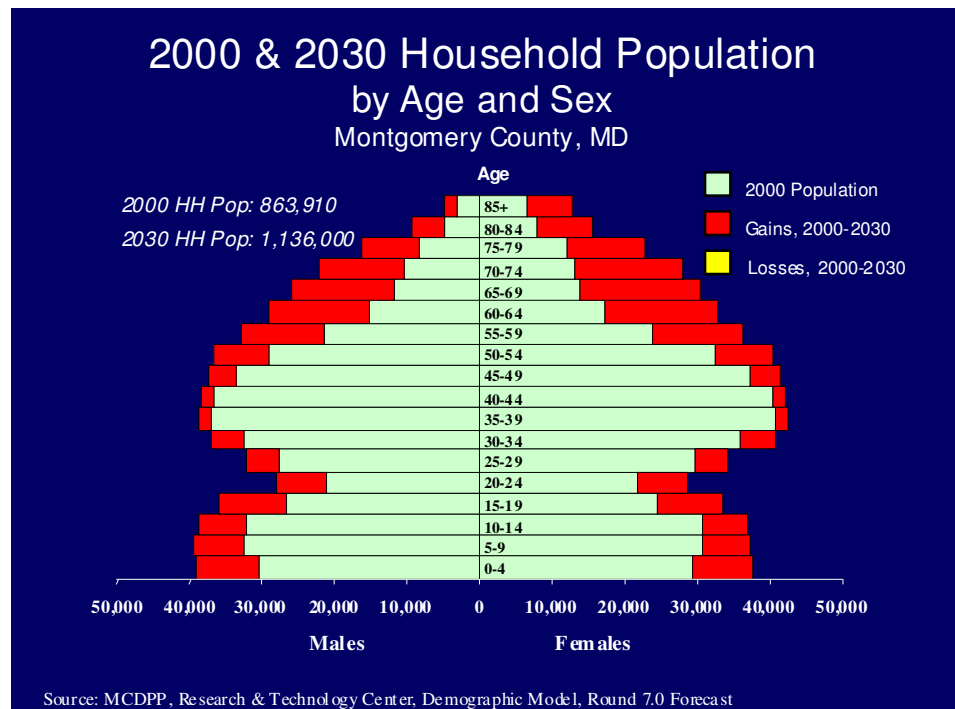


Figure 6: Household Population by Age/Gender 2000 & 2030



Where Seniors Reside

In 2003, the planning areas with the most seniors were:

Bethesda/Chevy Chase	16,140
Aspen Hill	15,605
Gaithersburg & Vicinity	10,880
Kensington/Wheaton	10,215
N. Bethesda	8,560

Figure 8 shows the projected senior population change through the year 2010.

In 2030 the planning areas with the most seniors will change slightly:

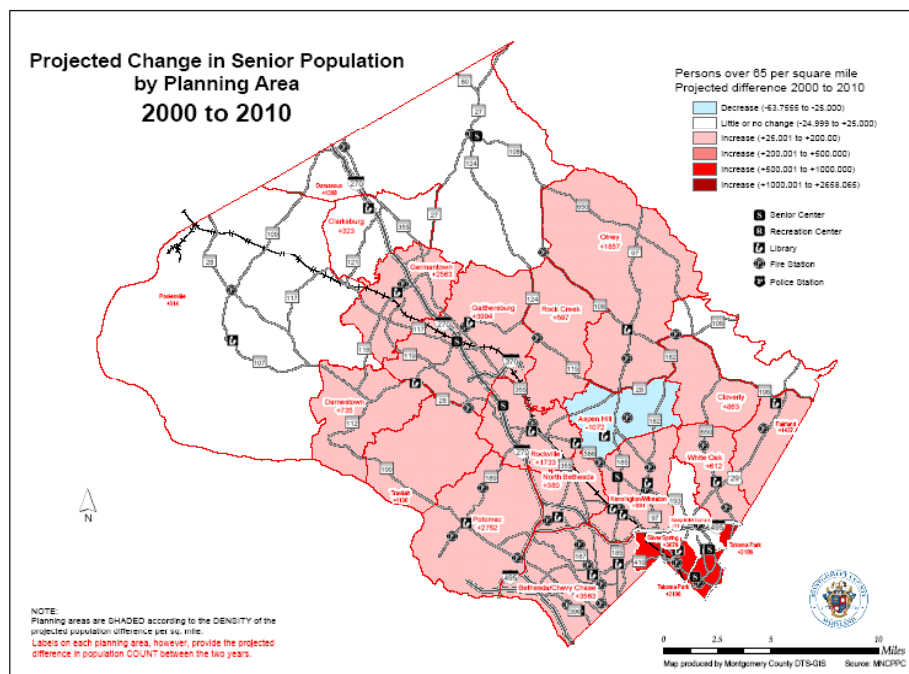
Bethesda/Chevy Chase	27,492
Gaithersburg	25,919
Kensington/Wheaton	15,552
Germantown	14,345
Silver Spring	13,126

Figure 7: Senior Citizen Type of Residence

Montgomery County Residents	Single Family	Townhouse	Garden Apt	High Rise
Total Resident Population	529,145	181,630	144,440	59,685
Age 65-74	33,336	9,263	6,644	6,625
75 and Older	26,986	6,175	8,666	14,145
Total Seniors	60,322	15,438	15,310	20,770
Age 65-74 (% of Total Population)	6.3%	5.1%	4.6%	11.1%
75 and Older (% of Total Population)	5.1%	3.4%	6.0%	23.7%
% of Total Population	11.4%	8.5%	10.6%	34.8%

Source: U.S. Census 2000

Most senior citizens, 60,322, live in single-family homes in Montgomery County. This is followed by 20,770 seniors living in high-rise buildings, or more than one-third of all County high-rise residents.

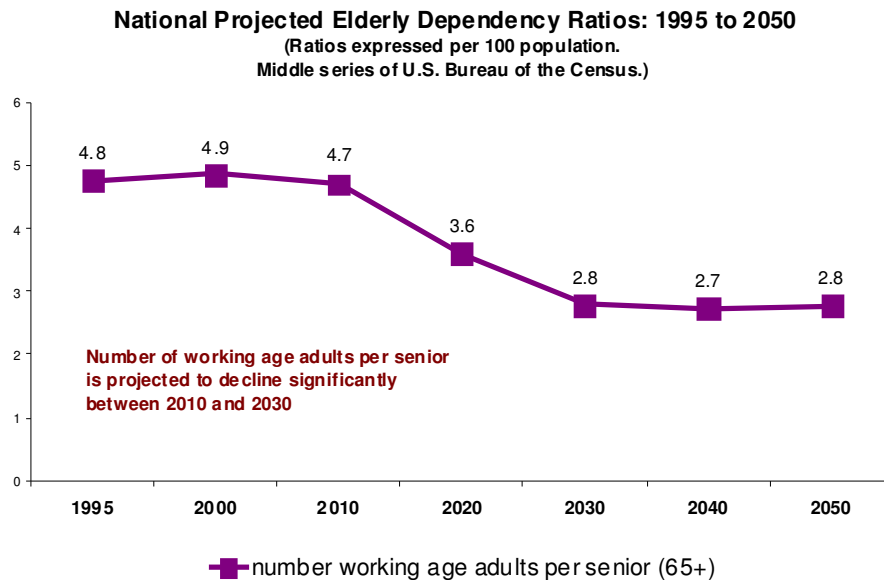
Figure 8: Projected Change in Senior Population by Planning Area 2000-2010

Source: U.S. Census 2000

Decline in the Number of Caregivers

Currently family members provide 80 percent of the long-term care for senior citizens. However, the number of individuals, family members, certified nursing assistants and professional caregivers available to provide this care will decline over the next 30 years (see Figure 9).

Figure 9: Ratio of Working Age Adults Per Senior 1995-2050



In 1999, the Center on an Aging Society at Georgetown University reported that adult children accounted for 44 percent of the primary caregivers to people age 65 or older living in the community. Another 41 percent of primary caregivers are spouses, 10 percent are other relatives and 5 percent are non-relatives.

After 2015, the number of people needing long-term care is likely to increase substantially. At the same time, the overall labor force relative to the size of the population is likely to be smaller than today.

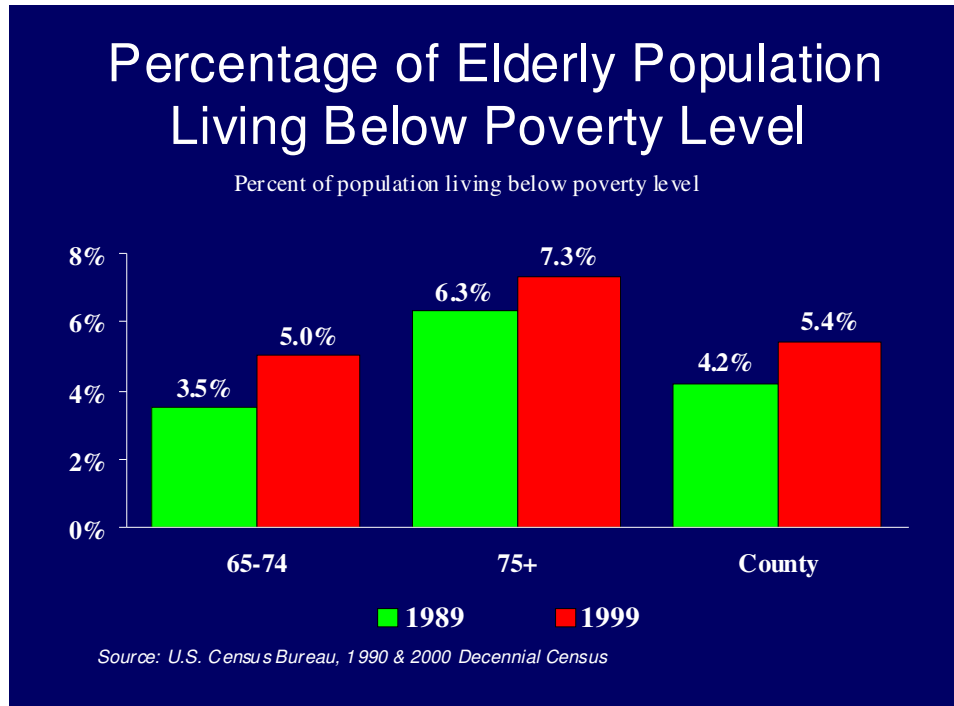
Economic Factors Affecting Seniors

The welfare of our seniors will continue to be a challenge due to the projection of declining income in retirement faced by the baby boomers. Recent U.S. Census statistics reveal that Montgomery County, MD is the fourth wealthiest county in the United States, with a family per capita income of \$94,000 annually. A recent article on retirement in USA Today reported that the average balance in the 401k retirement plans of individuals between 50-59 years old is only \$150,000. Conservatively, 8 percent interest accrued over a 20 year life expectancy would generate approximately \$1,254.66 a month or approximately \$15,000 annually, excluding Social Security benefits and possible pension benefits. Even if these baby boomers receive the maximum Social Security benefits their income would remain well below the County's per capita family income of \$94,000.

The percent of seniors living below the federal poverty line will continue to increase over the next 30 years. Recent U. S. Census statistics reveal that Montgomery County ranks in the top 10

in the United States in per capita income per household. As the percent of seniors increase the percent living below the poverty line will continue to increase (see Figure 10).

Figure 10: Percentage of Seniors Living Below the Poverty Line

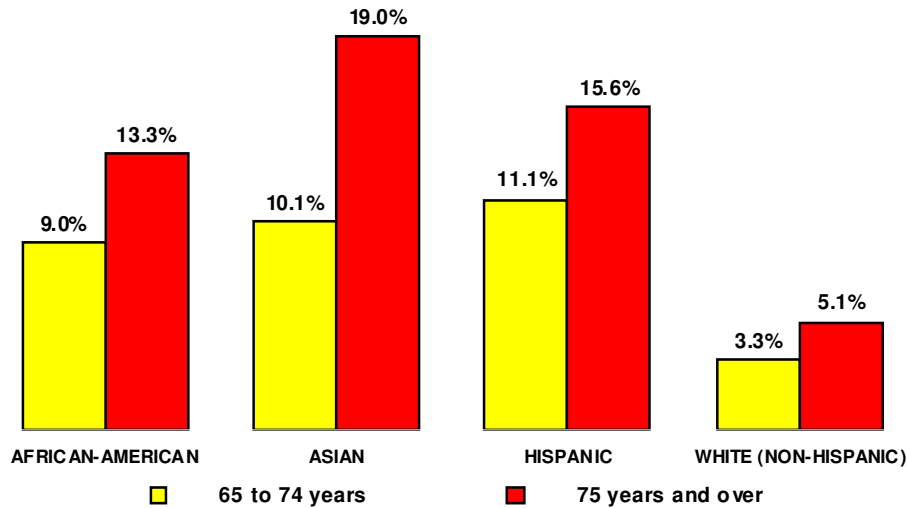


An ongoing priority is providing the necessary services to address the needs of low-income seniors, especially those ages 75 and older, from ethnic/cultural minority populations in the county (see Figure 11).

Figure 11: Percentage of Ethnic Groups Living Below the Poverty Line

Racial/Ethnic Groups Have Higher Levels of Poverty

Percent Below Federal Poverty Line, Montgomery County, 2000



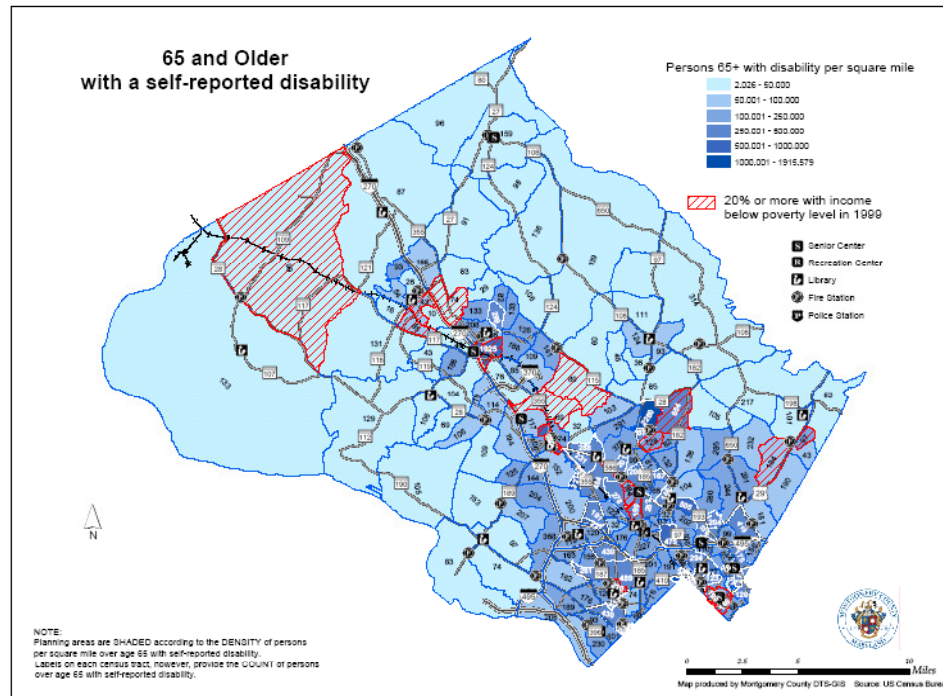
Senior Citizen Risk Factors

In the U.S., between the years 1999-2002, persons age 65 and older sustained 27 percent of all civilian fire deaths while comprising only 12 percent of the total U.S. population. Seniors age 75 and older sustained 16 percent of the civilian fire deaths despite comprising only 6 percent of the population.

Over the past 22 years (1980–2002) the percentage of the elderly perishing in fires has remained constant at 23 percent. This emphasizes the need, as a society, to aggressively address the issue of home fires among the elderly. The percentage of the elderly who sustained injuries from fire over the same period remained constant as well. If nothing is done, the number of seniors killed or injured by fire will increase commensurate with the increase in the number of seniors.

Numerous factors contribute to the higher risk. Aging causes the skin to become thinner and more vulnerable to fire. Additionally, reflexes slow down. Taking medication that causes drowsiness further slows the reflexes.

Seniors are at increased risk of injury and death in a fire due to sensory and cognitive impairments, physical disability, mobility impairments and alcohol and prescription drug use (see Figure 12).

Figure 12: Senior Citizens with Self-Reported Disability

Source: U.S. Census 2000

Sensory Impairments and Disabilities of Aging

Sensory Impairments

The 2000 census reports 9,824 Montgomery County seniors age 65 and above with sensory impairments. This represents 5.3 percent of the County's senior population

Smell – The sense of smell diminishes as people age. By age 60, 30 percent of individuals have some impairment in their sense of smell; by age 80 this impairment affects more than 60 percent of seniors. A sense of smell can be helpful in detecting fire during waking hours. The smell of “something burning” often leads to the discovery of a fire, a potential fire or a stove or oven left on after cooking has concluded.

Touch – Skin changes associated with aging decrease the sense of touch. The ability to feel whether something is hot, such as an appliance overheating, can trigger a quick reaction to prevent a fire. The natural thinning of the skin's outer layer increases the risk for burns and increases their severity. Older skin can take up to four times longer to heal than the skin of a younger person. Also, because older adults frequently feel cold, they may seek economical ways of adding more heat to their environment through the use of space heaters etc. which pose an increased fire risk.

Vision – 18 percent of older Americans suffer from eye impairments. Vision impairments decrease the ability to see fires, falling candles or fallen cigarettes. This also hampers the ability to find doors and escape routes in a fire.

The most typical changes to the eye caused by aging are: loss of focus, declining color sensitivity, and a need for more light. There is a limit to vision correction with glasses. Finding and wearing glasses can be a problem especially when awakened at night in an emergency situation.

Hearing – The prevalence of hearing impairments increases with age. Thirty percent of adults age 65 to 74 have a hearing impairment but by age 85, 60 percent are affected. The inability to hear a smoke alarm or other warning sounds of fire places the older adult at great risk. Preliminary research indicates that older adults have difficulty being awakened from sleep by the standard home smoke detector, especially those emitting a constant, unwavering signal.

In 2002 these conditions affected 11,624 (12.6 percent) Montgomery County senior citizens. Fifteen percent of men and 11 percent of women had some form of moderate to severe memory impairment. Because these conditions affect reasoning, short and long term memory, and executive functions, these individuals are at substantial risk of injury or death from fire.

Physical Disability and Mobility Impairments

In 2002, Montgomery County reported 20,274 (10.9 percent) seniors having a physical disability. Of those reported, 6,881 (3.7 percent) indicated a self-care disability and 15,850 (8.5 percent) reported a disability outside of the home.

These impairments hamper the ability of older adults to respond to fires and to escape burning structures. Nationally, only 49 percent of households with an older person with impaired mobility have made modifications to increase the home's safety or accessibility. The lack of such modification creates additional barriers for the disabled senior to exit the home safely in a fire.

Other Demographic Characteristics Affecting Senior Citizens

Limited Income

Of Montgomery County seniors, 5,467 (5.3 percent) reported an annual income below the federal poverty level (see Figure 10). Additionally, 10,391 (20.8 percent) seniors have an annual income below \$25,000. Montgomery County Aging and Disability Services consider \$25,000 as a more realistic measure of poverty because of the very high cost of living in this area.

Rising energy costs may cause low-income seniors to turn to less costly methods for heating and lighting their homes, such as the use of propane appliances, space heaters, gas ovens and candles, all of which increase the risk of fire.

Additionally, senior citizens may be less likely to expend funds for the maintenance of their heat producing devices resulting in unsafe malfunctions as the appliances age.

Alcohol and Prescription Drugs

As the body ages it goes through changes that alter the effects of alcohol and medications. Decreases in muscle density, fluid volume and reductions in body weight prolong the length of time alcohol stays in the system thus increasing the likelihood of intoxication.

An increase in the number of medical problems can lead to a rise in the number of medications that are routinely taken. Eighty-three percent of senior citizens take a prescription drug. Use of drugs in combination with alcohol carries a risk, and multiple drug use increases that risk.

Alcohol and prescription misuse affects 17 percent of persons 60 and older. Medications for sleeping, pain, anxiety or depression, diuretics as well as, antihistamines and decongestants are examples of medications that should never be mixed with alcohol. In fact, older adults are hospitalized more frequently for alcohol related problems than for heart attacks. Medicare reports spending \$230 million annually on alcohol related illnesses in older adults.

In Montgomery County in 2004, 60 (5 percent) impaired drivers involved in a crash in Montgomery County were age 60 and older. Of these older, impaired drivers, 14 were injured and one was killed in the crash.

During CY2004, 449 pedestrians were involved in a total of 424 crashes. Of those pedestrians, 69 (15 percent) were senior citizens aged 60 years and older. Of the senior pedestrians, 62 were injured and four were killed in the crash. In at least two of these deaths the senior was under the influence of alcohol and/or drugs. When looking at fire safety in the senior citizen population it is important to consider the possibility that alcohol and/or drug use is a contributing factor.

Alcohol impairment poses great risk causing memory loss, decreased judgment and a slowed thought process that can increase high risk behaviors such as unattended cooking, reaching over a gas stove with loose clothing or leaving a cigarette burning. Impairment slows reflexes causing a delay in appreciation of fire risk, recognition of a fire, and a reaction to it. Drowsiness associated with alcohol can result in a senior falling asleep and may not allow them to be easily aroused by noise and smells putting them at further risk for fire injury or death.

Misuse of Smoking Materials

The misuse of smoking materials by senior citizens represents a significant risk to their life and fire safety. This behavior continuously produces tragic results. Seniors, living alone and affected by impairments, misplace their burning cigarettes, drop smoldering cigarettes in combustible bedding and furniture, and/or ignite their clothing.

Organization and Mission of the Senior Citizen Fire Safety Task Force

Recognizing the alarming upward trend of senior citizen fire related deaths and injuries across Montgomery County, then County Executive Douglas Duncan and Fire Chief Thomas Carr, Jr. determined that the best approach to identify effective fire safety strategies and procedures was to convene a focused, geographically representative task force. A formal committee was established with citizens with fire suppression experience, individuals representing senior citizen interests and organizations in order to study the recent tragic incidents and recommend preventative actions. The work of the Task Force has been carried on under the direction of County Executive Isiah Leggett.

Effective March 24, 2006, the Senior Citizen Fire Safety Task Force was established as an executive advisory committee.

The Executive Order for the Task Force was established as follows:

A. Purpose

The Task Force must advise the Executive and the Fire Chief on strategies and procedures designed to reduce the risk of fire-related deaths and injuries to senior citizens in the County. This includes providing advice on:

1. Approaches to reduce fire risk, injury, and deaths among senior citizens
2. Demographic and community changes (such as housing density) that affect safety of the elderly;
3. Educational efforts to be undertaken to improve awareness among senior citizens and their caregivers of fire injury and death prevention strategies
4. Resources needed to reduce fire risk among senior citizens in the county
5. Legislation at State and County levels to reduce fire risk, injury, and deaths among seniors, and
6. Encouraging the National Fire Protection Association (NFPA) to write standards for senior citizen housing

The Task Force submitted an interim report to the Executive and the Fire Chief after six months of operation. An annual report was submitted in June 2007.

B. Composition

The Task Force is composed of no more than 25 members, who are appointed by the Executive. A majority of the public members shall be senior citizens (defined as age 65 and older).

Members are appointed for two-year terms. The Task Force is expected to complete its work by May 2008.

The Executive may appoint the following ex officio members from the designated public agencies:

1. Two members from the Montgomery County Fire and Rescue Service
2. Two members from the Department of Health and Human Services
3. Two members from the County's Commission on Aging
4. One member from the Housing Opportunities Commission staff or residents
5. One member from the County's Commission of People with Disabilities
6. One member from the Department of Liquor Control
7. One member from the Offices of the County Executive

The remaining members may include representatives of the following:

8. The Burn Center at Washington Hospital Center (the regional burn center)
9. Apartment Owners and Builders Association (AOBA)
10. Management of major senior housing complexes in the County (e.g. Leisure World, Asbury Methodist Village, Riderwood)
11. Senior citizen organizations
12. Public relations and/or media outlets (Comcast, MPT)
13. Residents of the County

The Executive designated J. Paul Thomas of Fairland as Chair and Jacqueline Rabinow of Leisure World as Vice-chair of the Task Force. The Montgomery County Fire and Rescue Service provided administrative support to the Task Force.

The Senior Citizen Fire Safety Task Force, supported by the Task Force leadership and staff liaison, immediately initiated plans to accomplish the charge of Executive Order #103-06.

The County Executive appointed the following individuals to the Senior Citizen Fire Safety Task Force:

PUBLIC MEMBERS

Bruno, Hal
Chevy Chase, MD 20815

Rabinow, Jacqueline VICE CHAIR
Silver Spring, MD 20906

Livingston, John C., Jr.
Davidsonville, MD 21035

Shnider, Irving
Silver Spring, MD 20906

Notley, David P.
Bethesda, MD 20814

Siegel, Alan
North Bethesda, MD 20852

Poole, Gloria
Rockville, MD 20853

Thomas, J. Paul CHAIR
Silver Spring, MD 20904

Mickalide, Angela D.
Kensington, MD 20895

Thompson, Barbara Ricks
Silver Spring, MD 20902

EX OFFICIO MEMBERS

Fire and Rescue Service

Delaney, William
Rockville, MD 20850

Kelleher, Matthew
Rockville, MD 20850

Commission on People with Disabilities

Hamlin, Lise
Rockville, MD 20850

Department of Health and Human Services

Aging and Disability Services

Campbell-Kotler, Margaret
Rockville, MD 20850

Public Health Services – Licensure and Regulatory Services

Cohen, Susan
Rockville, MD 20850

Department of Housing & Community Affairs

Reilly, Scott
Rockville, MD 20850

Commission on Aging

Goldbloom, Irwin
Chevy Chase, MD 20815

Leahigh, Suzy
Silver Spring, MD 20902

ORGANIZATIONAL MEMBERS

Management of Major Senior
Housing

Curtin, James A. MD
Leisure World of Maryland
Silver Spring, MD 20906

Bridges, Ronald
Erickson Retirement Communities
Silver Spring, MD 20904

Housing Opportunities Commission

Zanger, Bernadette
Bethesda, MD 20814

GEICO Insurance

Grenier, Kevin
Washington, DC 20076

Department of Liquor Control

DeTitta, Emily
Rockville, MD 20855

The Burn Center at
Washington Hospital Center

Hollowed, Kathleen A. RN
Washington, DC 20010

Apartment and Office Building
Association (AOBA)

Hoover, Lesa N. Esq.
Annapolis, MD 21401

STAFF LIAISON

Best, John M., Deputy Fire/Rescue
Chief (Ret.)
Fire and Rescue Service
101 Monroe Street
Rockville, MD 20850

Ross, Jacqueline D., Office Services
Coordinator
Fire and Rescue Service
101 Monroe Street
Rockville, MD 20850

Planning, Strategy and Methodology

The Senior Citizen Fire Safety Task Force, supported by the Task Force leadership and staff liaison, immediately initiated plans to accomplish the charge of Executive Order #103-06. Planning and strategy building began with the study of various approaches to methodology development in meeting Task Force objectives. As a first step, the fire safety interests and expertise of the individual members were identified during the early regular meetings. During these early meetings, fatal fire incidents involving senior citizens were presented and discussed. A mutual understanding was achieved utilizing the experience drawn from the previous fire incidents and their individual characteristics. As Task Force members gained familiarity with one another's expertise, a sense of common purpose evolved.

The process of establishing a working agenda and methodology required the identification and selection of various approaches to Task Force consensus building. This was done by presentation of several methods of achieving effective and successful group process outcomes. The task was made more difficult due to the wide array of objectives described in the Task Force mission. It was agreed that the mission objectives would require the partitioning of the Task Force into focused topic components.

Task Force Objectives

Based on this organizational approach the Task Force objectives were established as follows:

- Identify strategies to reduce fire risk among senior citizens
- Identify strategies to reduce fire casualties and fatalities among senior citizens
- Identify changes to building and fire codes and standards for new and existing structures that anticipate/acknowledge the aging population and appropriate changes to incorporate safety features
- Explore the addition of new use "independent living" group within the national building and fire model codes and standards
- Identify new and emerging off-the-shelf technologies that bridge the gap between code-compliant new buildings and non-compliant existing buildings
- Identify demographic changes and community changes that affect the safety of senior citizens
- Identify personal and community based procedures and requirements that senior citizens and caregivers can adopt and practice to increase senior citizen fire safety

Methodology

Accordingly, the following methodology was adopted to drive the group process:

- Assign members to topic groups based on interest/expertise
- Convene topic groups for technical issue study/writing
- Identify technical and best practices information sources
- Develop working topic outlines

- Report progress and issues routinely to full Task Force
- Receive Task Force input for topic draft revision
- Complete re-writing and editing for publication

Results Oriented Strategy

Following discussion of these issues, the Task Force agreed to a rapid response schedule given the critical nature of recent fire incident fatalities and the time constraints imposed by the requirement of a six months interim report. The Task Force also agreed that given the multi-faceted nature of their mission and the technical components of the task, that topic focused sub groups would be an effective approach as follows:

- Building Technology and Standards
- Community Characteristics and Demographics
- Public and Provider Education
- Advocacy and Legislation



The Public and Service Provider Education Sub-Group in Break-Out Sessions



Task Force Study and Resources

Task force members were provided background information and statistics explaining the County's senior citizen fire casualty and fatality phenomenon. Several meetings were devoted to educating members about this experience and achieving a baseline understanding of fire behavior and other related knowledge required to develop technical recommendations and provide supporting rationale for policy maker consideration.

Dr. Charles Smith of the Department of Health and Human Services, Aging and Disability Services provided a comprehensive presentation educating the Task Force about Montgomery County's senior citizen's characteristics and demographics.

Reports and scenarios of fire incidents involving senior citizens in the County were presented as they occurred with pertinent and applicable educational audio/visual aids. Task Force members requested data resources of staff members routinely during the sub group deliberations.

Benchmarking

The Task Force initiated a "benchmarking" effort to acquire National Fire Incident Reporting System (NFIRS) data to determine the relationship of Montgomery County's senior citizen fire casualty and fatality phenomenon as compared to communities in the United States having similar senior citizen demographics, populations and characteristics.

The County, to maintain a consistent analysis, has determined a number of communities meeting these requirements as follows:

Baltimore County, MD
Fairfax County, VA
Jefferson County, KY
Mecklenburg County, NC
Palm Beach County, FL
Westchester County, NY

Task Force requests for NFIRS data were answered by Baltimore County, Fairfax County and Jefferson County.

While Montgomery County and Baltimore County experienced the same number of senior citizen fire fatalities in the past ten years (see Appendix C). Montgomery County has experienced an almost "crisis" occurrence of senior citizen fire fatalities during the years 2003-2006 in comparison to the other benchmark jurisdictions (see Figure 13).

A complete comparison of National Fire Incident Reporting System (NFIRS) data relating to gender, age, hour of day, day of week, month, property type, and area of origin is presented graphically in Appendix C.

Figure 13

Year	Montgomery County	Fairfax County	Baltimore County	Jefferson County
2006	4	3	1	1
2005	5	1	0	2
2004	2	2	1	0
2003	6	3	2	3
Total	17	9	4	6



Full Task Force Technical Education Session

Expert Presentations

Senior Citizen Fire Safety Task Force members represented a cross section of Montgomery County geographically and by expertise. In order to bring all of the members to a common level of knowledge in the senior citizen fire fatality challenge members requested that certain experts make presentations to the full Task Force.

07/07/06	William Delaney, Public Educator, MCFRS “Fire Death Statistics in Montgomery County”
07/21/06	William Delaney, Public Educator, MCFRS “Fire Behavior”
08/18/06	Dr. Charles Smith, Research Analyst, DHHS, Aging and Disability “Current and Future Demographics Overview of Montgomery County Seniors”
11/17/06	Deputy Chief (ret.) John M. Best and Master Firefighter Matthew Kelleher, MCFRS “History, Operation, and Performance of Fire Sprinkler Systems”
12/08/06	Sybil Greenhut, MSN, Senior Mental Health Programs, Behavioral Health and Crisis Services, DHHS “Co-occurring Disorders in Older Adults” Bonnie Klem, MSN, Adult Protective Services; Aging and Disability Services, DHHS “Hoarding Behavior in Older Adults”
01/12/07	Fire Marshal Ivan Humberson, City of Gaithersburg, MD “Retro-Residential Fire Sprinkler Legislation”
01/12/07	Master Firefighter Matthew Kelleher, MCFRS “Monterey Condominium Retro-Fire Sprinkler Installation”
01/26/07	Shannon Boyle, Public Relations Coordinator, GEICO “GEICO Public Relations/Communications Plan”
02/09/07	Professor Kathleen Hoke Dachille and Jill Athencio, Center for Tobacco Regulation, University of Maryland “Fire Safe Cigarettes, An Effective Tool for Reducing Cigarette Caused Fires.”
04/13/07	Peter Piringer, Public Information Officer, MCFRS “Media Strategy Planning”
09/07/07	Enclave Residential High Rise Representatives, Silver Spring, MD

“Retro-installation of Residential Fire Sprinklers”

- 10/05/07 Chief John Livingston and University of Maryland Fire/Rescue Institute
“Residential Fire Sprinkler Demonstration”
- 10/19/07 Chief John Livingston
“Retro Fire Sprinkler Orientation”
- 12/14/07 Lieutenant Erik Couse, MCFRS
“High Rise Fire at the Promenade”

Senior Fire Incident Presentations

Seven senior citizen fire fatalities occurred during the two-year Task Force term. Montgomery County Fire and Rescue Service provided detailed, informative presentations to the Task Force outlining the facts surrounding each of the fires including the date of the incident, gender, age, location, type of structure, and apparent fire cause and origin as follows:

- 11/24/06 Female, age 83
Chevy Chase
Multi-family high rise
Living room
Discarded smoking materials
- 08/27/06 Female, age 78
Kensington
Single family dwelling
Discarded smoking materials
- 01/19/07 Female, age 80
Silver Spring
Multi-family high rise
Kitchen
Cooking
- 03/15/07 Female, age 74
Silver Spring
Multi-family
Bedroom
Undetermined/suspected accidental
- 05/07/07 Male, age 88
Kensington
Single family dwelling
Kitchen egress

Suspected refrigerator malfunction

05/07/07 Female, age 84
Kensington
Single family dwelling
Kitchen
Suspected refrigerator malfunction

12/10/07 Female, age 75
Derwood
Single family dwelling
Bedroom
Undetermined

Literature and Resource Identification

In addition to the informative data provided by Dr. Smith and the excellent presentations by topic experts on a wide array of senior life safety issues, the Task Force identified information sources to assist in the research, study, and formulation of technical recommendations. Each of the five topic focused task groups determined how best to address the formal mission statements relevant to their objectives. Each group was assigned the task of identifying those literature citations, information sources, and other materials essential to the completion of their work. As examples, the building technology task group requested the staff liaison to provide the Montgomery County Fire Rescue NFIRS Data for 1996 to present. The public and caregiver education task group sought the U.S. Department of Homeland Security, U.S. Fire Administration 2006 report.

It should be noted that the MCFRS staff liaison and Task Force representatives were familiar with, and knowledgeable of, the comprehensive fire science and engineering literature and technical resources to readily provide all requested documents. This enabled the task groups to move quickly into the in-depth study and consideration of issues, innovations, and best practices across the national fire safety field.

From the first Task Force meeting, it was agreed that the essence of future recommendation to be developed on senior citizen fire safety would be based on technical data and research results rather than emotional considerations. This has been upheld throughout the Task Force deliberations and was the spirit of work throughout the second year of operation.



“Senior Citizens Die in Kensington House Fire...”

“Cigarette Causes Senior Citizen Fire Fatality...”

“Early Morning Blaze Claims Two Seniors...”



Task Force Recommendations

Rationale for Prioritization of Recommendations

The Task Force members felt strongly that to facilitate management and implementation of their 37 approved recommendations a ranking method was in order. Therefore, the following method was unanimously agreed upon to suggest priority ranking for implementation: (1) Immediate, (2) Short Term, and (3) Long Term.

A. Core Recommendations

Introduction

Despite the many elements related to senior citizen fire safety such as the risk factors of aging, architectural modifications, public educational strategies and legislative initiatives, there remain two principles that have not been adequately addressed at any governmental level or by any geographic jurisdiction. Simply stated these are (1) changing cultural attitudes about fire safety and (2) assigning responsibility to individuals for their negligent actions in causing fire fatalities, injuries, and property loss.

United States society is remiss in recognizing and accepting fire safety as an essential survival necessity. Those persons causing fires are seen as “victims” despite their direct or indirect role in causing fire fatalities and property loss by gross negligence, the County will continue to experience an escalating incidence of fire catastrophes. Changing these elusive societal attitudes will require new innovative efforts in public education, legislative advocacy, and political activism. These preventative initiatives may not be popular with citizens generally and select constituencies specifically.

The Task Force felt so strongly about the importance of changing cultural attitudes that the title of the report emphasizes this concept. In studying and developing fire safety recommendations in the areas of building technology, public education, advocacy and legislation, and evolving community characteristics, the Task Force has identified changing cultural attitudes as the major missing element in the equation for addressing and preventing future senior fire fatalities. This social-cultural psychological phenomenon has been the last issue to be identified by the Task Force and is probably the most significant, in bringing about proactive modification of public attitudes to improve senior fire safety.

At the time that the Task Force was identifying the issues related to societal attitude change, the professional staff of the Montgomery County Fire and Rescue Service was reporting that national and regional conferences on fire prevention and life safety were grappling with cultural attitudinal issues as well. However, in discussing the issues, the Task Force went one step further and identified in detail those proactive measures that County officials could specifically initiate to resolve them.

Accordingly, the reader will find specific high priority recommendations in the beginning section of these recommendations that addresses, as examples: enhancing the training of Montgomery

County Fire and Rescue Service staff to improve communication skills with high-risk seniors; the support of legislation placing criminal liability on those whose demonstrated grossly negligent and intentional disregard causes property damage, personal bodily injury or loss of life; the creation of a multi-disciplinary senior citizen fire risk prevention team; and the creation of a coalition of industry partners to assist Montgomery County Fire and Rescue Service in implementing a fire safety public awareness program.

1. **Establish a senior citizen fire safety staff position** for leadership in fire safety training and implementation of Task Force recommendations.
2. **Support and encourage the immediate implementation of the existing joint Montgomery County Fire and Rescue Service staff training and community focused public education program titled “Safety in the Neighborhood”** cited in the Montgomery County Fire and Rescue Service 2008 Strategic Plan, as a key initiative in facilitating a culture of fire safety for high-risk seniors living independently and/or those with reduced capacity due to functional impairments and disabilities.
3. **Enhance the training of Montgomery County Fire and Rescue Service personnel:**
 - a. To respond to, and communicate more effectively with, persons who require assistance due to reduced capacity for effective response to emergency situations because of cognitive, behavioral, physical mobility, or sensory impairments. Emphasis should be given to naturally occurring senior communities where seniors are living independently and aging in place.
 - b. By requiring that the Montgomery County Fire and Rescue Service establish minimum certification requirements in fire prevention and fire and life safety for promotion to all positions.
4. **Form a coalition of industry partners** to assist the Montgomery County Fire and Rescue Service to achieve its fire safety awareness communication goals including a network of relevant public agencies and private sector organizations.
5. **Create a multi-disciplinary Senior Citizen Fire Risk Prevention Team**, including social workers from Adult Protective Services, fire marshals from Fire Code Enforcement, and inspectors from Housing Code Enforcement to:
 - a. Develop a protocol for training Aging & Disability staff, working directly with clients, to recognize basic signs of fire risk; provide basic safety training/materials to clients and families; and determine when to make referrals to Fire Code or Housing Code Enforcement.
 - b. Develop a protocol to train fire marshals and housing code inspectors about working with cognitively, mentally or physically impaired individuals and when to make appropriate referrals to Aging & Disability Services for joint intervention.

- c. Evaluate current fire codes to determine additional legislation needed to give fire marshals the authority to gain entry and enforce codes when clients refuse voluntary interventions. Request assistance of County Attorney in drafting such legislation.
- d. Initiate an ongoing multi-disciplinary, multi-agency Senior Fire Reduction Team, consisting of a rotating group of social workers, fire marshals and housing code inspectors, to meet monthly to review referrals from Aging & Disability Services, Fire Marshal or Housing Code inspectors. The team would review level of fire risk and potential barriers, such as competency, to be considered in developing an appropriate intervention. The team would develop a care plan and return recommendations to referral source to achieve care plan goals.

B. Public and Service Provider Education Recommendations (PSPE)

Introduction

It is essential in minimizing future senior citizen fire deaths and injuries that the highest priority be given by the County policy makers to implementation of a comprehensive, ethnically diverse and culturally sensitive multimedia public education program to facilitate the creation of a culture of fire safety for senior citizens in Montgomery County.

Immediate Implementation (PSPE):

1. **Develop a fire prevention publicity campaign** with Task Force guidance to include press releases, public service announcements, video news releases, a unique Montgomery County Fire and Rescue Service frequently asked questions site, aging featured brochures for targeted distribution, and a speaker's bureau. Develop a specific marketing strategy for senior citizen fire safety to include community service volunteers drawn from public and private high schools.
2. **Utilize media events** of senior related fire incidents as a means to educate citizens, care givers, family members and service professionals about special causes and hazards.

Short Term Implementation (PSPE):

3. **Initiate a public educational program** to encourage the installation of approved automatic fire sprinkler protection in all existing residential properties with special emphasis on seniors living independently throughout Montgomery County.
4. **Identify target audiences and user groups** residing in senior living communities, senior centers, and other residential facilities for priority attention via direct and media contact to convey fire prevention messages on smoking materials, kitchen and cooking behavior, heating/electrical equipment, and maintenance of approved alerting devices and systems.

5. **Initiate a senior life saving information program** including the utilization of Montgomery County Fire and Rescue Service light duty personnel and training academy and recruit classes to continually conduct a direct door-to-door offering of services to senior citizens such as free home visits on safety, evaluation of existing home smoke alarm equipment and installation when necessary, and promotion and installation of cooking safety equipment and hood based extinguishing systems.

Long Term Implementation (PSPE):

6. **Adopt senior literacy and safety training** to assist those seniors who may not have adequate skills in reading or comprehension to receive ethnically and culturally diverse safety training related to independent living options in later years.
7. **Suggest residential selection criteria** for use in public/caregiver programs to assist seniors and their families in selecting appropriate residential living options for seniors who are functionally impaired.

Rationale

It is essential in creating a culture of fire safety across Montgomery County that the above referenced recommendations be carefully considered, prioritized, and implemented with all possible dispatch. The unique vulnerabilities of persons living independently and “aging in place” are of particular significance. It is from this population that the majority of County fire deaths have occurred in the past ten years. Because of the innovative nature of these suggested recommendations, this public and service provider education program may serve as a model for national demonstration and implementation in the future. Because of the high payoff in lives saved and catastrophic injuries prevented these recommended public and service provider education measures are an outstanding opportunity for the Montgomery County Fire and Rescue Service to once again provide national leadership and guidance.

C. Community Characteristics and Demographics Recommendations (CCD)

Introduction

A key information requirement of the Task Force in development of recommendations on fire safety issues was the identification of population characteristics, demographics, and high-risk populations specific to Montgomery County senior citizens. The community characteristics and demographics topic group has generated significant statistical information that serves as the driving force for many Task Force recommendations. The unique composition of the topic group provided broad experience in community features and population trends with a high level of relevant expertise in the knowledge of such features and community needs. This composition included select public and ex officio members and organizational representatives.

Useful information sources were provided by Charles Smith, Ph.D. of the DHHS, Aging and Disability Services agency. Dr. Smith provided crucial information to the Task Force at large and also advised the community characteristics topic group in identifying information sources on

changing senior citizen demographics, population trends, household living arrangements, high-risk disability cohorts, and social-economic features. As examples, useful information was generated on increasing frequency of senior citizens living alone, decline in the number of caregivers, and increases in senior citizens living below the poverty line. All having major implications for Task Force recommendations as follows:

Immediate Implementation (CCD):

1. **Identify homebound seniors and those with disabilities to offer information on fire safety and provide assistance with the installation of approved smoke alarms appropriate to their needs**, for example, alarms linked to visual and/or tactile alerting devices, long life alarms, alarms equipped so that the battery can be tested with a remote control device, and new and emerging technologies, such as low frequency or multiple frequency smoke alarms.
2. **Increase collaboration between Montgomery County Fire and Rescue Service and professional organizations** providing services for persons with physical, mental, cognitive and sensory impairments to encourage their members to provide clients with information on fire safety education for affected individuals and their families, as well as provide smoke alarm devices most appropriate to their impairment.

Short Term Implementation (CCD):

3. **Establish a partnership with the Alzheimer's Association, National Capital Chapter** to develop fire prevention and safety education information for individuals with cognitive impairment and their families.
4. **Establish partnerships with appropriate service organizations representing mobility impairments and disabilities** including, but not limited to, multiple sclerosis, arthritis, cerebral palsy, spina bifida, and with eldercare programs such as AARP, to develop fire safety education information and training for individuals with limited mobility.
5. **Request that Montgomery County Department of Health and Human Services & Department of Liquor Control work collaboratively** to develop innovative alcohol and substance abuse prevention, education, and treatment programs designed for senior citizens.
6. **Develop a small grants program** to enable under-served populations such as lower income communities and ethnic and culturally diverse communities within the County to design and implement fire safety awareness and prevention programs appropriate to their communities.

Long Term Implementation (CCD):

7. **Develop by the Montgomery County Fire and Rescue Service those policies and procedures** that will require home health agencies and providers of oxygen, assistive

equipment and home care services to notify Montgomery County Fire and Rescue Service for a home safety assessment to be conducted.

Additional recommendations developed by the Community and Demographics Characteristics Task Group are found in Advocacy and Legislation Section E.

Rationale

The above referenced recommendations provide practical and realistic improvements in service, education, and policy development to address high-risk populations identified by the community characteristics and demographics task group. These populations have an additional level of vulnerability beyond those recognized in the normal aging process. As statistics demonstrate, implementing special targeted fire safety measures for these high-risk populations will significantly reduce fire death and injury and pay large dividends in preventing financial loss to life and property.

D. Building and Technology Recommendations (BT)

Introduction

Physical and mental impairments contribute significantly to senior citizens' inability to effectively react to life and fire safety threats. While the education of seniors, their families, caregivers and others around them is a major factor in their well being, inherent building features, approved fire detection and suppression systems and pre-emergency planning continue to be a major element in preventing senior citizen fire injuries and fatalities.

The technology exists today to allow society to readily adopt a culture of senior citizen life and fire safety. Being successful assumes this effort is a public value. The adoption and assumption of this shared value would compare to the reduction of drunk drivers through the MADD program, the reduction of forest fires through the Smokey Bear program, and the reduction of automobile crash fatalities through the "Click-it or Ticket" programs, to name a few. When we develop this culture and public value we will prevent or greatly reduce senior citizen fire fatalities.

The following recommendations, in conjunction with life and fire safety education, outline a reasonable approach to preventing senior citizen fire fatalities through pre-emergency planning, the installation of inherent building features and approved fire detection and suppression systems.

1. **Establish a goal that Montgomery County adopt the requirements of the Uniform Fire Code, (NFPA 1), Chapter 13.3.2.24 (See Appendix D)** which states: "All high-rise buildings shall be protected throughout by an approved, supervised automatic fire sprinkler system in accordance with 13.3.2.24."

Attainment of this goal by public agencies and non-profit organizations is dependent upon funds being made available to assist these housing providers with the cost of

compliance. Responsible parties will take steps to mitigate the cost of displacement and other economic impact on households affected by this goal.

2. **Establish a goal that all existing one and two family homes in Montgomery County will install an approved automatic fire sprinkler system by January 1, 2030.** This goal shall be achieved by:
 - a. Requiring the installation of an approved, automatic fire sprinkler system at the time of re-sale of one and two family homes beginning January 1, 2015.
 - b. Montgomery County Government negotiating an agreement on technical specifications and price guidelines for the installation of an approved fire sprinkler system.
 - c. Achieving an agreement with the Washington Suburban Sanitary Commission and other water authorities that approved residential fire sprinkler systems would be connected before the properties' water meter to prevent unnecessary loss of pressure.
 - d. Modifying the Montgomery County Code to require local water flow alarms on approved residential fire sprinkler systems to signify sprinkler actuation.

Additional recommendations developed by the Building and Technology Task Group have been placed in the Advocacy and Legislation section below. In the group's extensive study of current advocacy and legislative and code requirements there were gaps in protection to assure adequate building life and fire safety for senior citizens.

Rationale

According to the Home Fire Sprinkler Coalition, installing both smoke alarms and a fire sprinkler system reduces the risk of death in a home by fire by 82 percent relative to having neither.

The National Fire Protection Association (NFPA) has no record of a fire killing more than two people in a completely sprinklered public assembly, educational, institutional or residential building where the system was working properly.

The current Montgomery County Fire Safety Code requires that "whenever a fire occurs in a building or there is reason to believe a fire exists in a building, the building shall be immediately evacuated and not reoccupied without permission of the fire official in charge."

This is a proven premise to prevent fire fatalities. The premise, however, does not address a number of phenomena associated with senior citizens exiting buildings in an emergency. Namely, few individuals assign this requirement to one and two family homes where most senior citizens die from fire. Many senior citizens are non-ambulatory and while they are notified of a fire by smoke alarms they cannot effectively exit.

In one and two family homes seniors may traverse stairways via an electric stair chair elevator or with caregiver assistance. During a fire these resources may not be available or may provide a single egress at best.

Multi-family residences generally provide a passenger elevator for senior citizen access to and from their living unit. During a fire the elevator is not available as it may quite likely provide a “chimney” for the fire from lower floors. The senior citizen must then rely on a high rise stairway and/or others to overcome his or her particular impairments for evacuation.

Early fire detection and suppression, and a “protect in place” arrangement with an approved evacuation plan, are ideal whether the senior citizen resides in a one and two family home or a high-rise structure when rapid evacuation is not practical. The installation of approved smoke alarms and fire sprinkler systems (see Appendix A) provides inherent “protect in place” safety for senior citizens and accomplishes notification of a fire while it is in its incipient stage.

The County continues to experience the proliferation of existing multi-family communities housing primarily senior citizen populations. These communities were developed in the past without the anticipation that they would evolve into naturally occurring retirement communities (NORCs). This phenomenon presents the situation where senior citizens reside on the upper floors of multi-family residential buildings without modern smoke alarms, evacuation alarms, approved fire sprinkler systems and other inherent life and fire safety features. When a hostile fire occurs they cannot get out.

While the licensed residential care industry defines “independent living” (see Appendix B), many senior citizens do not acknowledge their physical and mental impairments as they relate to life and fire safety. Seniors generally assume they can safely live independently. The decision to “give up” independence and not live alone can be compared to the decision of when to stop operating a motor vehicle. This phenomenon results in many senior citizens living alone and in ignorance or denial of the threat of fire.

E. Recommendations Requiring Advocacy and Legislation (RAL)

Introduction

The following documentation identifies the recommendations promulgated by the Public and Service Provider Education, Community Characteristic and Demographic and Building and Technology sub task groups, above, requiring advocacy and legislation for implementation.

With a majority of recent senior citizen fire fatalities in Montgomery County involving the misuse of smoking materials, the Task Force was extremely pleased with the recent Maryland State legislation requiring the sale of “Fire Safe” cigarettes statewide. The Task Force participated in the legislative process to achieve this significant accomplishment.

Immediate Implementation (RAL):

- 1. Require that the County develop a program to assist in financing the implementation of the requirement to install approved fire sprinkler systems in existing residential facilities owned by not-for-profit housing providers, public agencies,**

and in residential facilities where more than 20 percent of the units are income restricted or have rents controlled under a public program.

2. **Request that County officials work with public utilities to develop policies to enable utility companies to alert County public safety officials when utilities are to be shut off in the residence of a senior citizen.**
3. **Require that any improvement to single family or duplex houses with modification costs exceeding 50 percent of the assessed structural value include the installation of an approved fire sprinkler system** throughout the structure within three years of issuance of a building permit.

Short Term Implementation (RAL):

4. **Increase funding for the Montgomery County Fire and Rescue Service budget to reflect the increased demand for fire and rescue services and urgent needs for public education and other related services** due to the rapidly expanding senior citizen population.
5. **Require that the owner(s) of any building of more than four stories** designate to the Fire Chief a qualified individual responsible for life and fire safety for that building(s) to insure compliance with applicable life and fire safety codes, standards and procedures.
6. Such buildings shall include:
 - a. Housing for senior citizens
 - b. Institutional occupancies
 - c. Educational occupancies
 - d. Other buildings as may be required by the authority having jurisdiction
7. **Require that all new assisted living facilities, group homes and licensed residential facilities install an approved fire sprinkler system.**
8. **Explore the feasibility of enabling persons with disabilities to voluntarily register with the Montgomery County 911 system** so that in the event of an emergency pertinent mobility impairment information is transmitted to first arriving emergency personnel.

Long Term Implementation (RAL):

9. **Require that all existing residential buildings with three or more living units, regardless of ownership, shall have an approved fire sprinkler system installed throughout** within five years of the effective date of the requiring legislation.
10. **Require that all licensed residential facilities will have a contract with a licensed installer to install an approved fire sprinkler system within one year of their license renewal date**, after the passage of the requiring legislation, to be reviewed by the Fire Marshal. The authority having jurisdiction will take into consideration the scope, finances

and size of the structure. The approved fire sprinkler system must be installed within three years of the signing of the contract unless the time is extended for extenuating circumstances as determined by the Fire Marshal.

11. **Require that all licensed residential facilities install new or upgrade existing detection/alarm systems to meet current code requirements.**
12. **Require the installation of smoke barriers to form at least two smoke compartments on each level of new and existing residential properties** having 50 or more occupants on each level of the structure.
13. **Require that all new and existing panic/fire exit door hardware be easily distinguishable with reflective markings installed at the lowest level of each exit door** in all common areas of buildings.
14. **Require that exit stairways in new residential occupancies be constructed 72 inches wide** so that a full size occupied wheelchair and a fully equipped firefighter or emergency worker may pass in either direction and that exterior exit egress be able to accommodate mobility impaired occupants.
15. **Require that all new residential occupancies housing non-ambulatory individuals that are 75 feet in height from fire department access or higher, have at least 50 percent of their elevator assemblies constructed in a rated, “hardened” positive pressured manner** to provide safe egress in an emergency.
16. **Support a fire safety legislative initiative placing criminal liability on those occupants/residents/owners whose demonstrated grossly negligent, willful or proven intentional disregard** by individual action or lack thereof, causes directly related property damage, personal bodily injury and/or loss of life as a result of any residential fire in Montgomery County, Maryland.
17. **Support a fire safety legislative initiative enabling the Montgomery County Department of Fire and Rescue Service**, pursuant to the Fire Safety Code, to require persons found responsible for causing an unsafe fire or fire related event, by either act or omission, to participate in a fire safety education program and perform an appropriate number of hours of life and fire safety community service.

Rationale

Many of the recommendations promulgated by the Task Force may be implemented at the County staff level after County Executive direction. Other recommendations will require Executive Order, Regulation or County Council legislative due process.

Conclusion

The Senior Citizen Fire Safety Task Force urges Montgomery County policy makers to initiate an immediate campaign to implement the recommendations of the Task Force and significantly reduce the all too frequent catastrophe of fire death or injury.

The key to success in preventing senior citizen fire fatalities in Montgomery County is changing socio-cultural attitudes regarding fire safety. These attitudinal shifts are detailed in this report and focus on several approaches as follows: (1) educate senior citizens, particularly those living alone and aging in place, about the vulnerabilities common among seniors and the necessity of responding appropriately in the event of an emergency; (2) orient families, friends and neighbors of seniors to be responsible for installation and routine maintenance of fire safety devices such as smoke alarms; (3) educate seniors and their families about appropriate residential placement options given potential impairments and disabilities that mitigate full functional independence for response in emergencies; (4) instill in all citizens, regardless of age, background and national origin, that fire safety is an individual responsibility of all members of society and that negligent behavior in causing fire fatalities and injuries may have a legal consequence; and (5) improve the capacity of emergency responders to better understand the potential functional impairments associated with aging and to communicate more effectively in assisting seniors in emergency situations.

All members of society must understand that fire safety begins with them. It is essential for policy makers to understand and accept their role in effectively implementing timely strategies to address the cultural attitudinal shifts required for seniors, regardless of functional capacity, to be safe in their residential environments. No amount of technological architectural modifications can effectively address the numerous causes of fire fatality and injury or remove those seniors with reduced functional capacity from exposure to fire in residential settings. To assure that the individual's responsibility for fire safety is recognized, legal and other measures may be required to penalize those persons who commit careless and grossly negligent acts. These punitive measures are essential to protect those senior citizens who are most vulnerable to fire incidents.

Attention must be given to the realities demonstrated by actual statistics involving senior fire fatalities in Montgomery County. As described in the report, most fire fatalities in the County involved careless smoking behavior or improperly discarded smoking materials, the use or abuse of alcohol and/or prescription medications, and related reduced capacity from cognitive, psychological, physical or sensory impairments. The Task Force members believe that the implementation of these recommendations will be a major step toward addressing the senior citizen fire safety crisis in the County.

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Appendix A. Fire Sprinkler Data

Retro-Fire Sprinkler System Installation – Overview, Costs, Incentives

Fire Sprinkler System Overview

In an occupancy with an approved fire sprinkler system, a network of piping filled with water under pressure is installed behind the walls and ceilings. Individual sprinkler heads are placed along the piping to protect the areas beneath them. Because the water is always in the piping, the fire sprinkler system is always “on call.” If fire breaks out, the air temperature above the fire rises and the sprinkler activates when the air temperature gets high enough. The sprinkler sprays water forcefully over the flames, extinguishing them completely in most cases, or at least controlling the heat and limiting the development of toxic gases until the fire department arrives. Only sprinkler(s) nearest the fire actuate. Smoke will not actuate fire sprinklers.

Contrary to popular opinion, the greatest risk from fire is in our residence and not in public buildings, offices, hospitals and commercial structures. This is due to the fire and life safety protection that is usually installed in these properties. The same technologies are available for our residences where 80 percent of all fire fatalities occur.

Approved fire sprinklers typically reduce the chances of dying in a residential fire by one half to two thirds. Together with smoke alarms, sprinklers reduce the risk of dying in a residential fire by 82 percent.

Fire sprinklers are highly reliable. When present in the fire area, they have operated in all but seven percent of fires large enough to activate the system. Human error was a factor in almost all of the failures with the system being shut off in almost 75 percent of the failures.

Senior citizens, age 65 and older, begin to experience multiple physical and/or mental impairments. Many seniors are not ambulatory and live alone. Having an approved, operating fire sprinkler system protects these seniors in the event of a fire.

Montgomery County Residential Fire Sprinkler Installation Synopsis

Prior to January 2004 all new residential properties in Montgomery County, with the exception of detached, single family homes, were required to have approved fire sprinkler systems installed. Legislation adopted in January 2004 required the installation of approved fire sprinkler systems in all new residential properties including detached single-family homes. Since the enactment of the 2004 legislation residential fire sprinkler system have been installed as follows:

Year	Single Family Detached	Town Home	Total
2004	1472	703	2175
2005	1157	404	1561
2006	767	322	1089
2007	809	355	1164

2008 [through 03/03]	86	26	111
Total	4290	1810	6100

Cost Estimates for Retro-Installation of Fire Sprinkler Systems

Studies have proven that the cost of retroactively installing fire sprinkler systems has actually decreased over the past 10 years. The cost of these installations depends to a large degree on the following five factors:

1. The size of the building
2. The construction limitations and restraints
3. The available water supply
4. The piping material being used
5. The layout/design of the fire sprinkler system

In most instances, however, the cost of retro sprinklers parallels the cost of floor covering in a residential property. Current advertisements for carpet revealed the following cost estimates:

- “StainMaster Carpeting” \$2.22 per square foot installed
- “Karastan Carpeting” \$3.33 per square foot installed

If the building is average the carpet cost will be \$2.22 per square foot; an upscale building will have the \$3.33 per square foot cost. This principle applies to retro fire sprinkler installation in “average” or “upscale” buildings. The fire sprinkler installation will reflect the upgrade of the building’s surroundings and finishes.

The following retro fire sprinkler installation cost estimates were provided by the National Fire Sprinkler Association (NFSA):

Examples of Fire Sprinkler Retro-Installation Costs Including Associated Repairs & Patches	
Occupancy	Example Costs Per Square Foot
Multi-Family [low rise]	\$4.00
Multi-Family [high rise]	4.10
Nursing Home	7.00
Hospital	7.30
Office Building	4.10
School	4.50
Church	5.20
Hotel/Motel	6.30
Restaurant	7.00

An anecdotal illustration of the cost of the retro-installation of approved fire sprinkler systems in existing condominium and single-family residences in Montgomery County is as follows:

Illustration #1 Montgomery County Condominium Unit

Enclosed area: 1695 square feet

Assessment: \$450,000 (\$315,000 for improvements)

County tax: \$3,480 of which \$2,436 would be the tax on the improvement

If the retrofit would be \$4.00 per square foot, the unit retrofit would cost approximately \$6,792.

The tax credit from the County would be approximately \$1,218. A 20 percent fire insurance discount could be expected.

If this unit were typical of the County's 16,290 unsprinklered, non-HOC high-rise units, the retrofit costs would be approximately \$106 million and the tax credits from Montgomery County would be approximately \$19.6 million. Considering these specifications, the cost to retrofit Montgomery County's 2,103 Housing Opportunities Commission unsprinklered units would be approximately \$10 million.

Illustration #2 Montgomery County Single-family dwellings

Enclosed area: 2172 square feet

Assessment: \$653,450 (\$248,630 for improvements)

County tax: \$5,985.60 of which \$2,237 would be the tax on the improvement

If the retrofit would be \$4.00 per square foot, the unit retrofit would cost approximately \$8,688.

A tax credit from the County would be approximately \$1,138. A 20 percent fire insurance discount could be expected.

If this unit would be considered typical for Montgomery County, the retrofit installation for every 100,000 unsprinklered units would be approximately \$868 million and the tax credit would be approximately \$113.8 million.

Financial Incentives for the retroactive installation of approved fire sprinkler systems

There are at least seven ways the retroactive installation of fire sprinkler systems may put money back in the pocket of a building or dwelling owner: Insurance savings, income tax deductions, property tax deductions, life safety code compliance, federal legislation, liability avoidance, and no business interruption.

Insurance Savings

The following list reflects insurance premium savings for fire sprinkler systems in buildings offered by prominent insurance providers:

State Farm www.statefarm.com	5-10 percent off premium
Chubb www.chubb.com	10 percent "credit"
Liberty Mutual www.libertymutual.com	8-16 percent average off total premium

Fireman's Fund www.firemansfund.com	30 percent off base price of premium when central alarm included. 5-8 percent if bathrooms, attics and closets not protected.
Met Life www.metlife.com	5-15 percent applied to entire owner occupied policy
The Hartford www.thehartford.com	8-13 percent depending on protection

One example of insurance savings offsetting retroactive installation of fire sprinklers is in Dolphin Cove Condominium for senior citizens in Florida. The high-rise building is of masonry non-combustible construction. The project involved rehabilitation following a triple fatality fire and asbestos abatement.

Considering the financial impact of the fixed income senior citizens a compliance deadline of 12 years was determined. Saving \$25.00 per month through an insurance discount for the installation of a fire sprinkler system resulted in a \$3,600 savings over 12 years, not counting interest.

Insurance Services Office Residential High Rise Insurance Rates Per \$100 Insured			
Construction	Not Sprinklered	Sprinklered	Difference
<i>Masonry Non-Combustible</i>			
Building	\$0.46	\$0.22	\$0.24
Contents	\$0.60	\$0.31	\$0.29
Source: Florida Fire Marshals and Inspectors Association			

If the value of this 1,200 sq.ft. masonry non-combustible condominium is \$100,000 (less than \$85.00 per square foot replacement cost) and the contents are valued at \$40,000, that portion of the property insurance *loss cost* is determined at \$0.46 for the building and \$0.60 for the contents per \$100 insured. If the building is not protected throughout with a fire sprinkler system, the *loss cost* for the building is \$460.00 and for the contents \$240.00, or \$700.00 per year. This figure is the expected break-even point and the insurance provider adds overhead, administrative and profit to these numbers. The typical insurance company practice is to double the *loss cost* numbers.

By adding an approved fire sprinkler system the insurance costs for this condominium unit will be \$220.00 for the building and \$124.00 for the contents for a total of \$344.00. The *loss cost* annual savings as projected by the Insurance Services Office is \$700-\$344=\$356 or \$30.00 per month reduced insurance cost.

The actual retro installation cost example for the Dolphin Cove Condominium for a fire sprinkler system, a complete fire detection/alarm system, repair of structural damage and asbestos abatement resulted in a cost of \$3.44 per square foot or approximately \$3,500 per unit. After a

12 year financing arrangement each unit was assessed \$50.00 per month. After deducting the average \$30.00 per unit insurance savings from the \$50.00 per unit installation assessment the net cost per unit was \$20.00 per month.

Income Tax Deductions

Three types of income tax deductions are allowed for installing fire sprinkler systems:

1. A depreciation allowance for the value of the system
2. The interest on the loan
3. Qualified Rehabilitation Tax Credit

The recently submitted Fire Sprinkler Incentive Act of 2007 will amend the 1986 Internal Revenue Code to accelerate the present depreciation schedule for the retrofit of fire sprinklers to five years at 20 percent per year. The current depreciation schedule is now 27.5 years for residential properties. This accelerated depreciation schedule, coupled with insurance reductions, can allow building owners who retrofit their property with fire sprinklers to recover the cost over a much shorter time. Although depreciation deductions involve no outflow of cash, they are fully deductible in arriving at taxable income.

The Qualified Rehabilitation Tax Credit applies to buildings built before 1936. Residential properties must be designated historic structures. When the building undergoes a major renovation the owner receives a twenty percent tax credit the first year the building is back in service.

Property Tax Deductions

Montgomery County residents are eligible for a one-time tax credit of up to 50 percent of the County property tax on dwellings. This tax credit is for the installation of a fire sprinkler system on any detached single family or attached dwelling unit or units in multi-family buildings.

Owners must apply for the tax credit in the year in which the sprinkler system is installed, show that the sprinkler system complies with applicable codes and standards and provide the actual cost of installation in the dwelling unit for which the tax credit is to be applied.

Life Safety Code Compliance

NFPA 101, Life Safety Code, requires all high-rise apartments, hotels and office buildings to be fully sprinklered or have an engineered life safety system. An engineered safety system is a combination of standpipes, detectors, smoke control, exits, compartmentation, and partial sprinkler protection. While this may be perceived as less expensive, fire sprinklers eventually pay for themselves while engineered safety systems do not.

Federal Legislation

The Americans with Disabilities Act, among its many complex requirements, requires an “area of refuge” for disabled people to go to in case of fire. There must be such an area on every floor

of every new and existing building large enough to hold two wheelchairs and separated from the rest of the floor by a two-hour assembly. This area must also be adjacent to an exit and/or stairwell. This area of refuge does not have to be installed in a fully sprinklered building. When sprinklered the whole building is an area of refuge

Liability Avoidance

Recent court decisions involving large life loss fires have determined that even though codes did not require fire sprinkler systems when the building was built, widespread use of these systems along with requirements for new buildings to have them has led to the public expecting fire sprinklers as a “reasonable level of care.” These court decisions have required building owners to pay out more than they would have had fire sprinkler systems been installed.

Interruption/Displacement Prevention

No one plans on losing parts or all of a building to fire. Fire in an unsprinklered building will shut down major portions, if not the whole building. Loss in revenue to the owner occupant takes many forms depending upon the occupancy type not to mention casualty and life loss. Owners may no longer receive rents or payments; health care facilities can no longer serve their constituents.

Senior citizen displacement in the event of a fire in their residence, whether a family home, any form of independent living, assisted living or a nursing home can be prevented with the installation of approved fire sprinkler systems. With affordable housing at a premium, loss of “senior properties” and “naturally occurring retirement complexes” further exacerbates senior housing challenges for the individual and his or her family.

Fire sprinklers limit a fire and fire damage to a small area. After a fire, structures can quickly be reoccupied with the loss of revenue minimized.

Asbestos Abatement Considerations

The consideration to retroactively install fire sprinkler system raised the consideration of asbestos abatement. Asbestos was a primary type of “fireproofing” material used to protect structural steel during the 1960s and early 1970s. It is no longer in use due to the discovery that asbestos fibers, when inhaled, can cause lung cancer.

Building owners have two basic asbestos abatement options to be in compliance with federal regulations:

1. Properly remove and dispose of the asbestos
2. Seal up the areas where asbestos is present to keep people from coming in contact with it.

At a minimum, building owners with asbestos in their buildings have three options when retroactively installing fire sprinkler systems. From least to most expensive, they are:

1. Use sidewall sprinkler heads, soffits and wall cavities where there is no asbestos, to install the system.
2. Use the procedure developed by the GSA to only remove the small piece of asbestos where the hanger for the sprinkler system needs to go. The size of the asbestos that needs to be removed is about the size of a half-dollar.
3. Remove all of the asbestos.

Appendix B. Senior Housing and Care Facility Definitions

Independent Living Facilities

Among the many senior-housing options available, independent living provides the greatest versatility and freedom. Independent living for seniors refers to residence in a compact, easy-to-maintain, private apartment or house within a community of seniors. Any housing arrangement designed exclusively for seniors may be classified as an independent living community.

Montgomery County continues to experience a naturally occurring retirement community (NORC) phenomenon where senior citizens aging in place evolve into a community where the majority of the residents are age 65 or older.

Congregate Housing Facilities

These facilities are offered in senior citizen apartment buildings which serve low and moderate income residents and may be operated by local housing authorities, non-profit organizations, or housing management companies. Eligible residents are those who are at least 62 years of age and in need of assistance in one or more activities of daily living. They may still wish to live in a private senior apartment but welcome being free of the responsibilities of grocery shopping, meal preparation and housework. They are capable of getting to the communal dining area independently. As the average age of residents in retirement homes or congregate housing has increased, these facilities have evolved to offer more and more services to the frail and needy seniors preventing the need to go to a nursing home.

Assisted Living Facilities

A residential facility based program that provides housing and supportive services, supervision, personalized assistance, health-related services, or a combination of these services to meet the needs of residents who are unable to perform, or who need assistance in performing the activities of daily living or instrumental activities of daily living, in a way that promotes dignity and independence for the residents.

Nursing Home Facilities (Skilled Nursing Facility)

The facilities have registered nurses who help provide 24-hour care to people who can no longer care for themselves due to physical, emotional, or mental conditions. A licensed physician supervises each patient's care and a nurse or other medical care professional is almost always on the premises. Most nursing homes have two basic types of services: skilled medical care and custodial care.

Group Home

A residence that houses three to 16 unrelated persons receiving group residential care, but not more than the number of persons allowed under a license issued by a state agency.

Group residential care means the provision of shelter, board, facilities, and resources for daily living, personal guidance, direction and supportive care and services in a residential environment. Supportive care includes up to 24-hour supervision, three meals per day,

housekeeping services, medication supervision and assistance with personal care or activities of daily living.

Appendix C. Benchmarking Comparison Tables

The following tables reflect senior citizen fire fatality and fire casualty (injury) data collected by the National Fire Incident Reporting System (NFRIS) from Montgomery County, MD, Fairfax County, VA, Baltimore County, MD and Jefferson County, KY. These jurisdictions were selected for data comparison based on similar demographic, financial and population characteristics.

All tables compare senior citizens age 65 and older for the period of calendar years 1997 through 2006.

Table 1–Page 62 Fire Fatalities and Fire Casualties

Table 2–Page 62 Fire Fatalities by Montgomery County Response Districts

Table 3–Page 63 Fire Fatalities by Gender

Table 4–Page 63 Fire Casualties by Gender

Table 5–Page 64 Fire Fatalities by Age

Table 6–Page 64 Fire Casualties by Age

Table 7–Page 65 Fire Fatalities by Day of Week

Table 8–Page 65 Fire Casualties by Day of Week

Table 9–Page 66 Fire Fatalities by Month

Table 10–Page 66 Fire Casualties by Month

Table 11–Page 67 Fire Fatalities by Hour of Day

Table 12–Page 67 Fire Casualties by Hour of Day

Table 13–Page 68 Fire Fatalities by Property Type

Table 14–Page 68 Fire Casualties by Property Type

Table 15–Page 69 Fire Fatalities by Area of Origin

Table 16–Page 69 Fire Casualties by Area of Origin

Lieutenant Michael Adams, MCFRS, designed tables

Table 1

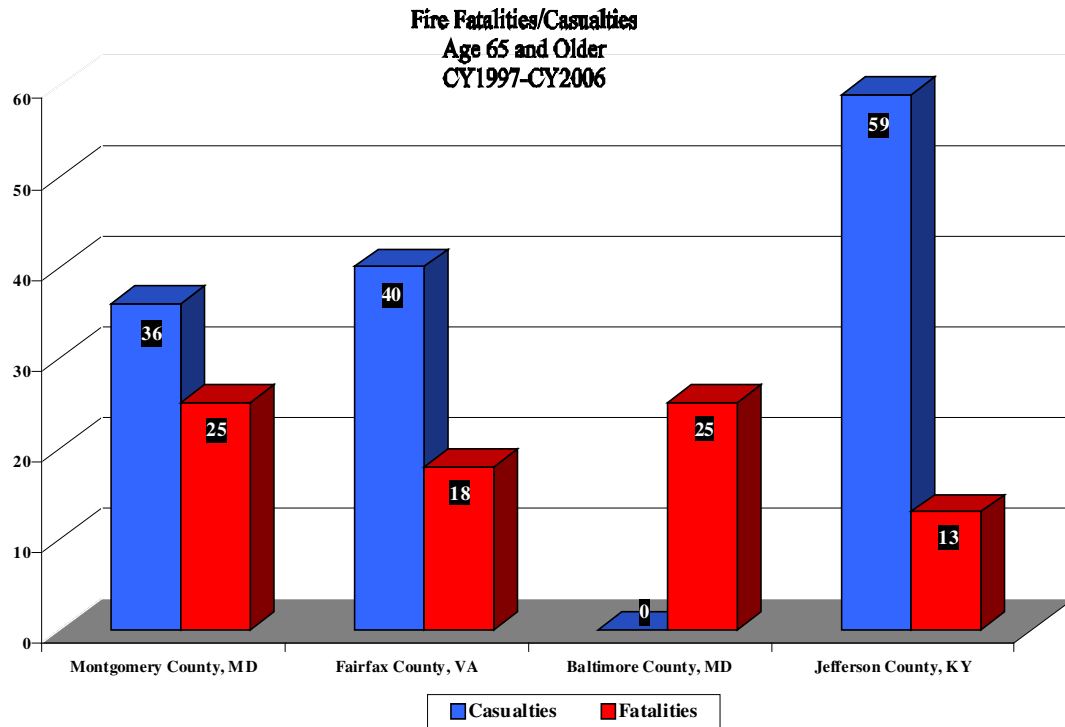


Table 2

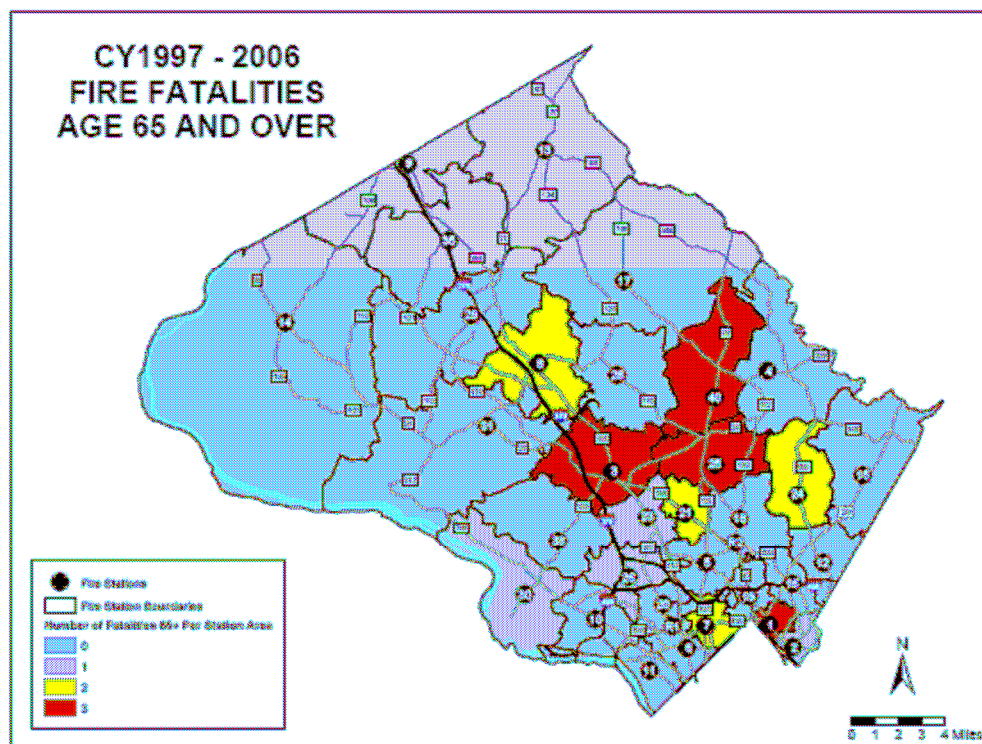


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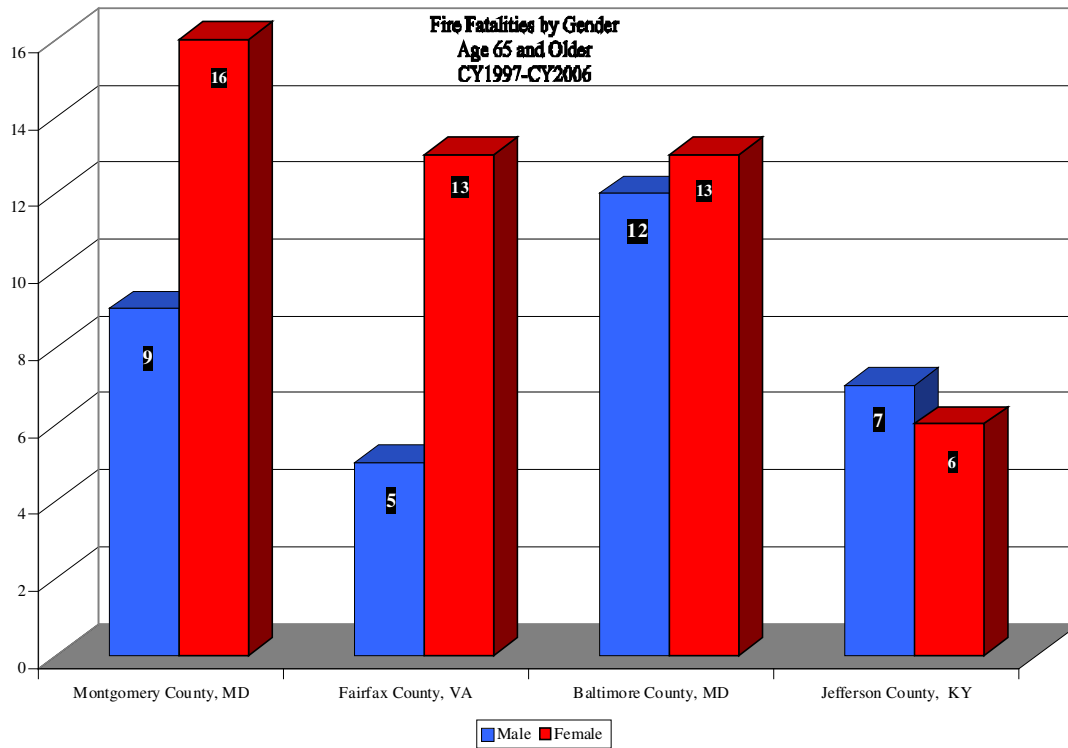


Table 4

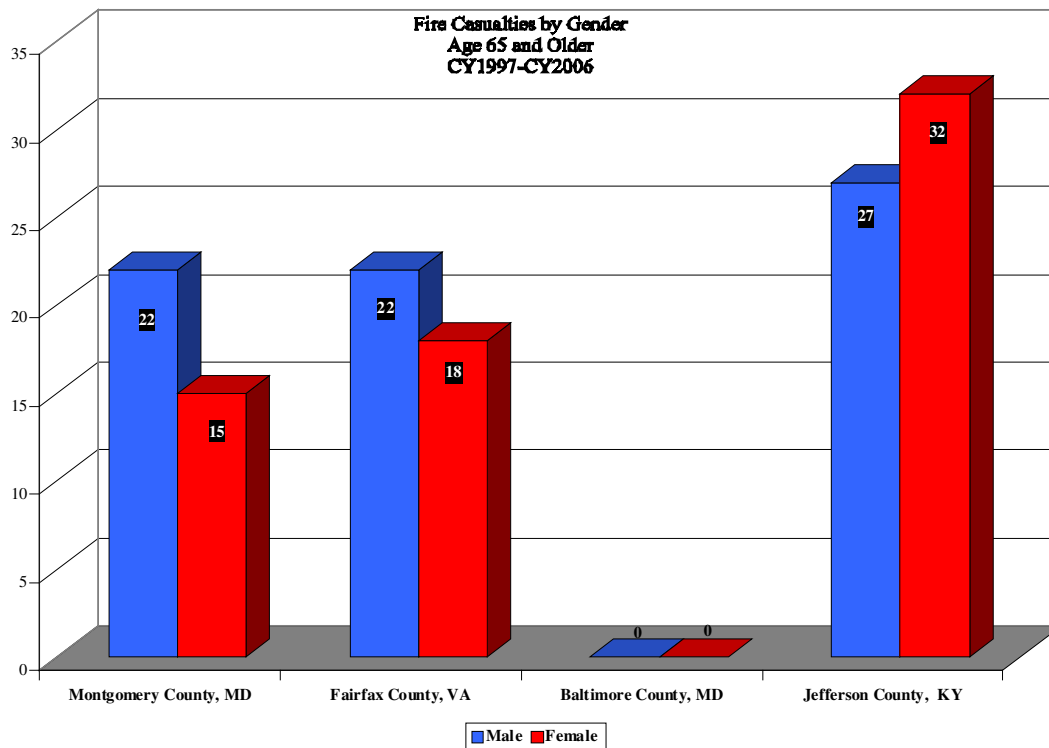


Table 5
Fire Fatalities by Age
Age 65 and Older
CY1997-CY2006

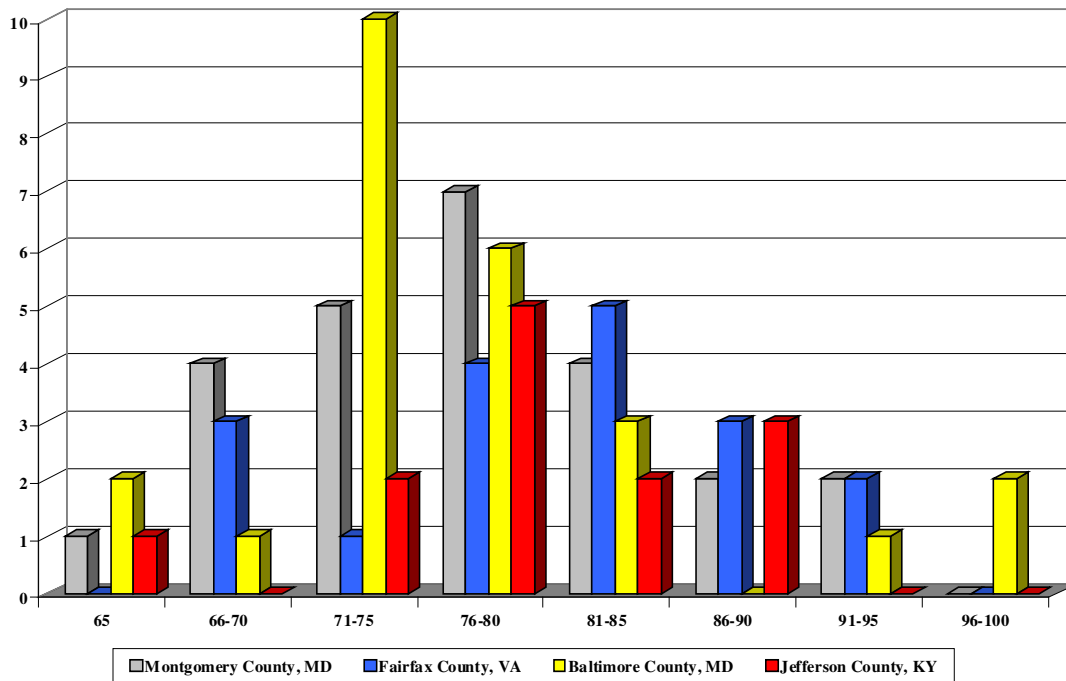


Table 6

Fire Casualties by Age
Age 65 and Older
CY1997-CY2006

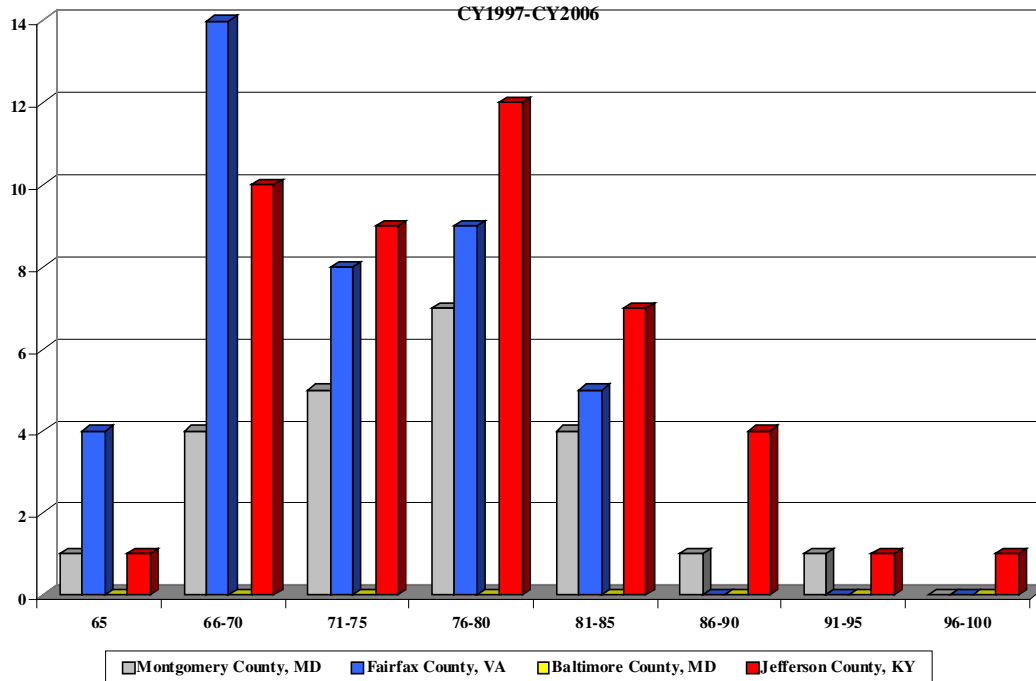


Table 7

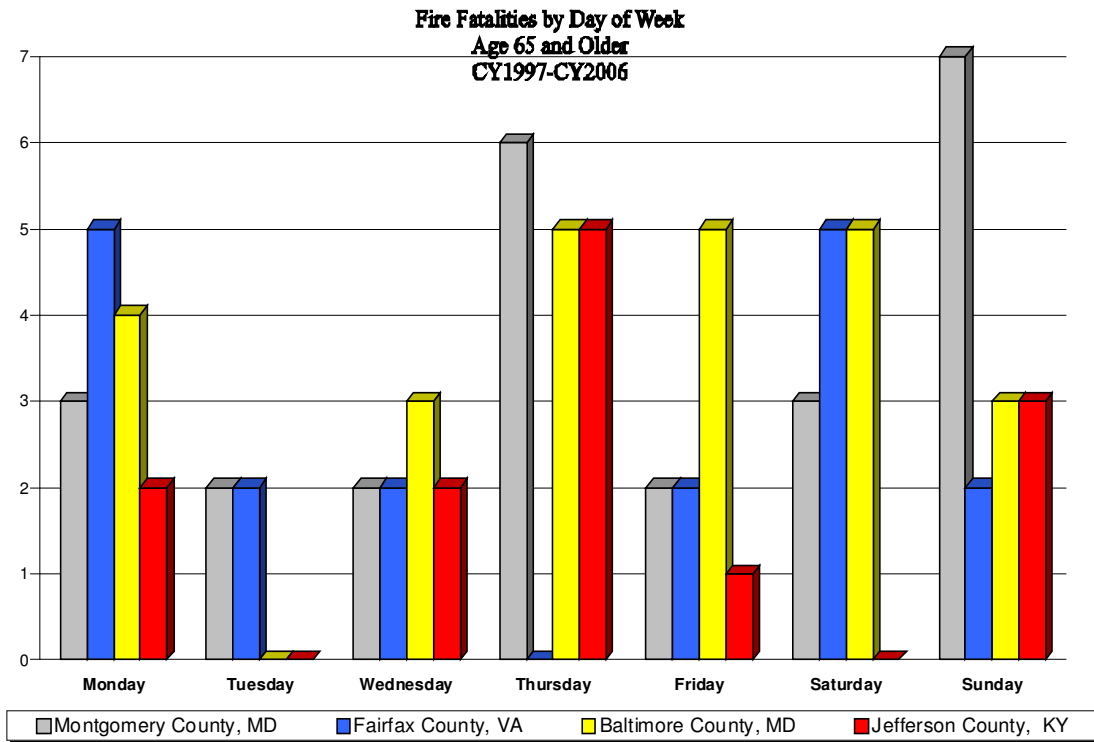


Table 8

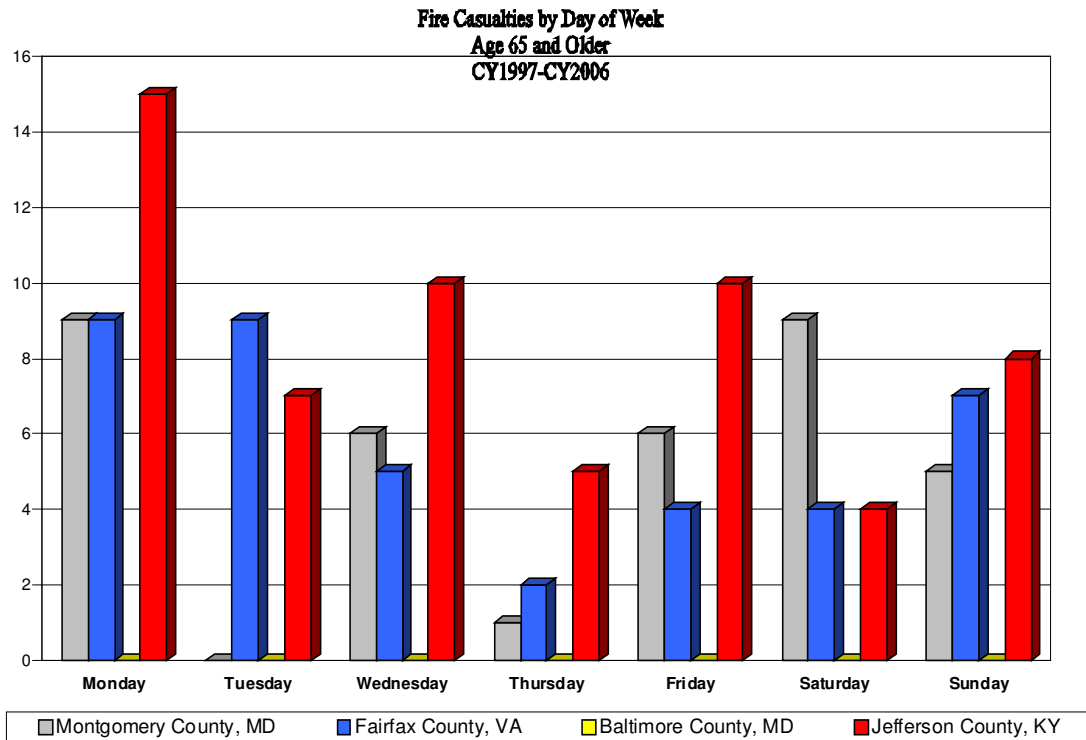


Table 9

**Fire Fatalities by Month
Age 65 and Older
CY1997-CY2006**

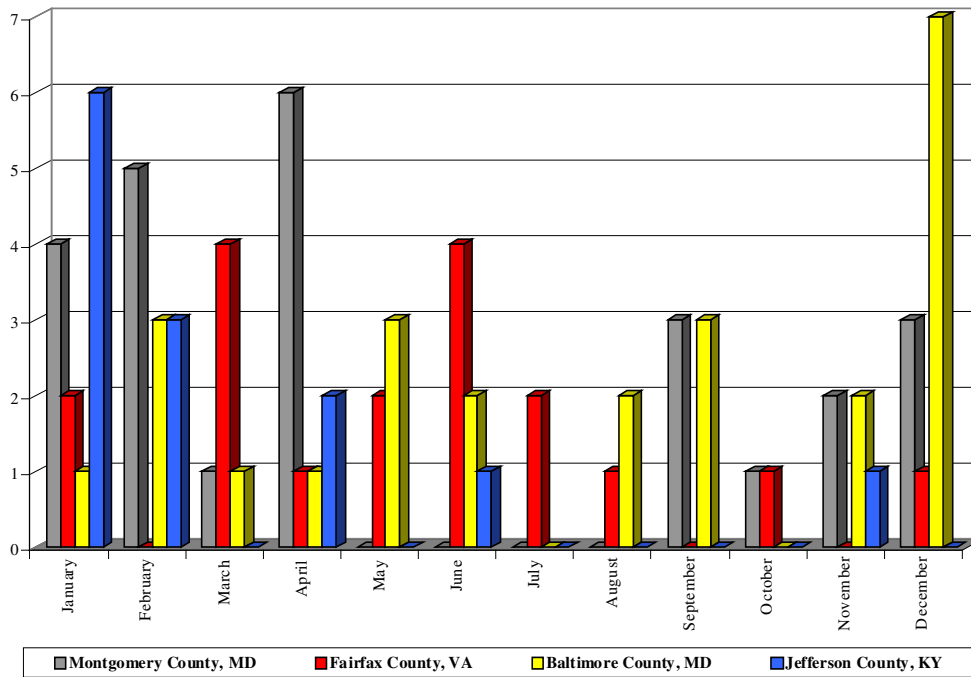


Table 10

**Fire Casualties by Month
Age 65 and Older
CY1997-CY2006**

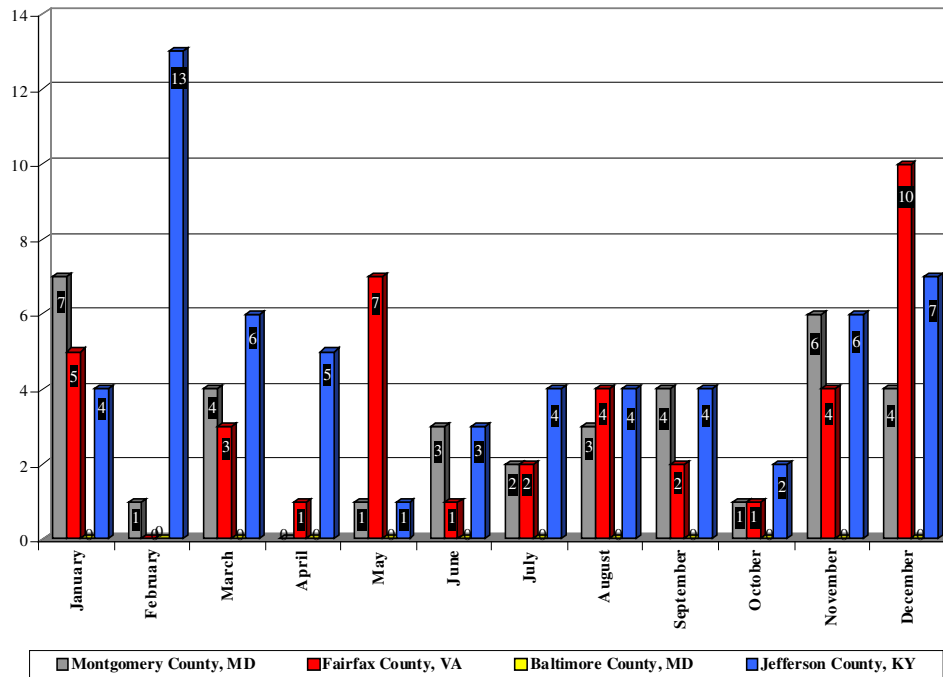


Table 11

**Fire Fatalities by Hour of Day
Age 65 and Older
CY1997-CY2006**

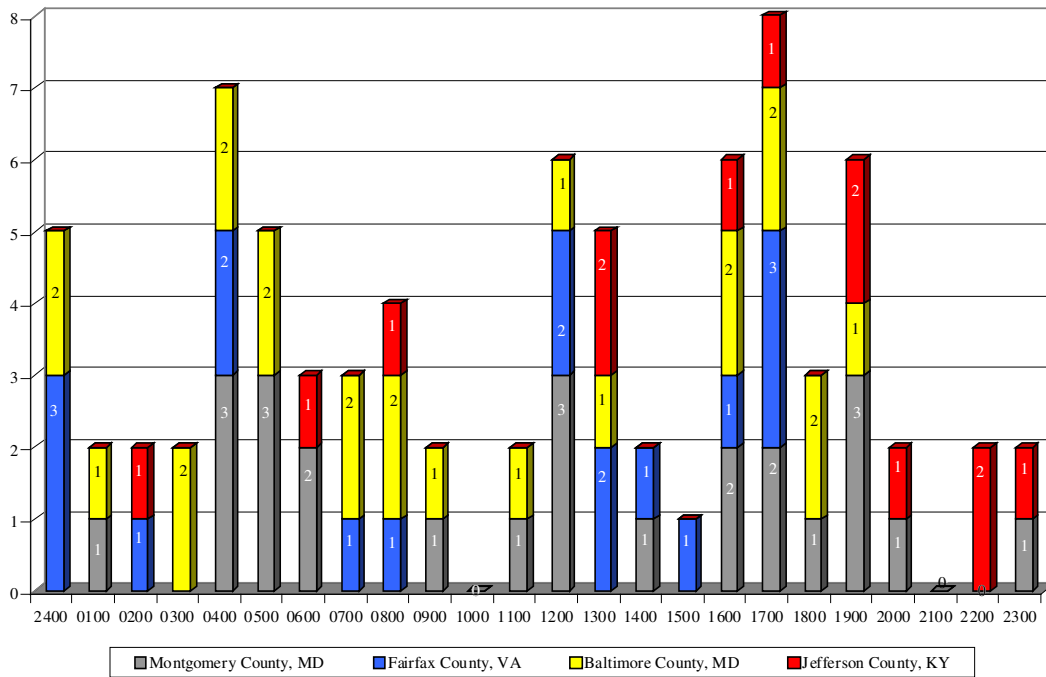


Table 12

**Fire Casualties by Hour of Day
Age 65 and Older
CY1997-CY2006**

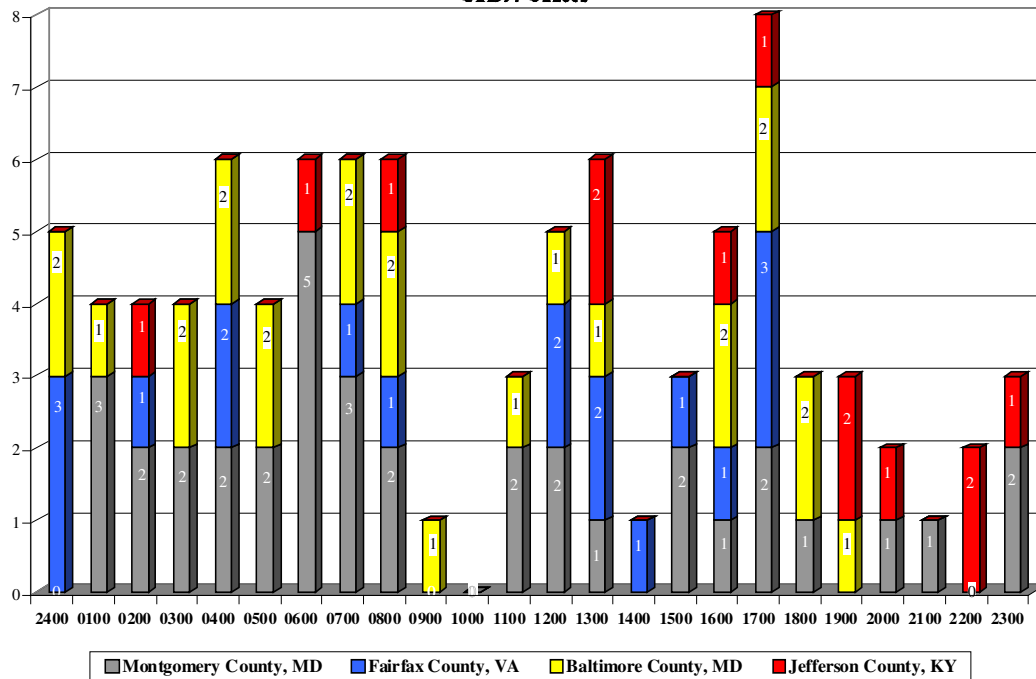


Table 13

**Fire Fatalities by Property Type
Age 65 and Older
CY1997-CY2006**

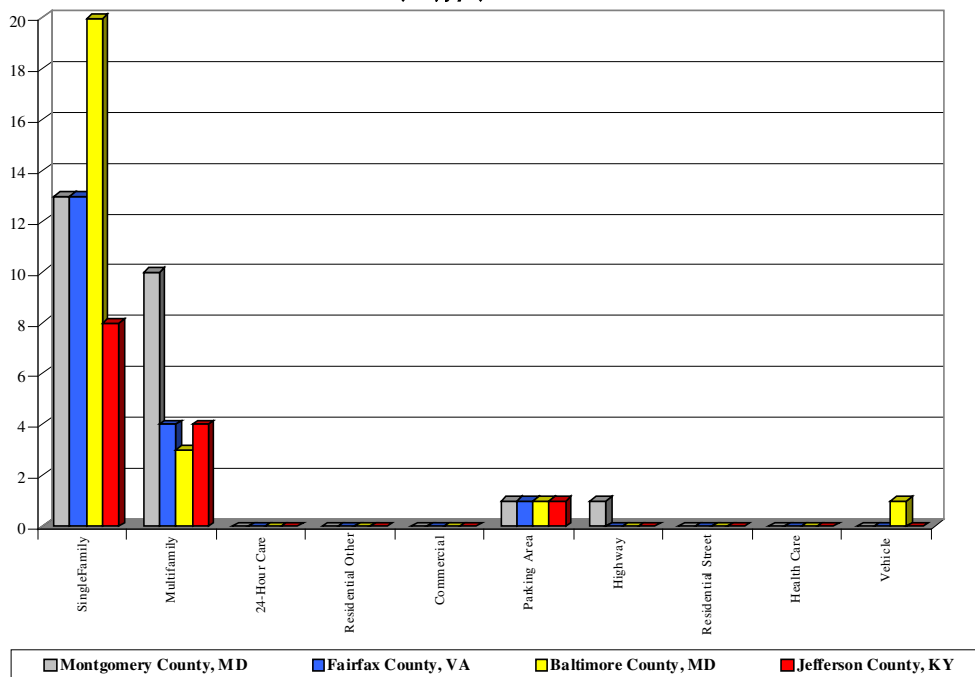


Table 14

**Fire Casualties by Property Type
Age 65 and Older
CY1997-CY2006**

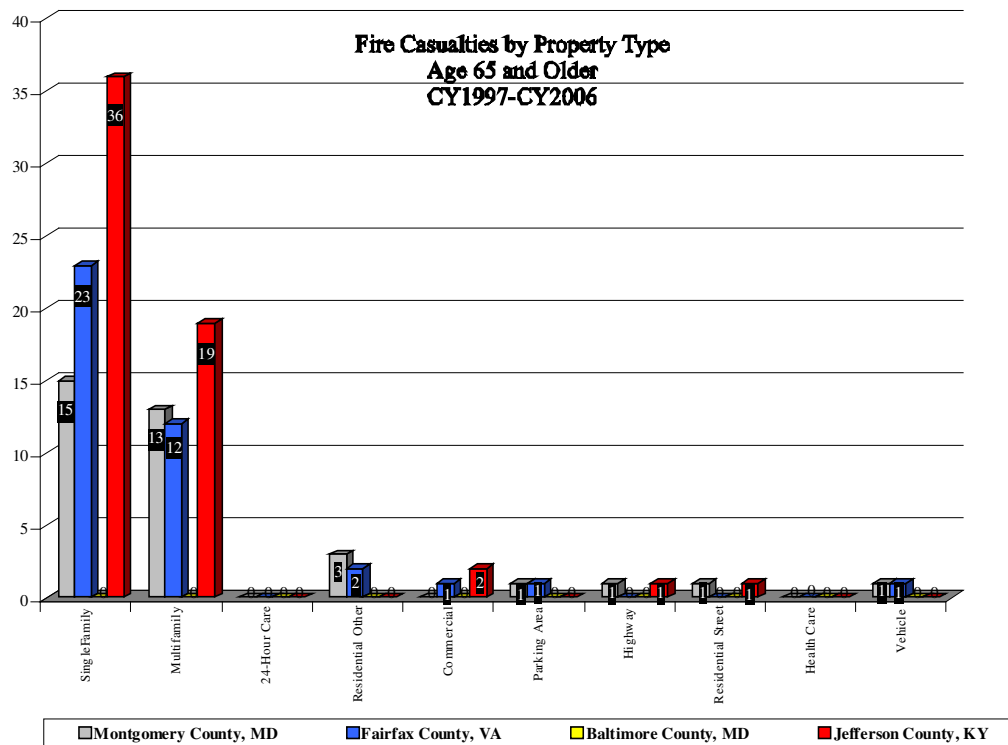


Table 15

**Fire Fatalities by Area of Origin
Age 65 and Older
CY1997-CY2006**

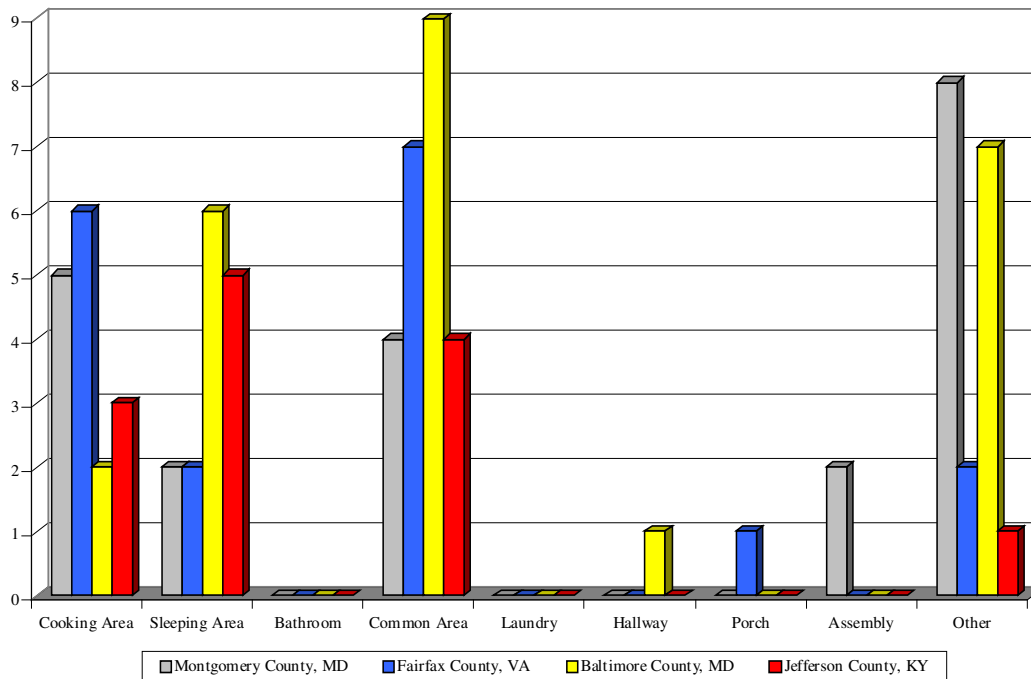
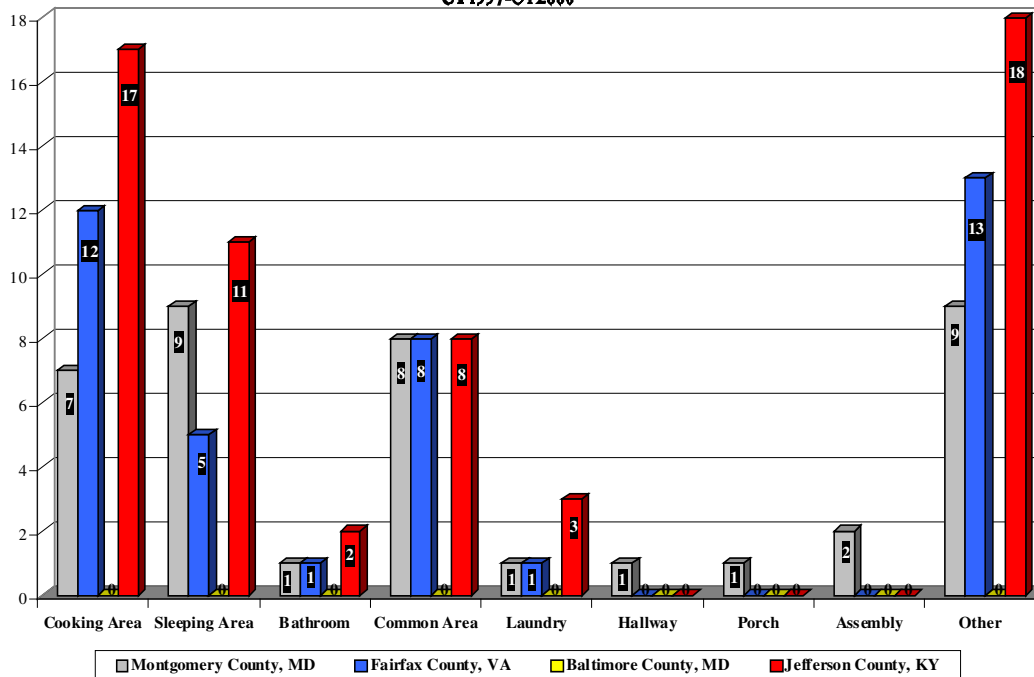


Table 16

**Fire Casualties by Area of Origin
Age 65 and Older
CY1997-CY2006**



Appendix D-National Fire Protection Association Uniform Fire Code (NFPA 1)
Section 13.3.2.24

High Rise Buildings.

13.3.2.24.1 New high-rise buildings shall be protected throughout by an approved automatic sprinkler system in accordance with Section 13.3. (Automatic Sprinklers).

13.3.2.24.2 Existing high-rise buildings shall be protected throughout by an approved automatic sprinkler system in accordance with this chapter.

13.3.2.24.2.1 Each building owner shall, within 180 days of receiving notice, file an intent to comply with this regulation with the AHJ for approval.

13.3.2.24.2.2 The AHJ shall review and respond to the intent to comply submittal within 60 days of receipt.

13.3.2.24.2.3 The entire building shall be required to be protected by an approved automatic sprinkler system within 12 years of adoption of this Code.