

# AIKEN COUNTY NATURAL HAZARD MITIGATION PLAN

Prepared by the Lower Savannah Council of Governments on  
behalf of Aiken County



## Table of Contents

<b>Part One: Introduction and Process.....</b>	<b>1</b>
1.1 Introduction: Natural Hazard Mitigation Plan	2
1.2 Area Background	4
1.3 Purpose	7
1.4 The Planning Process	9
1.5 Planning Process Documentation	12
1.6 Participants Involved in the Planning Process	15
1.7 Public Participation	17
<b>Part Two: Risk Assessment.....</b>	<b>18</b>
2.1 Types of Risks	19
2.2 Overall Risk Probability and Frequency	65
2.3 Overall Vulnerability Assessment	66
2.4 Community Mitigation Capability Assessment	73
<b>Part Three: Mitigation Strategy.....</b>	<b>77</b>
3.1 Mitigation Strategy	78
3.2 Aiken County Goals and Objectives	81
3.3 Aiken County Mitigation Actions	83
3.4 City of Aiken Goals and Objectives	87
3.5 City of Aiken Mitigation Actions	89
3.6 Town of Burnetttown Goals and Objectives	92
3.7 Town of Burnetttown Mitigation Actions	94
3.8 Town of Jackson Goals and Objectives	97
3.9 Town of Jackson Mitigation Actions	99
3.10 Town of Monetta Goals and Objectives	102
3.11 Town of Monetta Mitigation Actions	103
3.12 Town of New Ellenton Goals and Objectives	107

3.13 Town of New Ellenton Mitigation Actions	109
3.14 City of North Augusta Goals and Objectives	112
3.15 City of North Augusta Mitigation Actions	114
3.16 Town of Perry Goals and Objectives	117
3.17 Town of Perry Mitigation Actions	119
3.18 Town of Salley Goals and Objectives	122
3.19 Town of Salley Mitigation Actions	124
3.20 Town of Wagener Goals and Objectives	127
3.21 Town of Wagener Mitigation Actions	129
3.22 Town of Windsor Goals and Objectives	132
3.23 Town of Windsor Mitigation Actions	134
<b>Part Four: Plan Maintenance.....</b>	<b>137</b>
4.1 Plan Maintenance and Update	138
<b>Part Five: Plan Adoption .....</b>	<b>143</b>
5.1 Overview	144
5.2 Adoption Resolution	145
5.3 SCEMD Approval Letter	146
5.4 FEMA Approval Letter	147
<b>Part Six: Appendices.....</b>	<b>148</b>
Appendix A Acronym List	149
Appendix B Glossary	150
Appendix C Meeting, Notices, Sign-in Sheets	156
Appendix D Hazard Mitigation Crosswalk Review	172
Appendix E Hazard Maps	200

## LIST OF MAPS

Map 1: Location Map	5
Map 2: Critical Facilities Map	6

Map 3: Tornado Map	26
Map 4: Hurricane/Tropical Storm Map	34
Map 5: Earthquake Map	50
Map 6: Flood Map	57

## **LIST OF FIGURES**


Figure 1: Phases of Emergency Management	3
Figure 2: Area Demographic Background	4
Figure 3: Existing Plans/Studies/Guides	10
Figure 4: Risk Assessment Process	20
Figure 5: Jurisdictions Affected by Hazard Type	22
Figure 6: F-Scale and EF-Scale	24
Figure 7: Beaufort Wind Scale	25
Figure 8: Historic Occurrences of Tornadoes in Aiken County	27
Figure 9: Tornado Probability for Aiken County	30
Figure 10: Saffir-Simpson Hurricane Scale	33
Figure 11: Hurricane Probability for Aiken County	35
Figure 12: Tropical Storm Probability for Aiken County	35
Figure 13: Hailstone Size to Object Comparison	38
Figure 14: Historic Occurrences of Hailstorms in Aiken County	39
Figure 15: Hailstorm Probability for Aiken County	40
Figure 16: Drought Status for Aiken County	43
Figure 17: Drought Impacts	44
Figure 18: Drought Probability for Aiken County	44
Figure 19: Magnitude and Intensity Comparison	47
Figure 20: MMI Scale	47
Figure 21: Historic Occurrences of Earthquakes in Aiken County	49
Figure 22: Earthquake Probability for Aiken County	51



Figure 23: Aiken County Wildfire Averages	53
Figure 24: Wildfire Probability for Aiken County	54
Figure 25: NWS Flood Categories	56
Figure 26: Historic Occurrences of Flooding in Aiken County	57
Figure 27: Flood Probability for Aiken County	59
Figure 28: Historic Occurrences of Winter Storms in Aiken County	63
Figure 29: Winter Storm Probability for Aiken County	64
Figure 30: All Hazards Probability for Aiken County	65
Figure 31: Aiken County Hazard Identification and Analysis Worksheet	68
Figure 32: Incorporated Jurisdictions Hazard Identification and Analysis Worksheet	69
Figure 33: Aiken County Hazard Mitigation Goals and Objectives	81
Figure 34: Aiken County Hazard Mitigation Actions	85
Figure 35: City of Aiken Hazard Mitigation Goals and Objectives	87
Figure 36: City of Aiken Hazard Mitigation Actions	91
Figure 37: Town of Burnettown Hazard Mitigation Goals and Objectives	92
Figure 38: Town of Burnettown Hazard Mitigation Actions	96
Figure 39: Town of Jackson Hazard Mitigation Goals and Objectives	97
Figure 40: Town of Jackson Hazard Mitigation Actions	101
Figure 41: Town of Monetta Hazard Mitigation Goals and Objectives	102
Figure 42: Town of Monetta Hazard Mitigation Actions	106
Figure 43: Town of New Ellenton Hazard Mitigation Goals and Objectives	107
Figure 44: Town of New Ellenton Hazard Mitigation Actions	111
Figure 45: City of North Augusta Hazard Mitigation Goals and Objectives	112
Figure 46: City of North Augusta Hazard Mitigation Actions	115
Figure 47: Town of Perry Hazard Mitigation Goals and Objectives	117
Figure 48: Town of Perry Hazard Mitigation Actions	121
Figure 49: Town of Salley Hazard Mitigation Goals and Objectives	122
Figure 50: Town of Salley Hazard Mitigation Actions	126

4/11/2011

Figure 51: Town of Wagener Hazard Mitigation Goals and Objectives	127
Figure 52: Town of Wagener Hazard Mitigation Actions	131
Figure 53: Town of Windsor Hazard Mitigation Goals and Objectives	132
Figure 54: Town of Windsor Hazard Mitigation Actions	136
Figure 55: Plan Update Schedule	140



# **Part One:**

## **Introduction and Process**

## **1.1 Introduction: Natural Hazard Mitigation Plan**

*After review by the Task Force Committee, this section of the plan has remained the same for the update process.*

The Natural Hazard Mitigation Plan is required by the Federal Emergency Management Agency (FEMA) for all counties in the State of South Carolina. The initiation of hazard planning by local governments came into effect after the signing of the Disaster Mitigation Act of 2000 (DMA 2000). This document is the Natural Hazard Mitigation Plan for Aiken County and its incorporated municipalities.

Following the passage of the DMA 200, states and local governments are now required to develop and adopt a hazard mitigation plan in order to remain eligible for FEMA mitigation grant funding. Communities with an adopted plan will become “pre-positioned” and potentially more apt to receive available mitigation funds.

Natural hazards, including floods, hurricanes, earthquakes and severe winter storms, are a part of the world around us. Their occurrence is natural and inevitable, and there is little we can do to control their force and intensity. Aiken County faces a variety of these hazards, each of which is discussed in Part Two: Risk Assessment.

Through the adoption of hazard mitigation planning practices, we can minimize the impact of hazards on people and the built environment. The Aiken County Natural Hazard Mitigation Plan is designed to be a logical, information-driven plan that systematically identifies and guides the implementation of mitigation actions, including policies or site-specific projects designed to make Aiken County and its incorporated municipalities safer from the threat of natural hazards.

Hazard mitigation involves the use of specific measures to reduce the impact of hazards on people and the built environment. Measures may include both structural and non-structural techniques, such as protecting buildings and infrastructure from the forces of nature or wise floodplain management practices. Actions may be taken to protect both existing and/or future development. It is widely accepted that the most effective mitigation measures are implemented before an event at the local government level, where decisions on the regulation and control of development are ultimately made.

Hazard mitigation planning is the first of the four “phases of emergency management,” followed by preparedness, response, and recovery. This prevention-related concept of emergency management often gets the least attention, yet it is one of the most important steps in creating a disaster-resistant community.



**Figure 1: Phases of Emergency Management**

## 1.2 Area Background

*After review by the Task Force Committee, this section has been revised as part of the update process to include 2008 population estimates and median household incomes for the County and its incorporated municipalities.*

Aiken County is located midway between the mountains and the coast and is bordered by the Savannah River on the west, Edgefield and Saluda Counties on the north, Barnwell and Orangeburg Counties on the southeast and by Lexington County on the east. Aiken County consists of 704,000 acres, of which 73,000 acres are part of the U. S. Department of Energy's Savannah River Site. Estimates from the US Census for 2008 counted 154,189 persons living in the County. Projections for 2013 show an estimate of 161,546 persons. Aiken is the fourth largest South Carolina County by land area, with a size of 1,073 square miles. Aiken County experiences a mild climate with an average winter temperature of 48°F, and an average summer temperature of 90°F with an average relative humidity of 50%. The annual precipitation averages 52.43 inches with the majority falling between April and September. Average seasonal snowfall is 2 inches. (*South Carolina State Climatology Office*).

Aiken County contains 10 incorporated municipalities: Aiken, Burnetttown, Jackson, Monetta, New Ellenton, North Augusta, Perry, Salley, Wagener, and Windsor. The City of Aiken (County Seat) and North Augusta are the two largest municipalities in the County. The remaining eight municipalities are primarily small, rural communities

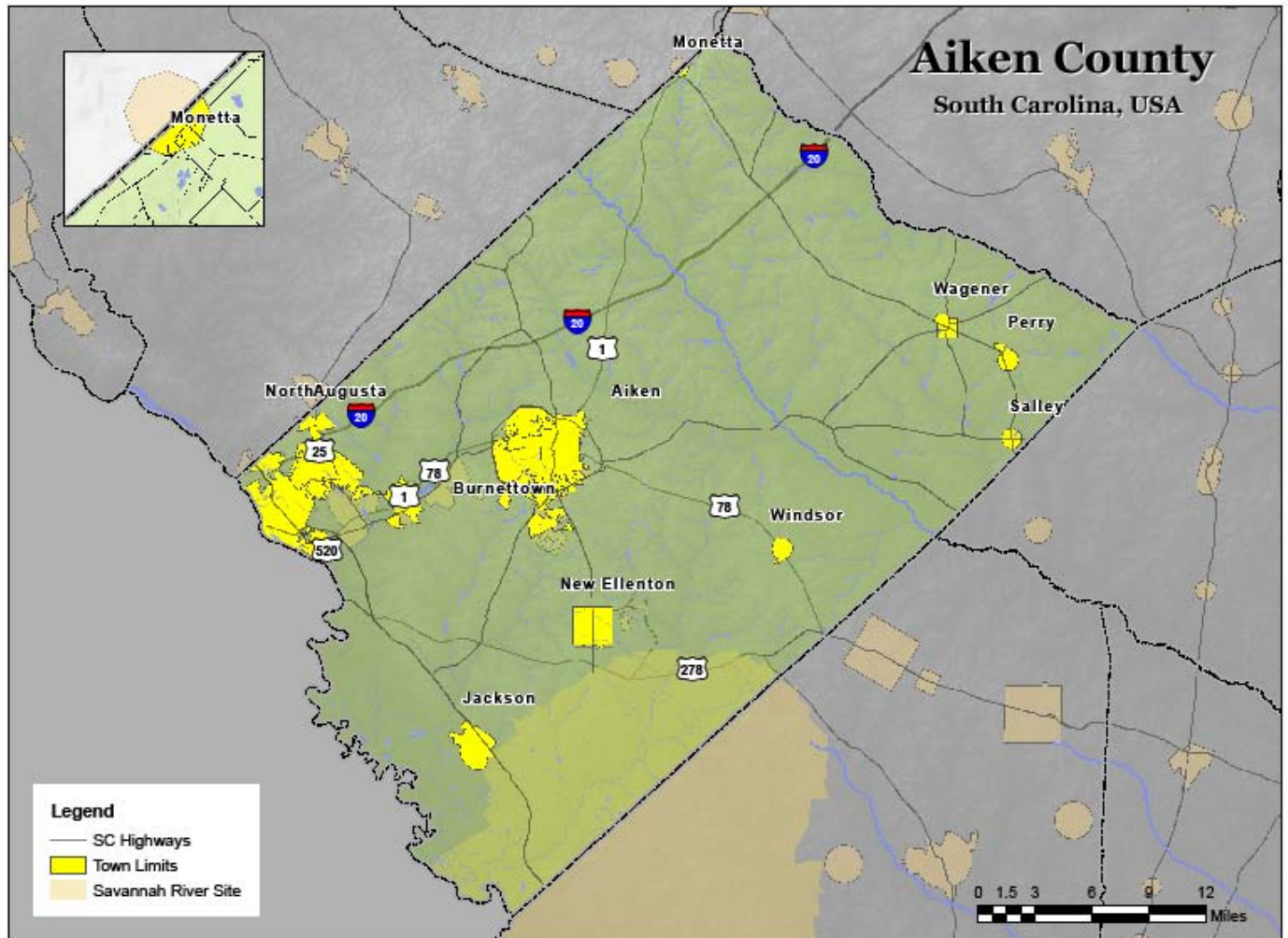
Figure 2 below illustrates the area demographic background of Aiken County and its incorporated municipalities.

Figure 2. Area Demographic Background		
	2008 Population	2008 Median Household Income
<b>Aiken County</b>	154,189	\$44,122
City of Aiken	27,715	\$51,014
Town of Burnetttown	2,491	\$36,941
Town of Jackson	1,526	\$39,138
Town of Monetta	190	\$37,727
Town of New Ellenton	2,119	\$43,565
City of North Augusta	19,749	\$47,234
Town of Perry	258	\$30,417
Town of Salley	345	\$36,875
Town of Wagener	830	\$28,525
Town of Windsor	163	\$34,615
Source: US Census Bureau/Pcensus		

4/11/2011

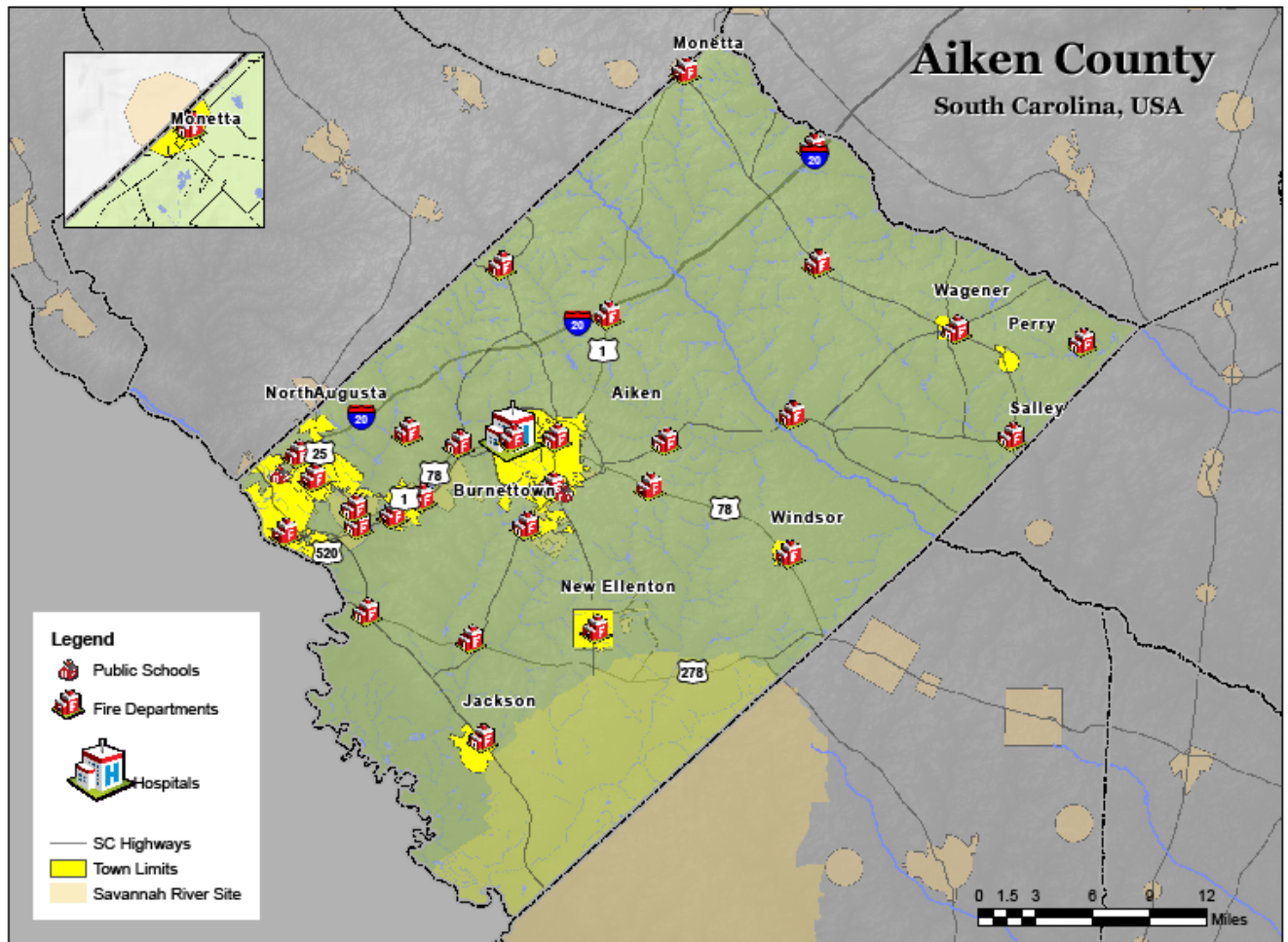
The following map reveals the area of Aiken County, which is the focus of this plan.

**Map 1: Location Map**



The following map includes critical facilities within Aiken County.

**Map 2: Critical Facilities Map**





## 1.3 Purpose

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*After review by the Task Force Committee, this section of the plan remained unchanged as part of the update process.*

This plan is designed to be both strategic as well as comprehensive in nature, providing a long-term vision of how the county will address hazards over time. The concept of multi-objective planning is emphasized throughout this document, identifying ways to link hazard mitigation policies and programs with complimentary goals of the county related to housing, economic development, recreational opportunities, transportation improvements, environmental quality, and public health and safety.

Mitigation planning offers many benefits, including:

- Saving lives and property;
- Saving money;
- Speeding recovery following disasters;
- Reducing future vulnerability through wise development and post-disaster recovery and reconstruction;
- Expediting the receipt of pre-disaster and post-disaster grant funding; and
- Demonstrating a firm commitment to improving community health and safety.

More importantly, mitigation planning has the potential to produce long-term benefits by breaking the repetitive cycle of disaster damages, injuries and loss of life. A core assumption of hazard mitigation is that a pre-disaster investment can significantly reduce the demand for post-disaster assistance. Further, the adoption of mitigation actions enables local residents, businesses and industries to more quickly recover from a disaster, getting the economy back on track sooner and with less interruption.

The benefits of mitigation planning go beyond reducing hazard vulnerability. Measures such as the acquisition or regulation of land in known hazard areas can help achieve multiple community goals, such as preserving open space, maintaining environmental health and enhancing recreational opportunities.

The purpose of this Plan is to:

1. To protect life, safety and property by reducing the potential for future damages and economic losses that result from natural hazards;
2. Meet the requirements of the DMA 2000, and therefore qualify for additional grant funding in the following programs: Hazard Mitigation Grant Program, and Pre-Disaster Mitigation Program;

3. To speed recovery and redevelopment following future disaster events;
4. To demonstrate a firm local commitment to hazard mitigation principles; and
5. To comply with both state and federal legislative requirements for local hazard mitigation plans.

Once adopted, the mitigation plan will help the communities of Aiken County to take greater advantage of State and Federal funding opportunities for eligible hazard mitigation projects. For instance, to qualify for Federal aid for technical assistance and post-disaster funding, local jurisdiction must comply with the Disaster Mitigation Act of 2000 (DMA 2000) and its implementing regulations based on the *Local Multi-Hazard Mitigation Planning Guidance*, published by FEMA in July, 2008. The Aiken County Natural Hazard Mitigation Plan has been prepared to address these hazard mitigation planning requirements. The FEMA Review Criteria in the preface of the document describes each of the major planning requirements and identifies where in the plan document they are addressed.

Another key purpose of the planning process is to ensure that proposals for mitigation actions are reviewed and coordinated among the participating jurisdictions within the County, and supported by technical assistance from appropriated regional, State and Federal agencies. In this way there is a high level of confidence that mitigation actions proposed by one jurisdiction, when implemented, will be compatible with the interests of adjacent jurisdictions and unlikely to duplicate or interfere with mitigation initiatives proposed by others. The last but not the least purpose of the Aiken County Plan is to provide each participating local jurisdiction with a plan of action that can be adopted and implemented pursuant to its own authorities and responsibilities.

## 1.4 The Planning Process

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*After review by the Task Force Committee, the following changes were made to this section as part of the update process:*

### **FEDERAL REQUIREMENTS FOR LOCAL HAZARD MITIGATION PLANS**

**Requirement 201.6(b):** In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information

**Requirement 201.6(c)(1):** The plan **shall** document the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

This plan is designed to provide a blueprint for hazard mitigation activities in the general sense of the program and is structured to serve as a basis for specific hazard mitigation efforts for any disaster. It is recognized, however, that updates may be required to address specific issues arising from a given disaster.

This plan is currently being updated to comply with State and Federal mandates. As a result of the update, new elements will be included as necessary to meet FEMA regulations.

This plan identifies hazards and considers ways to reduce vulnerability to natural hazards in Aiken County. It encompasses a range of life- and property-saving hazard mitigation initiatives in the categories of mitigation coordination, acquisition/relocation/retrofitting, floodplain management, public safety, emergency preparedness, earthquake, tornado, drought, etc. Both short-term and long-term hazard mitigation measures are identified in order to help all state and local agencies allocate resources in a responsible manner in order to provide for the public safety, public health, and general welfare of all the people in Aiken County.

This plan has taken into account the mitigation experience, and a variety of mitigation projects, from other counties near or surrounding Aiken County and the State of South Carolina.

It has taken advantage of the collective mitigation knowledge of many State, Federal, and Local officials, as well as representatives from both the public and private sectors, and is designed as one component to help safeguard the citizens of Aiken County. As such, it should significantly contribute to the mitigation of future disasters.

Aiken County utilized federal and state guidance documents, existing local plans and studies, and data to develop this plan. More specifically, the Aiken County Comprehensive Plan provided demographical statistics that were incorporated into this plan; the Aiken County Land Development Regulations provided specific no-build scenarios in the floodplains and building codes enforcement; and the SC HMP 2007 provided a framework and was used as a guide to updating this plan. Other specific examples include:

Figure 3. Existing Plans/Studies/Guides	
<b>Plans/Studies/Guides</b>	<b>Author</b>
Aiken County Multi-Jurisdictional HMP	Aiken County/LSCOG
Hazard Mitigation Assistance FY 2009 Unified Guidance	FEMA
FY 2008 PDM Program Guidance	FEMA
SC Floodplain Management Quick Guide 2008	SCDNR
Hazard Mitigation Planning	FEMA
Aiken County Comprehensive Plan	Aiken County
Aiken County Zoning Ordinance	Aiken County
Aiken County Land Development Regulations	Aiken County
National Flood Insurance Program	FEMA
SC HMP 2007	SCEMD
SC Emergency Operations Plan	SCEMD

This plan utilized the process required by the Federal Emergency Management Agency to develop the plan. A Hazard Mitigation Planning Crosswalk is found in Appendix D and provides a summary of plan requirements, including where they are located. The hazard mitigation planning process included the following steps, listed in the order in which they were undertaken and will be described in greater detail throughout the plan:

- Step 1: Establish a Core Planning Team (Task Force)
- Step 2: Data collection, Risk Assessment
- Step 3: Hazard Identification
- Step 4: Create Hazard Mitigation Plan
- Step 5: Develop Goals and Mitigation Strategies
- Step 6: Adopt and Implement Plan

The planning process followed in Aiken County was intended to enhance public awareness and understanding about how the community could become safer from the impacts of future disasters. The plan provides a decision tool for management by department staff in local governments, local elected and appointed officials, business and industry, community associations and other key institutions and organizations to take actions to address vulnerabilities to future disasters. It provides proposals for specific projects and programs that are needed to eliminate or minimize the vulnerability of the County. One component of the hazard mitigation planning process was a capability assessment of existing policies, programs and regulations for managing growth and development within the County. The study contractors reviewed relevant County and local government comprehensive plans, zoning ordinances, floodplain regulations, and building codes to gain an understanding as to how current development regulations and practices either hinder or support hazard mitigation initiatives.

This process also involved reviewing current mitigation-related policies of local and county government and comparing them to the hazards that threaten the jurisdiction and the relative risks they pose to the community. This comparison supports and justifies efforts to propose enhancement to policies, programs, and regulations that should be implemented to create a more disaster-resistant future for Aiken County. This process was led by the Aiken County Hazard Mitigation Task Force members and supported by the Lower Savannah Council of Governments staff.

## **1.5 Planning Process Documentation**

*As part of the update process, the Task Force Committee reviewed this section and made the necessary member additions to the committee, participating municipality additions, and meeting dates and times.*

The following is documentation of the various steps of the planning process. The preparation of the plan required a series of meetings and workshops for facilitating discussion and initiating data collection efforts. More importantly, the meetings and workshops prompted continuous input and feedback throughout the planning and update process. Sign-in sheets, letters, agendas, surveys, and news releases are included in the appendix of this document.

### **Aiken County Natural Hazard Mitigation Plan Task Force Committee**

The plan was developed through a Task Force Committee comprised of LSCOG staff, the heads of the county emergency service offices, representatives from the incorporated municipalities, and private entities. The committee helped to guide the creation and development of the plan, and participated in the five-year update process of the plan. These committee members were chosen as a result of their expertise in hazard preparation and planning within their respective county and municipalities.

#### **The Task Force Committee includes:**

Richard Abney	City of Aiken Department of Public Safety
Brian Brazier	City of Aiken Department of Public Safety
John Dyches	Aiken County Public Works
Rick Hallman	Aiken County Building Codes Inspector
Mayor C.H. Williams	Town of Burnetown
Bonnie Stikleather	Town of Jackson
Mayor Charles McCormick	Town of Monetta
Mayor Vernon Dunbar	Town of New Ellenton
Charles Williams	City of North Augusta Public Safety
Dean Legge	Town Administrator for Jackson and Perry
Alica Fulmer	Town of Perry
Mayor Bob Salley	Town of Salley
Scott Neely	Town Administrator for Wagener
Mayor Frank Mizell	Town of Windsor
David Ruth	Aiken County Emergency Management
Paul Matthews	Aiken County Emergency Management

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Amanda Sievers  
William Aultman  
Jeff Derwort

Lower Savannah Council of Governments  
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**Participating Municipalities:**

City of Aiken  
Town of Burnettown  
Town of Jackson  
Town of Monetta  
Town of New Ellenton  
City of North Augusta  
Town of Perry  
Town of Salley  
Town of Wagener  
Town of Windsor

**SCEMD PDM Grant Application Workshop: August 22<sup>nd</sup>, 2008, 9:00 a.m. - 3:00 p.m.**

LSCOG staff and Aiken County emergency management attended a workshop on how to apply for grants through FEMA's PDM program for FY 2009.

**HMP Update meeting: September 17<sup>th</sup>, 2008, 10:00 a.m.**

LSCOG staff and all six county emergency management directors and county administrators met to discuss the plan update and requirements.

**SCEMD Mitigation Planning Workshop for Local Governments: October 29<sup>th</sup>-20<sup>th</sup>, 2008**

LSCOG staff attended a two day workshop designed to inform them about the update of the HMP.

**Preparation of PDM 2009 Application for HMP Updates: September 2008-December 4<sup>th</sup>, 2008**

LSCOG staff prepared and submitted the 2009 PDM grant for updating all six county HMP's.

**SCEMD Mitigation Workshop: April 14<sup>th</sup>-15<sup>th</sup>, 2009**

SCEMD held a workshop for all stakeholders to aid them in the update of the HMP.

**Letter requesting submittal of Task Force Committee: July 1<sup>st</sup>, 2009**

Letters were mailed to all county emergency management coordinators requesting they form their Task Force.

**Letter to all elected officials: July 16<sup>th</sup>, 2009**

Letters were mailed to all elected officials informing them that the HMP update would be taking place soon.

**Hazard Mitigation Plan Update Meeting Memo: August 5<sup>th</sup>, 2009**

A memo was sent to all county EMD's and Task Force Committee members informing them of upcoming kick-off meetings regarding the HMP update.

**Memorandum of Agreement sent to County: August 18<sup>th</sup>, 2009**

MOA's were mailed to all County Administrators with the county match requirement, to be signed and returned to LSCOG. Letter also informed them that LSCOG was successful in being awarded the FEMA PDM grant to update the HMP.

**HMP Update Meeting and Public Comment on Draft Plan: August, 25<sup>th</sup>, 2009, 10:00 a.m.**

LSCOG staff met with Aiken County Task Force and Emergency Management to discuss the plan update and requirements. The public was invited to attend this meeting as well to comment on the Draft Plan

**SCEMD, LSCOG, County Meeting: April 8<sup>th</sup>, 2010**

A meeting was held with County Emergency Managers, LSCOG staff, and SCEMD mitigation staff to discuss the status of the update of the plans.

**HMP Crosswalk Review: June 22<sup>nd</sup>, 2010, 2:00 p.m.**

A meeting was held with Aiken County, LSCOG, and Region 6 EMC to review the HMP and go over all the criteria in the Crosswalk.

**Aiken County 2nd Public Hearing on Final Draft Plan: July 29<sup>th</sup>, 2010, 4:00 p.m.**

A public hearing was scheduled for the citizens of Aiken County to make comments and review the Final Draft HMP.

**Aiken County Council Final Adoption: November 16<sup>th</sup>, 2010**

County Council officially adopted and signed the resolution for the HMP at their November 2010 council meeting.



## **1.6 Participants Involved in the Planning Process**

*After review by the Task Force Committee, changes were made to this section to include the Towns of New Ellenton and Windsor as participating in the update process of the plan.*

The plan is intended to serve as a coordinative tool through which local agencies and organizations identify complimentary objectives that systematically reduce the impact of hazards in Aiken County. The plan also serves to coordinate and integrate the responsibilities, authorities and programs of the “participating” and “cooperating” agencies and organizations.

### **County and Municipality Participation**

County, city, and town participation must be defined in order to create a standard for participation in order for the entities to be considered as participants in the Natural Hazard Mitigation Plan process. Invitations (by phone and letter) were extended to mayors, administrators, and managers to attend the County Hazard Mitigation Meetings. Officials were informed through the letters that LSCOG needed their input and comments in order to be considered active participants in the plan.

**In order for the county to approve the plan and be an official participant of this planning process, they must satisfy the following consideration:**

- The county Emergency Management Director must be a member of the Natural Hazard Plan Task Force Committee and provide input and comments to the plan.

**In order for cities and towns to be official participants of the planning process, they must satisfy one of the following considerations:**

- The mayor, administrator, or manager attends a county or public meeting and provides input and comments concerning the Natural Hazard Mitigation Plan.
- The mayor, administrator, or manager appoints a city or town employee to attend a county or public meeting and provides input and comments concerning the Natural Hazard Mitigation Plan.
- A LSCOG Planning staff member personally discusses the Natural Hazard Mitigation Plan with a mayor, administrator, manager, or appointed municipal representative and receives input and comments from that individual.

### **Aiken County Local Government Participation**

City of Aiken

Town of Burnetttown

Town of Jackson

Town of Monetta

Town of New Ellenton

City of North Augusta

Town of Perry

Town of Salley

Town of Wagener

Town of Windsor

**Non-Participating Municipalities**

Aiken County was successful in achieving 100% participation from all 10 incorporated municipalities in the planning and update process of the Natural Hazard Mitigation Plan. The Town of New Ellenton and Town of Windsor, who did not participate in the previous plan, were active participants in this update process.

## **1.7 Public Participation**

*After review by the Task Force Committee, the public participation process was revised to include more opportunities for public input and for neighboring communities and other agencies to be able to participate in the planning update process.*

Throughout the planning and update process, there have been opportunities for public input. The process provided neighboring communities, other agencies, the private sector, non-profit, and academia an opportunity to participate in the planning process. To engage the community in the hazard mitigation planning process, the Task Force Committee held public input meetings designed to inform the participants about hazard mitigation, generate discussion, and receive feedback on the HMP; letters were sent to communities; news releases in area newspapers and other media outlets informed area residents; etc.

Public meetings were held during the drafting stage and prior to plan adoption. During the project kick-off meeting the planning process was described and initial findings of the risk assessment presented for review and comment. Each of the meetings was advertised through various types of notices, including notices in the local newspaper. In addition, copies of the risk assessment and final draft plan were made available for the public at various viewing locations in the county and the municipalities. An email address and the telephone number of Lower Savannah COG were provided with the draft plan to provide a mechanism for the public to provide comments back to plan development facilitators. The public was informed of the final draft availability and the opportunity for comment through notices placed in local newspapers. All comments that were received to date from the public were reviewed and incorporated into the final version of the plan as appropriate.

### **1. Public Meeting during the Drafting Stage of the Plan**

The public was invited to attend a meeting for Aiken County on August, 25<sup>th</sup>, 2009 at 10:00 a.m., to comment on the drafting stage of the Hazard Mitigation Plan. The invitation was extended through public notices in the newspaper. At the public meeting, LSCOG staff presented the county's risk assessment, which included natural hazards and critical facilities. The public had the opportunity to comment on the plan during its drafting stage throughout the process. In addition to the draft stage of the plan, the public was invited to make comments on the final draft plan on Thursday, July 29<sup>th</sup>, 2010 from 4:00 p.m. until 6:00 p.m. at the Lower Savannah Council of Governments.

### **2. Public Notice of Adoption of Plan**

In addition, to the kick-off meeting, the public will be invited to the plan adoption hearing of the governing bodies of the participating jurisdictions. A public notice of the adoption hearing will be inserted in local newspapers available within all participating jurisdictions. The public notice prior to plan adoption will take place once FEMA has formally approved the plan.



## **Part Two: Risk Assessment**

## 2.1 Types of Risks

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*As part of the plan update process, the Task Force Committee reviewed and analyzed this section. Each hazard description was reassessed and updated to include most current data and the two newly participating jurisdictions. This section also included the requirements below:*

### **FEDERAL REQUIREMENTS FOR LOCAL HAZARD MITIGATION PLANS**

**Requirement 201.6(c)(2):** The plan **shall** include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identifies hazards.

**Requirement 201.6(c)(2)(i):** The risk assessment **shall** include a description of the type of all natural hazards that can affect the jurisdiction.

### **Risk Assessment**

The Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from natural or man-made hazards. The results of this risk assessment assist Aiken County and its incorporated municipalities and unincorporated areas in identifying and understanding their risks from natural hazards. This information also serves as the foundation for the development of the mitigation plan and strategies to help reduce risks from future hazard events. The Risk Assessment section answers the fundamental question that fuels the hazard mitigation planning process: *What would happen if a hazardous event occurred in Aiken County or its incorporated municipalities?*

### **Risk Assessment Approach**

- Determine which hazards pose a serious risk to Aiken County.
- Describe what these hazards can do to physical, social, and economic assets of Aiken County.
- Identify which areas of the County are most vulnerable to damage from these hazards.
- Determine damages that may result from the identified hazards.
- Use the Risk Assessment section to identify mitigation actions and set priorities for implementation.

### **FEMA Requirements Addressed**

The Task Force Committee used a risk assessment process consistent with the procedures and steps presented in the FEMA How-To-Guide “Understanding Your Risks: Identifying Hazards and Estimating Losses.” The committee used the four-step risk assessment process shown in Figure 4.

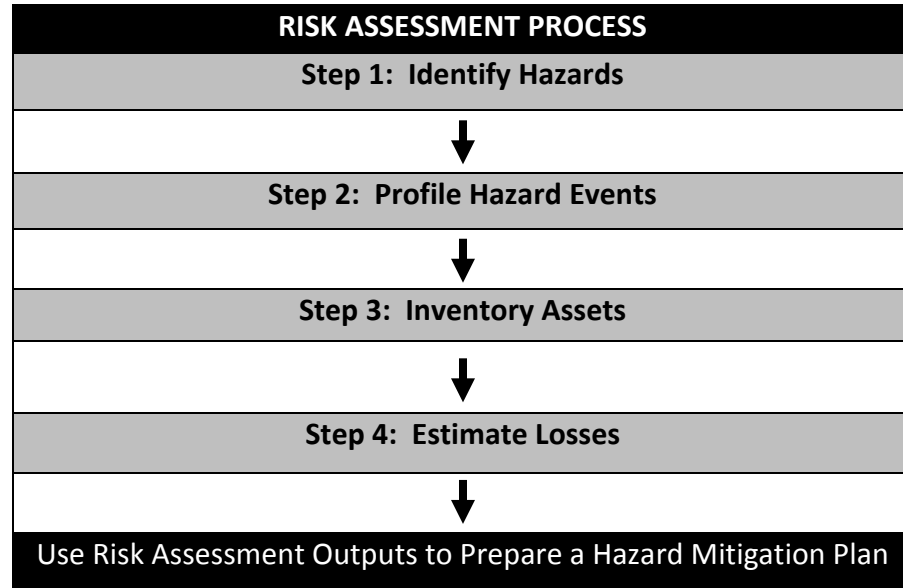


Figure 4: Risk Assessment Process

### **Hazard Identification**

The first step in the risk assessment process was to identify each of the hazards that can occur within Aiken County and its incorporated municipalities. This hazard identification process began with a review of previous hazard events based on historical data. Also, information was collected through general discussion at Task Force Meetings concerning hazard identification and prioritization of these risks. The USC Hazards Lab provided historical findings as well. The findings from these sources were utilized to determine the priority hazards for Aiken County and its incorporated municipalities and unincorporated areas, which will become the focus of the mitigation strategies developed in the remainder of this plan.

The following will provide a factual basis for mitigation project proposals described later in this plan. The following points will be addressed for each natural hazard in this section:

#### **Type**

A brief description is provided for each hazard addressed in this section.

#### **Location**

The location of past events is mapped or listed in this section.

## **Extent**

The effect and impact of past events is examined in this section for each hazard type.

## **Probability**

To determine the probability of a natural hazard event, the number of events, total number of years those events have been recorded, and the frequency of events must be determined. The recurrence interval is also helpful in portraying how common a certain type of hazard is. Dividing the number of years by the number of events produces the recurrence interval, or how often the event will occur per year. The percentage frequency of events is determined by dividing the number of events by the total number of years and multiplying by 100. This gives a reliable sense of the chance a hazard will occur per year.

## **Vulnerability**

The overall vulnerability of each individual hazard is discussed and analyzed for Aiken County and its municipalities. A rating of high, mid level, and low vulnerability is given to each hazard. Vulnerability is determined by assessing the probability and extent of the hazards that affect the specific area.

Of the many types of hazards that threaten the United States, there are some that have never occurred in South Carolina. Those hazards that have threatened the Lower Savannah Region of South Carolina will be addressed. The hazards that have been examined in this plan were decided on by LSCOG staff and the Task Force Committee.

The following are the specific hazards that will be examined in this section of the Natural Hazard Mitigation Plan, in no particular order.

- Tornadoes/Severe Windstorm
- Hurricanes
- Hail
- Drought
- Earthquakes
- Wildfires
- Flood
- Winter Storms

<b>Figure 5. Jurisdictions Affected by Hazard Type</b>	
<b>Hazard</b>	<b>Jurisdictions Affected</b>
Tornadoes/Severe Windstorms	Specific Jurisdictions
Hurricanes	Countywide
Hail	Specific Jurisdictions
Drought	Countywide
Earthquakes	Specific Jurisdictions
Wildfires	Countywide
Flood	Countywide
Winter Storms	Countywide

### Profiling Hazards

#### **FEDERAL REQUIREMENTS FOR LOCAL HAZARD MITIGATION PLANS**

**Requirement 201.6(c)(2)(i):** The risk assessment **shall** include a description of the location and extent of all natural hazards that can affect the jurisdiction. The plan **shall** include information on previous occurrences of hazard events and on the probability of future hazard events.

It is important to understand the types of hazards that affect Aiken County and its municipalities. Projects and actions will be discussed in further detail to address these natural hazards which threaten this region. The extent of the hazard and its future probability are important considerations to take when preparing for an event.



## **Tornado/Severe Windstorm Analysis**



### **Hazard Description:**

A tornado is a violent storm with winds up to 300 miles per hour. It appears as a rotating funnel-shaped cloud, gray to black in color, extending toward the ground from the base of a thundercloud. The average tornado moves southwest to northeast at a forward speed of 30 miles per hour, but tornadoes can move in any direction and may vary from stationary to 70 miles per hour. Tornadoes are most frequent east of the Rocky Mountains during spring and summer months between the hours of 3 PM and 9 PM. In the South, tornadoes touch down most frequently from the month of March through May. Tornadoes may also accompany hurricanes. Tornadoes are especially dangerous because they appear transparent until they begin to pick up debris and dust. These short-lived storms are most violent of all atmospheric phenomena, and over a small area, are the most destructive. Approximately 800 tornadoes occur across the nation each year, resulting in nearly 80 deaths and 1,500 injuries. Damage paths can exceed one mile wide and 50 miles long.

Windstorms are often associated with other storms, such as hurricanes or severe thunderstorms, but may occur independently. High winds can cause downed trees and power lines, flying debris, and building collapses, all of which may lead to power outages, transportation disruptions, damage to buildings and vehicles, and injury or death. Flying debris is the primary cause of damage during a windstorm.

### **Severity**

The Fujita Scale (F-Scale) is the standard measurement for rating the strength of a tornado. The National Weather Service (NWS) bases this scale on an analysis of damage after a tornado to infer wind speeds. On February 1, 2007, the NWS transitioned from the F-Scale to the Enhanced Fujita Scale (EF-Scale). The EF-Scale is considerably more complex and enables surveyors to assess tornado severity with greater precision. Figure 6 details both scales below.

<b>F-Scale and EF-Scale</b>				
<b>F-Scale</b>	<b>3-sec. gust speed (mph)</b>	<b>EF-Scale</b>	<b>3-sec. gust speed (mph)</b>	<b>TYPICAL DAMAGE</b>
<b>F0</b>	45-78	<b>EF0</b>	65-85	Light damage. Some damage to chimneys. Branches broken off trees. Shallow-rooted trees pushed over; signboards damaged.
<b>F1</b>	79-117	<b>EF1</b>	86-109	Moderate damage. Peels surface off roofs. Mobile homes pushed off foundations or overturned. Moving autos blow off roads.
<b>F2</b>	118-161	<b>EF2</b>	110-137	Considerable damage. Roofs torn off frame houses. Mobile homes demolished. Boxcars overturned. Large trees snapped or uprooted. Light-object missiles generated. Cars lifted off ground.
<b>F3</b>	162-209	<b>EF3</b>	138-167	Severe damage. Roofs and some walls torn off well-constructed houses. Trains overturned. Most trees in forest uprooted. Heavy cars lifted off the ground and thrown.
<b>F4</b>	210-261	<b>EF4</b>	168-199	Devastating damage. Well-constructed houses leveled. Structures with weak foundations blown away some distance. Cars thrown and large missiles generated.
<b>F5</b>	262-327	<b>EF5</b>	200-234	Incredible damage. Strong frame houses leveled off foundations and swept away. Automobile-sized missiles fly through the air in excess of 100 meters. Trees debarked. Incredible phenomena will occur.

Figure 6: F-Scale and EF-Scale

The Beaufort Wind Scale is a simplified scale to aid in the estimation of wind speed and corresponding typical effects. Figure 7 below illustrates the wind scale.

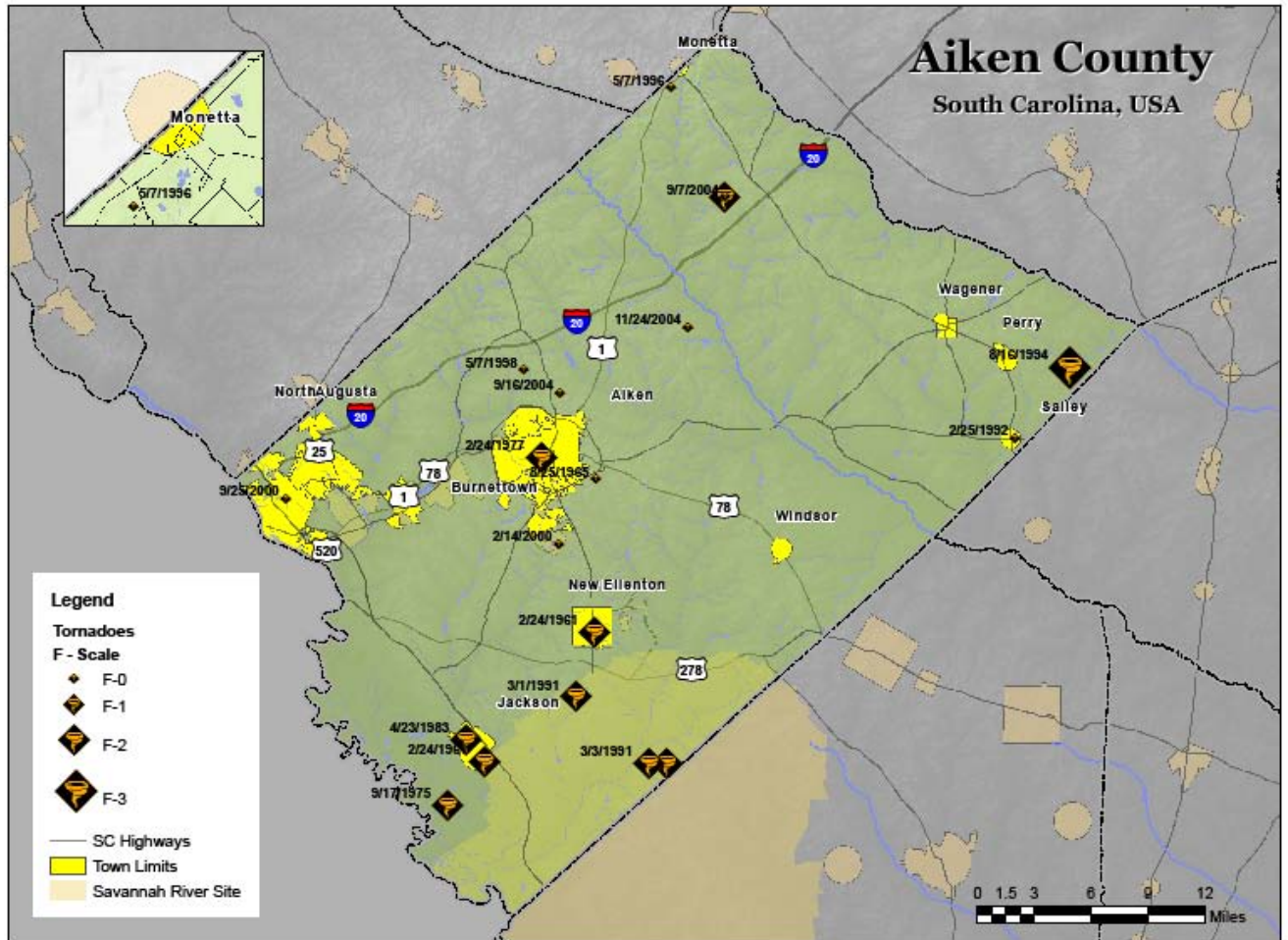
<b>Beaufort Wind Scale</b>		
<b>Wind Speed (mph)</b>	<b>Name</b>	<b>Damage</b>
25-31	Strong Breeze	Large branches in motion; whistling in telephone wires; umbrellas used with difficulty
32-38	Near Gale	Whole trees in motion; resistance felt while walking against the wind
39-46	Gale	Twigs break off of trees; wind impedes walking
47-54	Strong Gale	Slight structural damage to chimneys and slate roofs
55-63	Storm	Seldom felt inland; trees uprooted; considerable structural damage
64-72	Violent Storm	Very rarely experienced; widespread structural damage; roofing peels off buildings; windows broken; mobile homes overturned
73+	Hurricane	Widespread structural damage; roofs torn off homes; weak buildings and mobile homes destroyed; large trees uprooted

Figure 7: Beaufort Wind Scale

### Location

The tornado touchdowns for Aiken County and its incorporated municipalities, and all unincorporated areas of the County, can be seen on the tornado map. There have been 33 recorded touchdowns in Aiken County over the past 59 recorded years. The tornado touchdown map shows the location of each tornado touchdown point, and the general time frame in which it occurred. The risk assessment is based on reported tornado events. Therefore, the occurrence of events seems to be highest in areas with higher population densities. Tornado touchdowns in rural areas frequently occur without report.

### Map 3: Tornado Map



### Extent

Figure 8 below illustrates the historic occurrences and locations of tornadoes that have affected Aiken County and its incorporated municipalities. A tornado can occur anywhere in the County. Aiken County has experienced 33 noted tornadoes in the past 59 years.

Figure 8. Historic Occurrences of Tornadoes in Aiken County

Date	Event	Location	Description
2/24/1961	Tornado	County	F1 Magnitude Property damage recorded at \$25K 5 reported injuries
2/24/1961	Tornado	County	F1 Magnitude Property damage recorded at \$3K 2 reported injuries
8/25/1965	Tornado	County	F0 Magnitude
9/17/1975	Tornado	County	F2 Magnitude Property damage recorded at \$250K
5/28/1976	Tornado	County	F1 Magnitude Property damage recorded at \$25K
5/28/1976	Tornado	County	F1 Magnitude Property damage recorded at \$2.5K
2/24/1977	Tornado	County	F1 Magnitude Property damage recorded at \$2.5K
5/8/1978	Tornado	County	F1 Magnitude Property damage recorded at \$250K
4/23/1983	Tornado	County	F1 Magnitude Property damage recorded at \$250K
3/1/1991	Tornado	County	F2 Magnitude
3/3/1991	Tornado	County	F2 Magnitude
3/3/1991	Tornado	County	F2 Magnitude
3/29/1991	Tornado	County	F2 Magnitude
2/25/1992	Tornado	County	F0 Magnitude Property damage recorded at \$25K
11/7/1995	Tornado	Monetta	F2 Magnitude Property damage recorded at \$460K Tornado completely destroyed four large poultry houses and a peach processing building. Large farm equipment also destroyed. 1 reported injury

11/7/1995	Tornado	Salley	F0 Magnitude Two homes damaged by tornado. Trees were knocked down.
5/7/1996	Tornado	Monetta	F0 Magnitude A small F0 touched down in a grove of trees along Secondary Highway 1223
5/7/1998	Tornado	Aiken	F0 Magnitude An F0 touched down near I-20 and SC 19, taking down trees
2/14/2000	Tornado	Aiken	F0 Magnitude Damage to trees
9/25/2000	Tornado	North Augusta	F0 Magnitude Tops of pine trees taken off along SC 421
5/6/2003	Tornado	Monetta	F1 Magnitude Property damage recorded at \$5K An F1 tornado touched down on I-20 and moved northeast to SC 289. Numerous trees were taken down and moderate damage was done to two sheds.
9/7/2004	Tornado	Monetta	F0 Magnitude Trees reported down along SC 39 and SC 391
9/16/2004	Tornado	Aiken	F0 Magnitude Trees reported down from I-20, just south of US 1 to SC 511 (Pitts Branch Rd)
9/27/2004	Tornado	Aiken	F0 Magnitude Moderate damage to a barn, camper, and roof of a home
11/24/2004	Tornado	Aiken	F0 Magnitude Uprooted trees reported on Cooke Bridge Rd
3/2/2007	Tornado	County	F0 Magnitude Trees down and minor damage to a couple of homes along Talatha Rd
3/4/2008	Tornado	New Ellenton	F0 Magnitude Trees down along a path from New Ellenton to just southwest of Wagener. A few powerlines were also down.

3/15/2008	Tornado	Monetta	F0 Magnitude Trees down along SC 39 and Mt Ebal Rd
3/15/2008	Tornado	County	F2 Magnitude Numerous trees and powerlines down in Clearwater area. Many homes and severe damage to roofs and structures. Some roofs gone. Water tower had its top taken and landed several hundred yards away. Damage path was a mile wide at certain points.
5/11/2008	Tornado	County	F0 Magnitude Trees reported down on Mt Calvary Rd, Westin Way Rd, and other secondary roads
5/11/2008	Tornado	Monetta	F0 Magnitude Trees reported down on Old Shoals Rd, Abney Rd, and other secondary roads
5/11/2008	Tornado	Wagener	F0 Magnitude Trees reported down along JB Swartze Rd, Counter Rd, and other secondary roads
4/10/2009	Tornado	County/Beech Island area	F3 Magnitude 14 reported injuries Property damage reported at \$5M Many homes and businesses were severely damaged. Numerous trees and powerlines were down. Tornado tracked along US 278. One indirect death of a motorist occurred, due to crashing to avoid trees.
Source: NCDC			

These tornadoes have caused a total of 22 injuries and one indirect fatality. The tornadoes that have touched down in Aiken County have ranged from F0 to F3 magnitudes. Of the tornadoes, 17 were F0, eight were F1, seven were F2, and one was a F3. According to Figure 6, the wind speeds of these tornadoes have ranged from 45 miles per hour to 209 miles per hour, and had the potential to cause severe damage. Total property damage has been estimated at \$6.298M.

## Probability

Figure 9. Tornado Probability for Aiken County				
Municipality	# of Events	Years in Record	Recurrence Interval	Hazard Frequency %
Aiken	5	59	11.8	8.5%
Burnettown	0	59	*	*
Jackson	0	59	*	*
Monetta	6	59	9.8	10.2%
New Ellenton	1	59	59	1.7%
North Augusta	1	59	59	1.7%
Perry	0	59	*	*
Salley	1	59	59	1.7%
Wagener	1	59	59	1.7%
Windsor	0	59	*	*
Unincorporated	18	59	3.2	30.5%
Source: NCDC      * Unable to calculate (cannot divide by zero)				

Though infrequent, tornadoes are not unprecedented in Aiken County. Over the past 59 years, 32 tornadoes have touched down within the County. Based on the historic frequency, an estimate of one tornado will touchdown in the unincorporated area every three years. The frequency of which a tornado could hit each year in the County is approximately 30.5%.

The incorporated municipalities have experienced a range of zero to six tornadoes over the past 59 years. The City of Aiken is estimated to have one tornado every 11 to 12 years, with a frequency of 8.5% per year; the Town of Burnettown has no recorded tornado events in the past 59 years; the Town of Jackson has no recorded tornado events in the past 59 years; the Town of Monetta is estimated to have one tornado every nine to 10 years, with a frequency of 10.2% per year; the Town of New Ellenton is estimated to have one tornado every 59 years, with a frequency of 1.7% per year; the City of North Augusta is estimated to have one tornado every 59 years, with a frequency of 1.7% per year; the Town of Perry has no recorded tornado events in the past 59 years; the Town of Salley is estimated to have one tornado every 59 years, with a frequency of 1.7% per year; the Town of Wagener is estimated to have one tornado every 59 years, with a frequency of 1.7% per year; the Town of Windsor has no recorded tornado events in the past 59 years; the unincorporated area of Aiken County is estimated to have one tornado every three years, with a frequency of 30.5% per year.

## Vulnerability

High wind events can pose a serious threat to people and infrastructure. Aiken County, in particular its incorporated municipalities (urban core), provides an environment where numerous objects can become flying debris and severely injure people and damage structures.



Structural vulnerability to wind is related to the building's construction type. Wood structures and manufactured homes are more susceptible to wind damage, while steel and concrete buildings are most resistant.

Based on the results from Figure 9 and Figure 8, Aiken County has a moderate vulnerability to tornadoes. The percent chance a tornado will touch down in the unincorporated area of the county is 30.5% in a year time frame. However, the historical record of events shows a total of \$6.298 in property damage. The majority of property damage (\$5M) occurred in the rural area of the County, known as Beech Island. There were also 22 injuries and one indirect death associated with the tornado events.

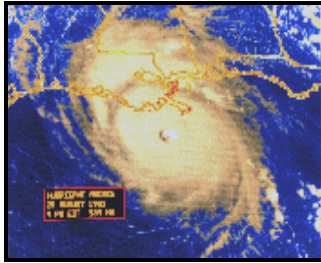
Additionally, Aiken County total market value assessments by classification for the 2010 tax year was reported as follows:

Residential	\$7,162,222,836
Commercial	\$1,605,943,899
Agricultural	\$ 483,367,703

There are also a total of 103,091 parcels recorded for the County.

The impact of tornado events on each participating jurisdiction varies, and from the tornado extent section one can see that the impact of past tornadoes on the county as a whole has been moderate.

## Hurricane/Tropical Storm Analysis



### Hazard Description

Hurricanes, including coastal storms and tropical storms can have affects on inland areas and not just coastal areas. Aiken County has been affected by hurricanes/tropical storms in the past.

#### *Tropical Storms and Hurricanes*

A hurricane is a type of tropical cyclone, which is a generic term for a low-pressure system that generally forms in the tropics. Thunderstorms and, in the Northern Hemisphere, a counterclockwise circulation of winds near the earth's surface accompany the cyclone. Tropical cyclones are classified as follows:

- A tropical depression is an organized system of clouds and thunderstorms, with a defined surface circulation, and maximum sustained winds of 38 miles per hour or less.
- A tropical storm is an organized system of strong thunderstorms, with a defined surface circulation, and maximum sustained winds of 39 to 73 miles per hour.
- A hurricane is an intense tropical weather system of strong thunderstorms, with a well-defined surface circulation, and maximum sustained winds of 74 miles per hour or higher.

Atlantic hurricane season lasts from June to November, averaging eleven (11) tropical storms each year, six (6) of which turn into hurricanes. According to the National Hurricane Center, the Atlantic hurricane season is currently in a period of heightened activity that began around 1995, and could last at least another decade.

Heavy rain, coastal flooding, and powerful winds are commonly associated with hurricanes. Storm surge is often the greatest hurricane-related hazard. Storm surge is water that is pushed toward the shore by the force of the winds swirling around the storm. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level fifteen (15) feet or more. In addition, wind driven waves are superimposed on the storm tide. This rise in water level can cause severe inundation in coastal areas, particularly when the storm tide coincides with the normal high tides.

## Severity

The NWS uses the Saffir-Simpson Scale to classify hurricane severity. The scale categorizes a hurricane's present intensity on a one (1) to five (5) rating and provides an estimate of property damage and coastal flooding upon landfall. Wind speed determines a hurricane's Saffir-Simpson Scale rating since storm surge is greatly dependent on the coastline shape and slope of the continental shelf. Figure 10 below illustrates the Saffir-Simpson Hurricane Scale.

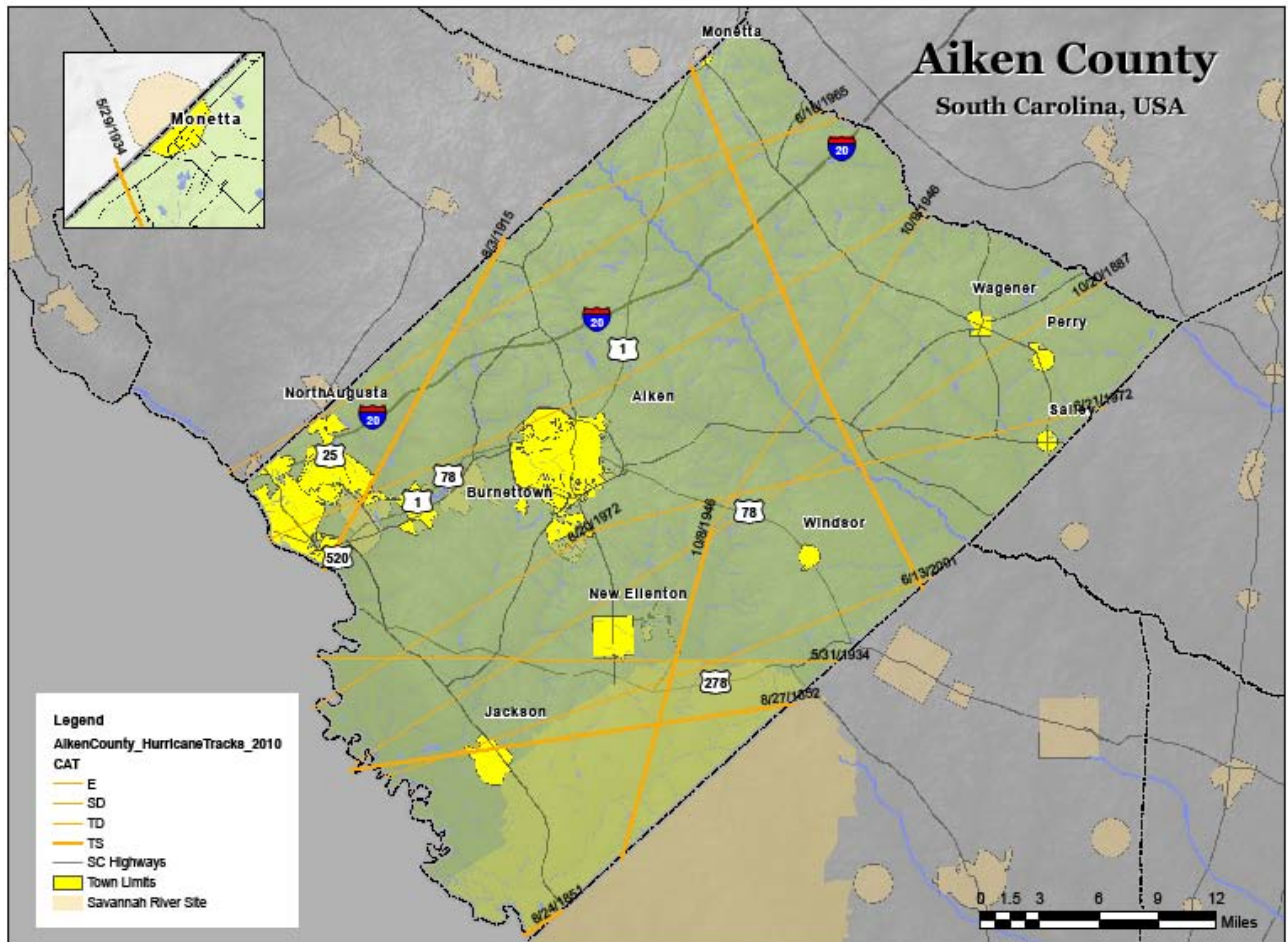
Saffir-Simpson Hurricane Scale				
Category	Storm Surge (ft)	Winds (mph)	Damage	Damage Description
1	6.1 – 10.5	74 – 95	Moderate	<ul style="list-style-type: none"> <li>• Damage primarily to trees and unanchored homes</li> <li>• Some damage to poorly constructed signs</li> <li>• Coastal road flooding</li> </ul>
2	13.0 – 10.5	96 – 110	Moderate-Severe	<ul style="list-style-type: none"> <li>• Some roofing material, door, and window damage to buildings</li> <li>• Considerable damage to shrubbery and trees</li> <li>• Flooding of low-lying areas</li> </ul>
3	14.8 – 25	111 – 130	Extensive	<ul style="list-style-type: none"> <li>• Some structural damage to residences and utility buildings</li> <li>• Foliage blown off trees and large trees blown down</li> <li>• Structures close to the coast will have structural damage by floating debris</li> </ul>
4	24.6 – 31.3	131 – 155	Extreme	<ul style="list-style-type: none"> <li>• Curtainwall failures with utilities and roof structures on residential buildings</li> <li>• Shrubs, trees, and signs all blown down</li> <li>• Extensive damage to doors and windows</li> <li>• Major damage to lower floors of structures near the shore</li> </ul>
5	Not predicted	>155	Catastrophic	<ul style="list-style-type: none"> <li>• Complete roof failure on many residences and industrial buildings</li> <li>• Some complete building and utility failures</li> <li>• Severe, extensive window and door damage</li> <li>• Major damage to lower floors of all structures close to shore</li> </ul>

Figure 10: Saffir-Simpson Hurricane Scale

## Location

Identification of hurricane tracks/tropical storms was based on the most recent data available from NOAA Coastal Services Center. The map below shows hurricane and tropical storm tracks in Aiken County and its incorporated municipalities.

**Map 4: Hurricane/Tropical Storm Map**



## Extent

The hurricane map above illustrates the travel patterns of the recorded hurricane tracks and tropical storms. Actual hurricane landings have not posed a true threat to Aiken County, however, the storms aftermath have been identified as an event risk. The hurricane track map has identified 20 named and unnamed hurricane events that have been tracked through the county dating back to 1851 through 2009. Of these recorded events, all 20 measured within

the aforementioned Hurricane Scale, ranging from a category 1 to a category 4. This equated to moderate to extreme damage, including damage to trees and shrubbery, damage to buildings, and flooding.

In the past 158 years there have been a recorded 93 tropical storms in the county ranging in wind speeds of 35 mph to 60 mph. The aftermath affects of these tropical storms produces unusually heavy rains and some flash flooding in the area.

### Probability

The following figures show hurricane/tropical storm probability in Aiken County. However, because actual landings of hurricanes have not occurred in this particular area, the data is an estimate of the unusual occurrence of excessive winds, heavy rainfall, and flooding.

Figure 11. Hurricane Probability for Aiken County				
	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Countywide	20	158	7.9	12.6%
Source: NOAA				

Figure 12. Tropical Storm Probability for Aiken County				
	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Countywide	93	158	1.7	58.8%
Source: NOAA				

According to the most reliable hurricane/tropical storm data, there is a 12.6% chance a hurricane will impact the Aiken County area during any given hurricane season, and a 58.8% chance a tropical storm will impact the county. During the recorded 158-year period, a recurrence interval of approximately every seven to eight years was calculated that a hurricane event could occur. During the same time period, a recurrence interval of one to two years was calculated for a tropical storm event.

### Vulnerability

Based on the results from figure 11, Aiken County has a low vulnerability to hurricanes. Minor occurrences of unusually heavy rainfall, flooding, and excessive winds have affected the area due to the impact of a coastal hurricane. However, a hurricane landing pattern is unpredictable until the formation of the storm and until it is within a short time frame from landing. Therefore, it is not reasonable to assume that hurricane occurrences are not a foreseen threat in the future based solely on past events.

4/11/2011

Additionally, Aiken County total market value assessments by classification for the 2010 tax year was reported as follows:

Residential	\$7,162,222,836
Commercial	\$1,605,943,899
Agricultural	\$ 483,367,703

There are also a total of 103,091 parcels recorded for the County.

As far as tropical storm occurrences, it can be concluded that Aiken County has a moderate vulnerability based on the results from figure 12 (58.8% hazard frequency per year).

## Hail Storm Analysis



### Hazard Description

Hailstorms are a result of severe thunderstorms. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, fall as precipitation, as balls or irregularly shaped masses of ice greater than 0.75 inches in diameter. The size of hailstones is a direct function of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a function of the intensity of heating at the Earth's surface. Higher temperature gradients relative to elevation above the surface result in increased suspension time and hailstone size. (Source: SC State HMP).

### Severity

Aiken County has experienced a total of 129 hailstorm events that have been documented in the past 59 years (1950 -2009). The City of Aiken has experienced 34 hail events, the Town of Burnetown has a recorded 14 events, the Town of Jackson has had 11 events, the Town of Monetta has had 10 recorded events, the Town of New Ellenton has had four recorded events, the City of North Augusta has had 19 recorded events, the Town of Perry has no recorded events, the Town of Salley has had a recorded three events, the Town of Wagener has experienced 11 hail events, the Town of Windsor four events, and the unincorporated area 19 hail storm events.

Hail can cause serious damage, notably to automobiles, aircraft, skylights, glass-roofed structures, livestock, and most commonly, agricultural crops. Rarely, massive hailstones have been known to cause concussions or fatal head trauma.

According to the National Climatic Data Center, the State of South Carolina has experienced 4,201 hail events from 1950 to 2009. During this time span, all the counties in the state experienced hailstorms of varying sizes, up to four inches in diameter. These events total an estimated \$48,682,000 in property damage, \$3,202,000 in crop damage, caused 17 reported injuries, and one reported fatality.

Hailstone size is often reported as compared to known objects rather than reporting the actual diameter. Below in figure 13 is a list of commonly used objects for this purpose.

<b>Hailstone Size to Object Comparison</b>	
<b>Object/Coin</b>	<b>Hailstone size (inches)</b>
Pea	0.25 in
Marble	0.50 in
Penny	0.75 in
Nickel	0.88 in
Ping-pong ball	1.50 in
Golf ball	1.75 in
Tennis ball	2.50 in
Baseball	2.75 in
Grapefruit	4.00 in
Softball	4.50 in

Figure 13: Hailstone Size to Object Comparison

### **Location**

There is no map to reflect hailstorm locations for Aiken County and its incorporated municipalities. There have been a recorded 129 hail events since 1950 in Aiken County. Hail size recorded in the county ranges from 0.75 inches to 2.50 inches.

### **Extent**

Aiken County has experienced 129 hail events that have been documented in the past 59 years (1950-2009). A list of the events and dates they occurred in each municipality and unincorporated areas of the County is shown in Figure 14 below.



Figure 14. Historic Occurrences of Hailstorms in Aiken County

Date(s)	Event	Location	Description(s)
1958-2009	Hail	County	0.75 to 1.75 inches in diameter (penny to golfball size hail)
1993-2009	Hail	Aiken	0.75 to 2.00 inches in diameter (penny to golfball size hail)
1993-2008	Hail	Burnettown	0.75 to 1.75 inches in diameter (penny to golfball size hail) \$2K in property damage
1995-2008	Hail	Jackson	0.75 to 1.75 inches in diameter (penny to golfball size hail) \$5K in property damage
1995- 2006	Hail	Monetta	0.75 to 2.50 inches in diameter (penny to tennis ball size hail)
1998- 2005	Hail	New Ellenton	0.75 to 0.88 inches in diameter (penny to nickel size hail)
1998- 2008	Hail	North Augusta	0.75 to 1.75 inches in diameter (penny to golfball size hail)
N/A	Hail	Perry	No events recorded
1996- 2008	Hail	Salley	0.88 inches in diameter (nickel size hail)
1995-2007	Hail	Wagener	0.75 to 1.75 inches in diameter (penny to golfball size hail) \$50K in property damage
2004- 2009	Hail	Windsor	0.75 to 1.75 inches in diameter (penny to golfball size hail)

Source: NCDC

The recorded hailstorms over the past 59 years have caused no recorded injuries or fatalities in the county. A total of \$57K in property damage was reported in the County, along with reports of homes with damaged siding, windows, and roofs; vehicles with broken windows and vehicles being badly dented; and crops flattened. There were no reports of injuries or deaths due to the hailstorm events.

Aiken County has experienced a total of 129 hailstorm events that have been documented in the past 59 years (1950 -2009). The City of Aiken has experienced 34 hail events, the Town of Burnetown has a recorded 14 events, the Town of Jackson has had 11 events, the Town of Monetta has had 10 recorded events, the Town of New Ellenton has had four recorded events, the City of North Augusta has had 19 recorded events, the Town of Perry has no recorded events, the Town of Salley has had a recorded three events, the Town of Wagener has experienced 11 hail events, the Town of Windsor four events, and the unincorporated area 19 hail storm events. Hail size recorded in the county ranges from 0.75 inches to 2.50 inches.

### Probability

Based on the recorded hailstorm events for Aiken County, there is a probability that a hailstorm will occur at least once, if not more every year in the County (0.45). A hailstorm event has more than a 100% likelihood of occurring every year in the County (218.6%).

Figure 15. Hailstorm Probability for Aiken County				
Municipality	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Aiken	34	59	1.7	57.6%
Burnetown	14	59	4.2	23.7%
Jackson	11	59	5.3	18.6%
Monetta	10	59	5.9	16.9%
New Ellenton	4	59	14.7	6.7%
North Augusta	19	59	3.1	32.2%
Perry	0	59	*	*
Salley	3	59	19.6	5.0%
Wagener	11	59	5.3	18.6%
Windsor	4	59	14.7	6.7%
Unincorporated	19	59	3.1	32.2%
Source: NCDC      * Unable to calculate (cannot divide by zero)				

### Vulnerability

Overall, Aiken County has a moderate vulnerability to hail. The majority of hail events occurred in the incorporated municipalities of the County. There is a 32.2% chance that a hail event may occur in the unincorporated area of the County each year. A total of \$57K in property damage was reported, with no injuries or deaths.

A range of 0.75 to 2.50 inches in hail size is common for Aiken County and its incorporated municipalities. Hailstorms can cause damage to roofs, automobiles, power lines, trees, gardens, agricultural crop, and other structural damage.

## Drought Analysis



### Hazard Description

The NWS describes four types of drought: meteorological, agricultural, hydrological, and socioeconomic.

Meteorological drought is defined in terms of the departure from a normal precipitation pattern and the duration of the drought hazard. Meteorological drought has a slow-onset that usually takes at least three months to develop and may last for several seasons or years.

Agricultural drought links the various characteristics of meteorological drought to agricultural impacts. The focus is on precipitation shortages and soil-water deficits. A plant's demand for water is dependent on prevailing weather conditions, biological characteristics of the specific plant, its stage of growth, and the physical and biological properties of the soil.

Hydrological drought refers to deficiencies in surface water and sub-surface water supplies. The frequency and severity of hydrological drought is often defined on a watershed basin scale. Although climate is a primary contributor, other factors such as changes in land use, land degradation, and the construction of dams all affect the hydrological characteristics of the basin. Hydrological droughts often lag behind meteorological and agricultural droughts.

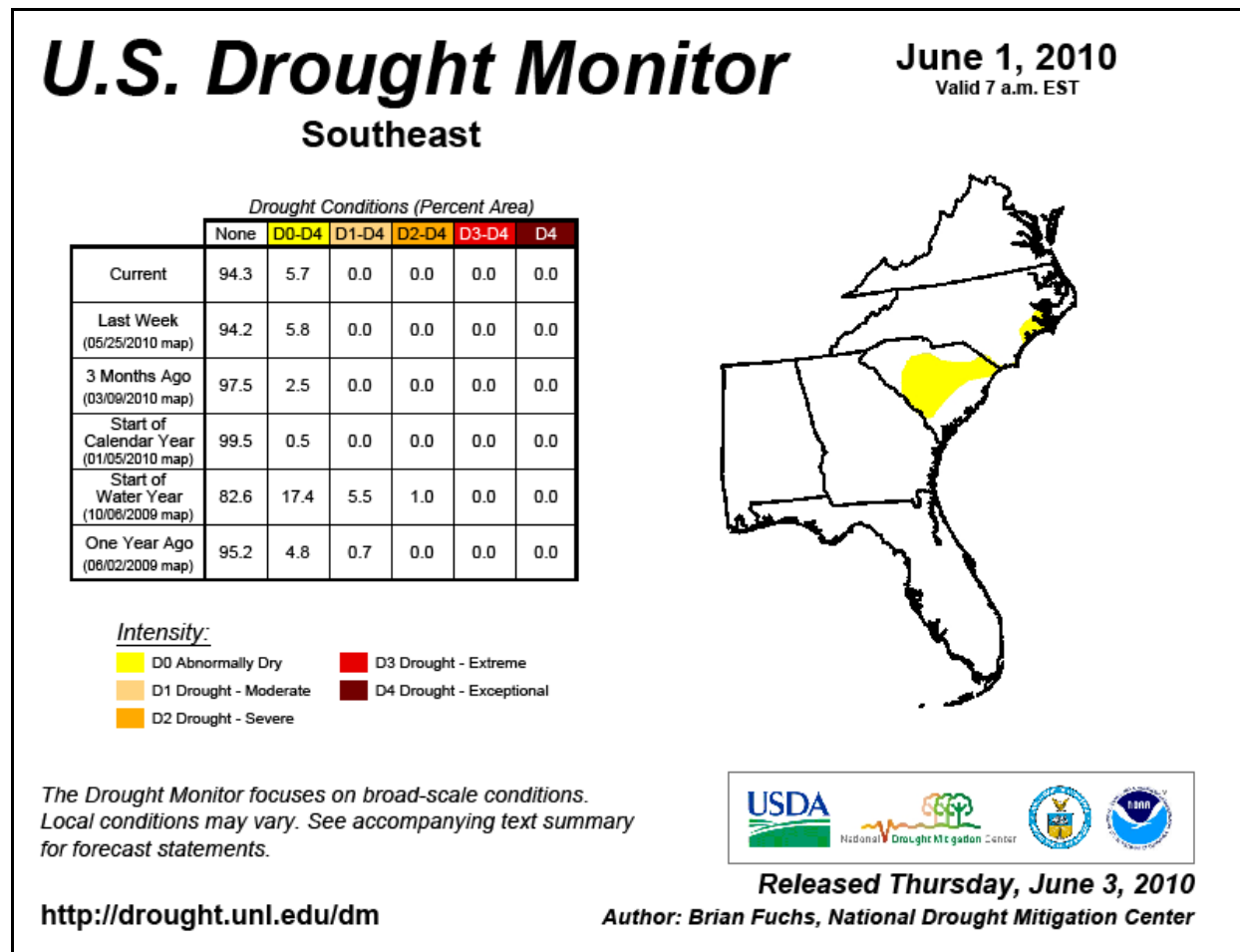
Socioeconomic drought occurs when physical water shortage begins to affect the population, individually and collectively. Most socioeconomic definitions of drought associate it with supply, demand, and economic good.

Drought differs from other hazards in many ways. First, the effects of drought take a considerable amount of time to accumulate and the extent of the hazard can linger for prolonged periods after the drought itself had ceased. Second, the absence of a definitive and universally accepted definition of drought complicates the determination of whether a drought is occurring and the level of its severity. Third, compared to other natural hazards, the geographical area, impacts, and duration of drought are difficult to quantify.

## Severity

The Palmer Drought Severity Index was developed in the 1960's and uses temperature and rainfall information in a formula to determine dryness. It has become the semi-official drought index. The Palmer Index is most effective in determining long term drought. It uses a zero (0) as normal, and drought is shown in terms of minus numbers; (i.e. minus 2 is moderate drought, minus 3 is severe drought, and minus 4 is extreme drought).

The U.S. Drought Monitor measures drought intensity using a scale of D0 through D4; D0 being abnormally dry, D1-moderate, D2-severe, D3-extreme, D4-exceptional. Below is the U.S. Drought Monitor for the Southeast, effective June 1, 2010.



Lower than average rainfalls this year (2010) are pushing South Carolina into pre-drought stages with abnormally dry conditions already creating some issues for local farmers. South Carolina, and more specifically Aiken County, is already in a “D0” state, which precedes drought conditions that range from D1 to D4. D0 is considered abnormally dry, which, before a drought, means a short term of dryness and slowed plant growth.

The month of May has been especially dry, but the area has not received much rain since March. The region is 5.24 inches down this year. Around the same time last year in 2009, South Carolina was 1.24 inches below normal. Aiken County falls into the middle of an area of the state where drought development is likely.

Over the past four years (2006-2010) Aiken County has ranged in drought status from normal to severe. Below in figure 16 a list of Aiken County’s drought status can be seen for the past four years.

Figure 16. Drought Status for Aiken County	
Date/Year	Status
December 2009 - April 2009	Normal
February 2009- April 2008	Moderate
January 2008- September 2007	Severe
June-07	Moderate
May 2007-February 2007	Incipient
September-06	Moderate
Sep-06	Moderate
Aug-06	Incipient
April-06	Normal
Source: SC State Climate Office	

### Location

Droughts are region-wide natural disasters and will be addressed in that way. There is no specific location mapping for droughts in the Aiken County region.

### Extent

In the Aiken County region, declarations of drought occur frequently. Statistics from the USC Hazards and Vulnerability Research Institute show that from the years 1950 to 2009 there have been a recorded 26 declared droughts. During 2000 to 2003, average precipitation was low, making the area especially dry. Agricultural production was affected by the lack of rain and extremely high temperatures. In the summer months the range for drought is abnormally dry

to severely dry. From figure 16 above it can be assumed that Aiken County experiences periods of moderate to severe drought.

The following is a list of impacts associated with drought. Each one can directly or indirectly impact Aiken County's economy, environment, and people.

<b>Drought Impacts</b>		
<b>Economy</b>	<b>Environment</b>	<b>People</b>
<ul style="list-style-type: none"> <li>• Damage to crops</li> <li>• Increase in food prices</li> <li>• Increased transportation costs for food</li> <li>• Reduced dairy and livestock production</li> <li>• Increased fire hazard</li> <li>• Loss to recreational and tourism industry</li> <li>• Revenue loss to water reliant businesses</li> <li>• Loss of navigability of rivers and canals</li> <li>• Reduction of economic development</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction and degradation of fish and wildlife habitat</li> <li>• Wind and water erosion of soils</li> <li>• Loss of wetlands</li> <li>• Increased number and severity of fires</li> <li>• Air quality effects</li> <li>• Damage to plant species</li> <li>• Lower water levels in reservoirs, lakes, and ponds</li> <li>• Water quality effects (i.e., salt concentration, increased water temperature, pH, dissolved oxygen, turbidity)</li> </ul>	<ul style="list-style-type: none"> <li>• Food shortages</li> <li>• Public dissatisfaction with government</li> <li>• Loss of aesthetic values</li> <li>• Reduction or modification of recreational activities</li> <li>• Health issues related to use restrictions</li> <li>• Increased fire hazard</li> <li>• Mental and physical stress</li> <li>• Decrease in quality of life</li> <li>• Increased poverty</li> <li>• Population migrations</li> </ul>

Figure 17: Drought Impacts

### Probability

It should be noted that droughts are region-wide natural disasters and will be addressed in that way. There is no location mapping for droughts in the Aiken County region. In the Aiken County region, declarations of drought occur frequently. Historical data reports that there have been 26 drought declarations from 1950 to 2009.

Figure 18. Drought Probability for Aiken County				
	<b># of Events</b>	<b>Years in Record</b>	<b>Recurrence Interval (Years)</b>	<b>Hazard Frequency (% Chance per Year)</b>
Drought	26	59	2.2	44.1%
Source: USC Hazards and Vulnerability Research Institute				

From figure 18 above, it can be expected that the Aiken County region will have a drought declaration approximately every two years, with a 44% chance of a drought period occurring every year.

## **Vulnerability**

Overall, the Aiken County region is moderately affected by abnormal to severe levels of drought. Droughts cause devastating affects to agricultural production. From the 2007 Census of Agriculture, cropland and pasture account for 159,312 acres in the county. There were a reported 1,206 farms, with the average farm size being 132 acres. The market value of crops sales was \$10,375,000. Therefore, the vulnerability of the Aiken County region to instances of drought can be considered moderate.

Each drought produces a unique set of impacts, depending not only on its severity, duration, and spatial extent, but also on ever-changing social conditions. A wide-range of factors, both physical and social, determines society's vulnerability to drought.

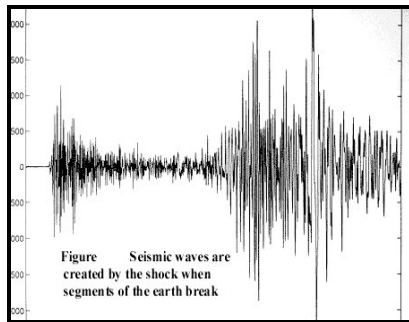
Understanding both direct and indirect impacts (see Figure 17) is one of the most significant challenges in preparing for drought. The direct impacts include loss of revenue from businesses reliant on water, such as car washes, landscapers, and manufacturers. In a drought, water use restrictions may force businesses to suspend all or a portion of their activities. The indirect impacts associated with drought may be far-reaching. The more removed the impact from the cause, the more complex the link to the cause. Indirect impacts are diffused, making it very difficult to determine financial estimates of damages.

Additionally, Aiken County total market value assessments by classification for the 2010 tax year was reported as follows:

Residential	\$7,162,222,836
Commercial	\$1,605,943,899
Agricultural	\$ 483,367,703

There are also a total of 103,091 parcels recorded for the County.

## Earthquake Analysis



### Hazard Description

An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. Most earthquakes originate from faults, or a break in the rocks that make up the earth's crust, along which rock on either side that have moved past each other. As the rocks move past one another, they occasionally stick, causing a gradual buildup of energy or strain. Eventually, this accumulated energy becomes so great that it is abruptly released in the form of seismic waves, which travel away from the earthquake's source (or focus) deep underground, causing the shaking (ground acceleration) at the earth's surface, known as an earthquake. The point on the earth's surface that is directly above the focus is the epicenter.

Ground acceleration caused by earthquakes has the potential to destroy buildings and infrastructure and cause loss of life. Aftershocks are typically smaller than the main shock, and can continue over a period of weeks, months, or years after the initial earthquake is felt. In addition to the effects of ground acceleration, earthquakes can also cause landslides, and liquefaction under certain conditions. Liquefaction occurs when unconsolidated, saturated soils exhibit fluid-like properties due to intense shaking and vibrations experienced during an earthquake. Together, ground shaking, landslides, and liquefaction can damage and destroy buildings, disrupt utilities (i.e. gas, electric, phone, water), and trigger fires.

According to the U.S. Geological Survey (USGS) Earthquake Hazards Program, most earthquakes occur at the boundaries where the earth's tectonic plates meet, although it is possible for earthquakes to occur entirely within plates. Aiken County and its incorporated municipalities are located well within the North American plate, far from the plate boundary located east in the Atlantic Ocean. Seismic research is ongoing with regard to causes of earthquakes in regions far from plate margins. Regardless of where they are centered, earthquakes can affect locations beyond their point of origin.



## Severity

The terms magnitude and intensity are used to describe the overall severity of an earthquake. The severity of an earthquake depends on the amount of energy released at the epicenter, the distance from the epicenter, and the underlying soil type.

All these factors affect how much the ground shakes, known as Peak Ground Acceleration (PGA) and what a building experiences, known as Spectral Acceleration (SA) during an earthquake.

An earthquake's magnitude is a measurement of the total amount of energy and is expressed in terms of the Richter scale. Intensity measures the effects of an earthquake at a particular place and is expressed in terms of the Modified Mercalli scale. Figure 19 shows the approximate comparison between Richter scale magnitude and Modified Mercalli Intensity (MMI).

<b>Magnitude and Intensity Comparison</b>	
<b>Richter Magnitude Scale</b>	<b>Typical Maximum MMI</b>
1.0 to 3.0	I
3.0 to 3.9	II to III
4.0 to 4.9	IV to V
5.0 to 5.9	VI to VII
6.0 to 6.9	VII to IX
7.0 and Higher	VIII or Higher

Figure 19: Magnitude and Intensity Comparison

Figure 20 describes the effects of the various intensity ratings.

<b>MMI Scale Rating</b>	
<b>MMI</b>	<b>Damage/Perception</b>
I	<ul style="list-style-type: none"> <li>Not felt except by a very few under especially favorable conditions</li> </ul>
II	<ul style="list-style-type: none"> <li>Felt only by a few people at rest, especially on upper floors of buildings</li> </ul>
III	<ul style="list-style-type: none"> <li>Felt quite noticeably by people indoors, especially on upper floors of buildings</li> <li>Many people do not recognize it as an earthquake</li> <li>Standing motor cars may rock slightly</li> <li>Vibrations similar to the passing of a truck</li> </ul>

IV	<ul style="list-style-type: none"> <li>• Felt indoors by many, outdoors by few during the day</li> <li>• At night, many awakened</li> <li>• Dishes, windows, doors, disturbed; walls make cracking sound</li> <li>• Sensation like heavy truck striking building</li> <li>• Standing motor cars rocked noticeably</li> </ul>
V	<ul style="list-style-type: none"> <li>• Felt by nearly everyone; many awakened</li> <li>• Some dishes, windows broken</li> <li>• Unstable objects overturned</li> <li>• Pendulum clocks may stop</li> </ul>
VI	<ul style="list-style-type: none"> <li>• Felt by all; many frightened</li> <li>• Some heavy furniture moved</li> <li>• Few instances of fallen plaster</li> <li>• Damage slight</li> </ul>
VII	<ul style="list-style-type: none"> <li>• Damage negligible in buildings of good design and construction</li> <li>• Slight to moderate damage in well-built ordinary structures</li> <li>• Considerable damage in poorly built or badly designed structures</li> <li>• Some chimneys broken</li> </ul>
VIII	<ul style="list-style-type: none"> <li>• Damage slight in specially designed structures</li> <li>• Considerable damage in ordinary substantial buildings with partial collapse</li> <li>• Damage great in poorly built structures</li> <li>• Fall of chimneys, factory stacks, columns, monuments, walls</li> <li>• Heavy furniture overturned</li> </ul>
IX	<ul style="list-style-type: none"> <li>• Damage considerable in specially designed structures</li> <li>• Well-designed frame structures thrown out of plumb</li> <li>• Damage great in substantial buildings, with partial collapse</li> <li>• Buildings shifted off foundations</li> </ul>
X	<ul style="list-style-type: none"> <li>• Some well-built wooden structures destroyed</li> <li>• Most masonry and frame structures destroyed with foundations</li> <li>• Rails bent</li> </ul>
XI	<ul style="list-style-type: none"> <li>• Few, if any masonry or frame structures remain standing</li> <li>• Bridges destroyed</li> <li>• Rails bent greatly</li> </ul>
XII	<ul style="list-style-type: none"> <li>• Total damage</li> <li>• Lines of sight and level are distorted</li> <li>• Objects thrown into the air</li> </ul>

Figure 20: MMI Scale

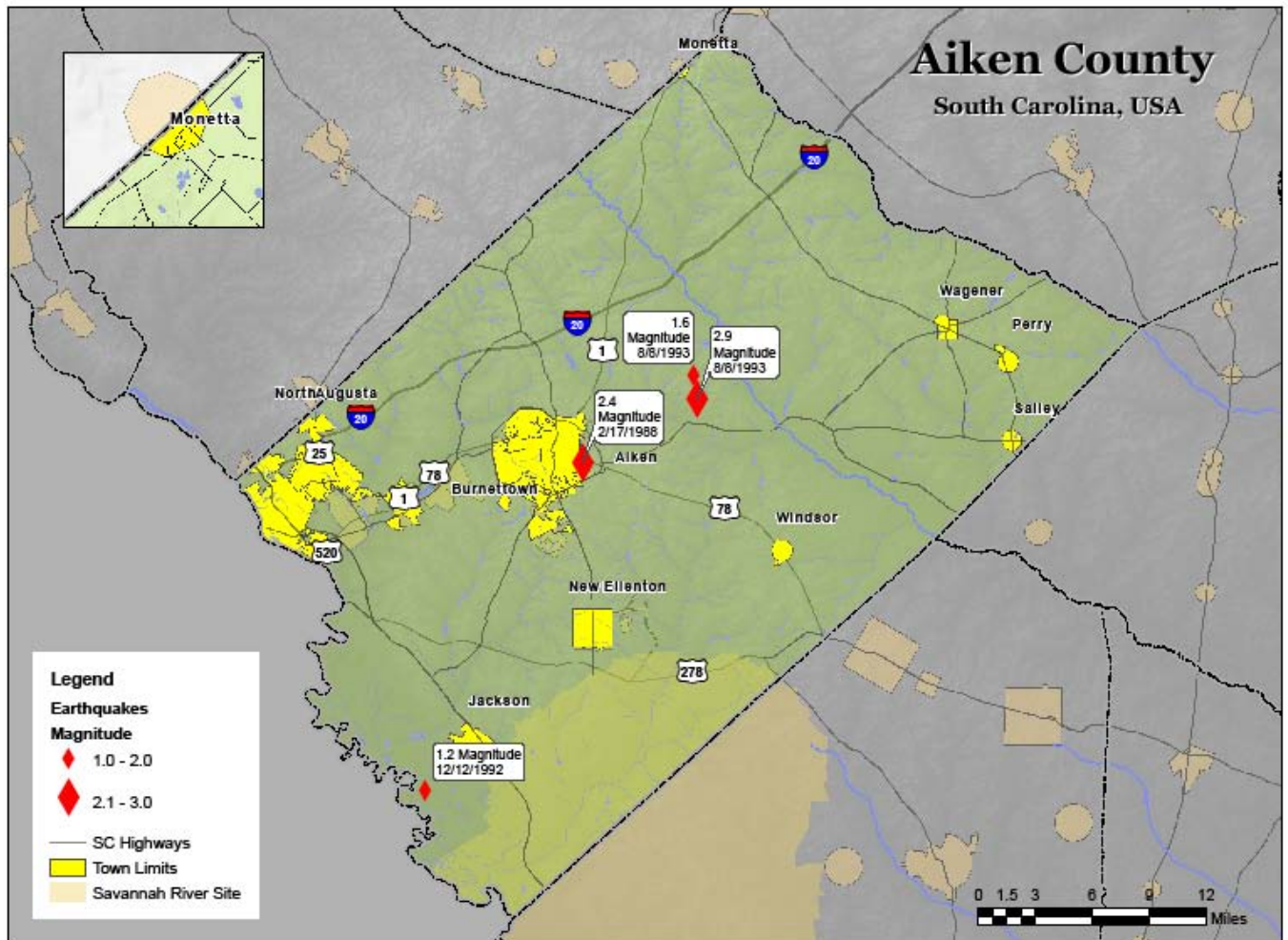
## Location

Earthquakes are possible in Aiken County and its incorporated municipalities. Approximately four earthquakes, all measuring within the Richter scale were recorded in the County over a 22 year timeframe (1988-2010). Figure 21 gives the timeframe, location, and magnitude of the four events.

Figure 21. Historic Occurrences of Earthquakes in Aiken County			
Date	Location	Richter Magnitude	Damage Perception
February 17, 1988	Aiken	2.4	<ul style="list-style-type: none"> <li>Not felt except by a very few under especially favorable conditions</li> </ul>
December 12, 1992	County	1.2	<ul style="list-style-type: none"> <li>Not felt except by a very few under especially favorable conditions</li> <li>SW of County outside of Jackson</li> </ul>
August 8, 1993	County	2.9	<ul style="list-style-type: none"> <li>Not felt except by a very few under especially favorable conditions</li> <li>New Bridge Rd/New Holland Rd</li> </ul>
August 8, 1993	County	1.6	<ul style="list-style-type: none"> <li>Not felt except by a very few under especially favorable conditions</li> <li>Shaws Fork Rd</li> </ul>
Source: USC Hazards and Vulnerability Research Institute			

The following map shows earthquakes in Aiken County and the surrounding area. In Aiken County there have been four documented earthquake events over the past 22 years (1988-2010).

**Map 5: Earthquake Map**



## Extent

Aiken County has experienced four recorded earthquakes over a 22 year timeframe (1988-2010). Three of the events were in the unincorporated area of the county, and one occurred on the edge of the City of Aiken limits. All four of the events had a magnitude measuring within the Richter Scale.

## Probability

Figure 22. Earthquake Probability for Aiken County				
Location	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Aiken	1	22	22	4.50%
Unincorporated	3	22	7.3	13.6%

Source: USC Hazard and Vulnerability Research Institute

In the past recorded 22 years, four earthquake events have occurred in Aiken County. Based on the above figure, Aiken County has an 18% probability of an earthquake occurring every year, and a recurrence interval of every 5.5 years.

## Vulnerability

The infrequency of major earthquakes, coupled with low magnitude events in the past can lead one to perceive that Aiken County and its incorporated municipalities are not vulnerable to a damaging earthquake. While the towns and county do not sit on a major fault system, they are nonetheless susceptible to earthquakes. A high-magnitude earthquake could cause significant financial losses, casualties, and disruptions in critical facilities and services. Dams, bridges, and other infrastructure are also a concern and could incur serious damage from an earthquake.

A building's construction is a key factor in how well it can withstand the forces produced by earthquakes. Unreinforced masonry buildings are most at risk in an earthquake because the walls are prone to collapse outward. Steel and wood buildings have more ability to absorb the energy from an earthquake. Wood buildings with proper foundation ties have rarely collapsed in earthquakes.

Additionally, Aiken County total market value assessments by classification for the 2010 tax year was reported as follows:

Residential	\$7,162,222,836
Commercial	\$1,605,943,899
Agricultural	\$ 483,367,703

There are also a total of 103,091 parcels recorded for the County.

Currently there is no reliable method for predicting the time, place, and size of an earthquake. Earthquakes typically occur with little or no warning. Based on the previous events and potential for great losses, Aiken County and its incorporated municipalities have a low vulnerability to earthquakes.

## Wildfire Analysis



### Hazard Description

Any forest fire, brush fire, grass fire, or any other outdoor fire that is not controlled and supervised is called a wildfire. These fires cause damage to the forest resource as well as wildlife habitat, water quality, and air quality. Wildfires are the most common natural hazard in South Carolina.

According to the South Carolina Forestry Commission (SCFC), from 1998 to 2006, an average of 3,295 fires occurred annually and were handled by the SCFC, burning an average of 22,949 acres each year. The SCFC reports that the forest fire danger is usually highest in late winter and early spring (January through mid-April) when the vegetation is dead or dormant. March is usually the busiest month for SCFC firefighters.

According to the SCFC, nearly 98 percent of all the wildfires in the state are human caused. The leading cause of wildfires, which accounts for between 40 and 45 percent of all wildfires reported, are the result of someone intentionally setting fire to someone else's property. Burning debris, such as trash, yard waste, construction waste, and agricultural fields often burns out of control, causing 30 to 35 percent of wildfires annually. Equipment use causes about 5 percent of wildfires, usually due to faulty equipment such as farm equipment or hot catalytic converters on automobiles. Between 4 and 5 percent of wildfires are caused by careless smoking. Between 3 and 5 percent of the state's wildfires are caused by children playing with matches, lighters and fireworks. Wildfires caused by campfires account for 1 to 3 percent of fires, occurring mainly during the summer months. Fires that are started by sparks resulting from carbon build-up on railroad tracks cause 1 to 2 percent of the annually reported wildfires. Miscellaneous fires such as those caused by negligence of adults using fireworks, structural fires that ignite nearby wooded areas, or unattended warming fires account for four to six percent of wildfires. Lightning only causes about 2 percent of the annually reported fires in the state. (Source: SCEMD State HMP)

## Severity

The severity of a wildfire is based on the damage to the forest resource, wildlife, water and air quality, and the number of acres damaged. For this section, wildfire will be discussed on a county wide level. There is no particular event of wildfire that is illustrated on an individual jurisdiction basis.

## Location

Particular events of wildfire will not be discussed on an individual jurisdiction basis, events will be understood to be county wide and presented as such.

The areas within the county that are at a greater risk of wildfires are those areas that have a higher density of vegetation and forests. Smaller county jurisdictions; Monetta, Perry, Salley, Wagener, and Windsor face a higher risk of wildfires than the more urbanized jurisdictions of Aiken, Burnetttown, North Augusta, New Ellenton, and Jackson. Though the outskirts of urban areas are at risk due to the proximity of forested and vegetated areas, the risk in the urban core is comparatively lower.

## Extent

The South Carolina Forestry Commission has historical data for wildfires in Aiken County dating back to 1946 through 2009. During this 63 year period 11,898 wildfires have been documented in the county. In this 63 year timeframe approximately 100,364 acres have been destroyed in the county. Yearly averages have been calculated to give an estimate of how many wildfires occur in the county and how much damage was caused. Figure 23 below depicts a 5, 15, 25, 40, and 50 year average for the county.

Figure 23. Aiken County Wildfire Averages					
	5 Year	15 Year	25 Year	40 Year	50 Year
Wildfires	129	145	183	199	183
Acres	524	629	754	764	975
Source: SC Forestry Commission					

## Probability

From 1946 to 2009 there have been a recorded 11,898 wildfire events in Aiken County. The total number of acres affected was 100,364. Figure 24 below depicts the wildfire probability for Aiken County.

Figure 24. Wildfire Probability for Aiken County				
	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Wildfire	11,898	63	<0.50	18,885%**
Source: SC Forestry Commission      ** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year				

The areas within the county that are at a greater risk of wildfires are those areas that have a higher density of vegetation and forests. Though the outskirts of urban areas are at risk due to the proximity of forested and vegetated areas, the risk in the urban core is comparatively lower.

### Vulnerability

Overall, Aiken County has a moderate vulnerability to wildfires. The probability of one or more wildfires in the county per year is highly likely (greater than 100%). Unincorporated areas within the county are at an even greater risk and vulnerability to wildfires due to the fact that there is more wooded acreage compared to that of the urbanized towns. By law, the South Carolina Forestry Commission is responsible for wild land fire protection outside of corporate town or city limits. South Carolina law regulates outdoor burning in unincorporated areas. Except within town or city limits, anyone planning to burn outdoors must:

1. Notify the Forestry Commission before starting the fire
2. Clear a firebreak around the area to be burned
3. Have adequate tools, equipment, and personnel on hand to control the fire
4. Stay with the fire until it is completely safe.

After examining past events, wildfires have not caused a great amount of significant reported damage within the county. Therefore, when taking into consideration the high probability of wildfire in the county, and the past history of the event, Aiken County has a moderate level vulnerability to wildfire.

Additionally, Aiken County total market value assessments by classification for the 2010 tax year was reported as follows:

Residential	\$7,162,222,836
Commercial	\$1,605,943,899
Agricultural	\$ 483,367,703

There are also a total of 103,091 parcels recorded for the County.



## Flood Analysis



### Hazard Description

The National Flood Insurance Program defines a flood as a general and temporary condition of partial or complete inundation of normally dry land areas. South Carolina is especially vulnerable to flooding because of its low elevation and frequency of storms. There are three distinct types of flooding, two of which affect Aiken County and its incorporated municipalities: coastal flooding, river flooding, and flash flooding.

#### *Coastal Flooding*

Long and short wave surges that affect the shores of the open ocean, bays, and tidally influenced rivers, streams, and inlets cause coastal flooding. The astronomic tide and meteorological forces such as nor'easters and hurricanes influence the movement of coastal waters.

#### *River Flooding*

River flooding is caused when rivers and streams overflow their banks. Flooding from large rivers usually results from large-scale weather systems that generate prolonged rainfall over wide areas. These same weather systems may cause flooding of smaller basins that drain to major rivers. Small rivers and streams are susceptible to flooding from more localized weather systems that cause intense rainfall over small areas.

#### *Flash Flooding*

Short-term, high-intensity rainfall that occurs in inland areas with poor drainage often produces flash floods. Densely populated areas have a high risk for flash floods. The construction of buildings, highways, driveways, and parking lots increases runoff by reducing the amount of rain absorbed by the ground. During periods of heavy rainfall, storm drains may become overwhelmed and flood roads and buildings. Low spots, such as basements are especially vulnerable to flash floods.

## Severity

The National Weather Service (NWS) categorizes flooding as major, moderate, and minor. Figure 25 below gives a description of the three flooding categories.

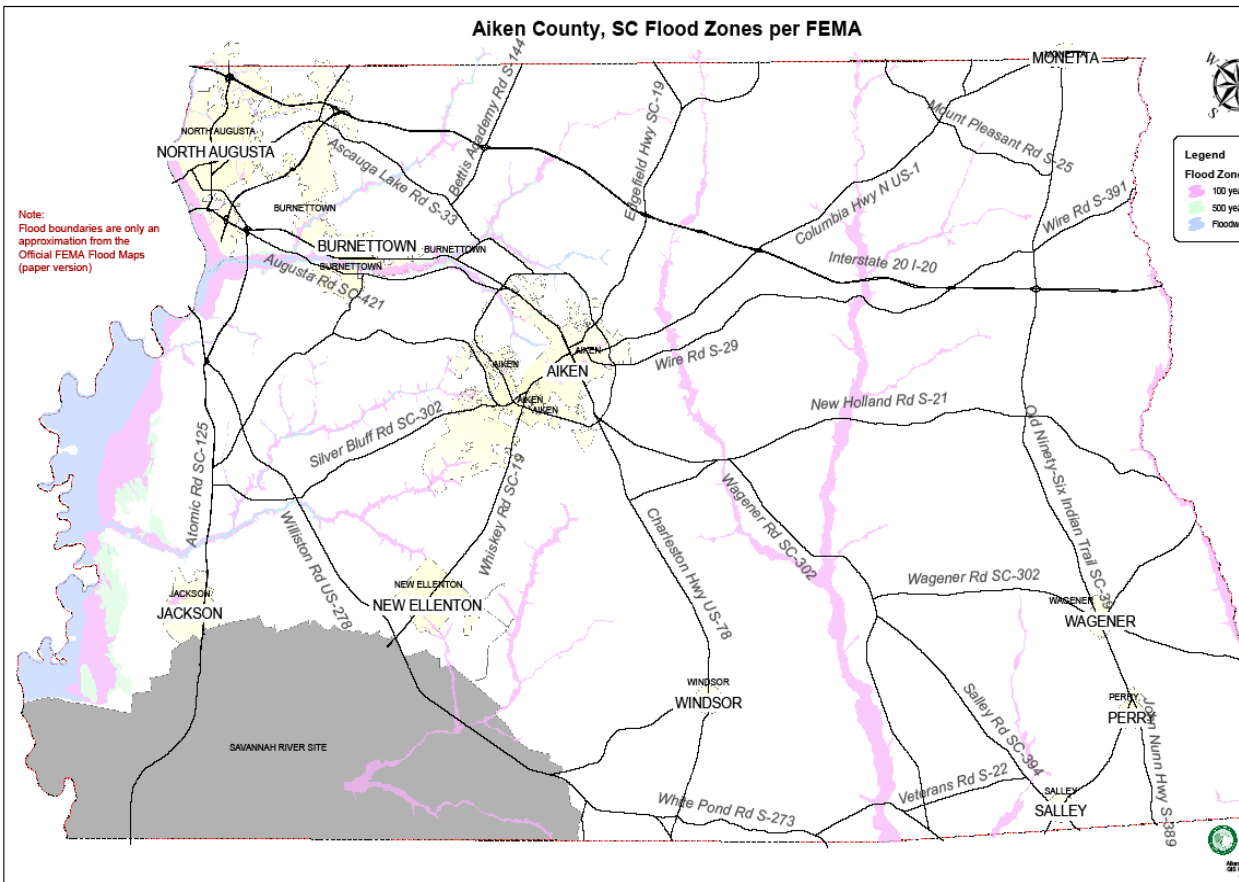
NWS Flood Categories	
Category	Description
Major	<ul style="list-style-type: none"> <li>• Extensive inundation and property damage</li> <li>• Often involves the evacuation of people and the closure of both primary and secondary roads</li> </ul>
Moderate	<ul style="list-style-type: none"> <li>• Inundation of secondary roads</li> <li>• Transfer to higher elevation necessary to save property</li> <li>• Some evacuation may be required</li> </ul>
Minor	<ul style="list-style-type: none"> <li>• Minimal or no property damage</li> <li>• Possibly some public inconvenience</li> </ul>

Figure 25: NWS Flood Categories

## Location

Identification of floodplain areas within the county and the incorporated municipalities was based on the most recent Flood Insurance Rate Maps (FIRM) produced by FEMA. These maps display the locations of all of the major water bodies in the county and delineate the 100-year floodplain boundaries (Zone A). These are areas that have a one percent (1%) chance of equaling or exceeding the recorded base flood elevation during any year. Map 6 below identifies flood prone areas within Aiken County.

## Map 6: Flood Map



### Extent

The following figure 26 gives specific information concerning flooding events and their location within Aiken County.

Figure 26. Historic Occurrences of Flooding in Aiken County

Date	Location	Event	Description
January 8, 1993	Aiken	Flooding	<ul style="list-style-type: none"> <li>Flooding from a period of heavy rains closed 9 area roads</li> <li>All Aiken County schools closed early due to flooding</li> </ul>
October 13, 1994	Statewide	Flash Flooding	<ul style="list-style-type: none"> <li>Statewide flash flooding</li> <li>\$2M in property damage</li> <li>\$8K in crop damage</li> </ul>
October 13, 1994	Statewide	Coastal Flooding/Flash Flooding	<ul style="list-style-type: none"> <li>\$25M in property damage</li> <li>\$50K in crop damage</li> </ul>

March 7, 1996	County	Flash Flooding	▪ Western half of county
March 7, 1996	County	Flash Flooding	▪ \$3K in property damage
August 10, 2003	Aiken	Flash Flooding	▪ Several streets flooded and closed ▪ Exit 22 ramp on I-20 closed
January 24, 2010	County	Flash Flooding	▪ \$2K in property damage
Source: NCDC			

Additionally, the USC Hazard and Vulnerability Research Institute (USC HVRI) provides flood occurrences for Aiken County between 1975 and 2006, however specific dates and locations are not listed. The data shows that 17 floods occurred in Aiken County between 1975 and 1992, with recorded property damage being \$344.2K, crop damage \$11.5K, and one fatality. Between the years 1993 and 2006 there were four flooding events, with \$3K in property damage and no reported crop damage. (USC HVRI)

Overall, when including the additional flood data from USC HVRI, Aiken County has had 28 recorded flood events over a 35 year timeframe (1975-2010).

### **Probability**

FEMA Flood Insurance Rate Maps (FIRM's) delineate special flood-hazard areas and the risk zones in a community. These special flood-hazard areas identify locations that have a chance of experiencing coastal or river flooding in any given year. The 100-year flood designation means the area has a 1% chance of flooding in any given year.

Based on analysis of records from the National Climatic Data Center, USC HVRI, and FEMA's FIRMs, Aiken County and its incorporated municipalities have a history of experiencing flooding. Aiken County had 28 reported floods/flash floods over a 35 year period (1975 to 2010). Aiken County has an 80% chance of a flood event to occur each year within the county, and a risk of at least one flood to occur every one to two years based on the documented history of flooding.

FEMA FIRMs indicate and illustrate special flood hazard areas (SFHAs) subject to inundation by the 1% annual chance of flood in Zone A for the unincorporated areas of Aiken County as well as areas surrounding the 10 incorporated municipalities. The FIRMs also show Zone B and Zone C designations: Zone B is areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one foot or where the contributing drainage area is less than one square mile; Zone C is areas of minimal flooding.

In Aiken County, there are numerous SFHAs indicated on the FEMA FIRMs subject to inundation by the 1% annual chance of flood in Zone A. Aiken County has many creeks, rivers, and streams that could result in loss and damage should overflow occur during unusual rainfall. The following water bodies have been identified on the FEMA FIRMs that could pose a potential threat: Savannah River, Edisto River, Horse Creek, Little Horse Creek, Bridge Creek, Shaw Creek, Town Creek, Hollow Creek, Cedar Creek, Tinker Creek, Upper Three Runs Creek, Sudlow Lake, Langley Pond, and Reynolds Pond to name a few.

Figure 27. Flood Probability for Aiken County

Location	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
Countywide	28	35	1.3	80.0%

Source: NCDC/USC HVRI

### Vulnerability

Severe rainstorms can cause area drainage systems to overflow, resulting in flooded roads. This excessive flooding of the highway network can eventually cause permanent damage to the road infrastructure. Also, there were reports of flooding to homes. Aiken County has reported over a 35 year period \$347.2K in property damage, \$11.5K in damage to crops, and one fatality. Overall, Aiken County as a whole has a moderate vulnerability to flooding.

### FEDERAL REQUIREMENTS FOR LOCAL HAZARD MITIGATION PLANS

**Requirement 201.6(c)(2)(ii):** The risk assessment **must** also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.

### Repetitive Loss Properties

Repetitive loss properties are those for which two or more losses of at least \$1,000 each have been paid under the National Flood Insurance Program within any 10-year period since 1978. After reviewing such properties and structures within the plan area of Aiken County and its incorporated municipalities, no such property has been identified as a repetitive loss property.

### NFIP Participation

The National Flood Insurance Program (NFIP) enables property owners in participating communities to purchase insurance protection from the government against losses from flooding. Participation in the NFIP is based on an agreement between local communities and the federal government which states that if a community will adopt and enforce a floodplain

management ordinance to reduce future flood risks to new construction in SFHAs, the federal government will make flood insurance available within the community as a financial protection against flood losses. After reviewing FEMA's "Community Status Book Report for Communities Participating in the National Flood Program," Aiken County is an active participant in the National Flood Insurance Program (NFIP) and has continued compliance with NFIP requirements and objectives. The City of Aiken, Town of Burnetown, Town of Jackson, Town of New Ellenton, and City of North Augusta are active participants in the NFIP. The Town of Monetta, Town of Perry, Town of Salley, Town of Wagener, and Town of Windsor are not listed and therefore are considered not mapped.

One of the primary objectives of the NFIP is to guide development away from high-flood risk areas. NFIP regulations minimize the impact of structures that are built in SFHAs by requiring them not to cause obstructions to the natural flow of floodwaters. As a condition of Aiken County's participation in the NFIP, those structures built within SFHAs must adhere to strict floodplain management regulations enforced by the community.

Additionally, Aiken County total market value assessments by classification for the 2010 tax year was reported as follows:

Residential	\$7,162,222,836
Commercial	\$1,605,943,899
Agricultural	\$ 483,367,703

There are also a total of 103,091 parcels recorded for the County.

## Winter Storm Analysis



### Hazard Description

Winter storms are often thought of as a snowstorm. While this can be true, there are also other types of weather associated with winter storms that can be extremely hazardous.

#### *Storms and Strong Winds*

Sometimes winter storms are accompanied by strong winds creating blizzard conditions with blinding wind-driven snow, severe drifting, and dangerous wind chill. Strong winds with these intense storms and cold fronts can knock down trees, utility poles, and power lines.

#### *Extreme Cold*

Extreme cold often accompanies a winter storm or is left in its wake. Prolonged exposure to the cold can cause frostbite or hypothermia and become life-threatening. In areas unaccustomed to winter weather, near freezing temperatures are considered “extreme cold.” Freezing temperatures can cause severe damage to citrus fruit crops and other vegetation. Pipes may freeze and burst in homes that are poorly insulated or without heat.

#### *Ice Storms*

Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

#### *Heavy Snow Storms*

Heavy snow can immobilize a region and paralyze a city, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. In rural areas, homes and farms may be isolated for days, and unprotected livestock may be lost. The cost of snow removal, repairing damages, and loss of business can have large economic impacts on cities and towns.

A winter storm develops from three basic elements: cold air, moisture, and lift. Below freezing temperatures in the clouds and near the ground are necessary to make snow and/or ice;

moisture is needed to form clouds and precipitation; and something to raise the moist air to form the clouds and cause precipitation is required (i.e. warm air colliding with cold air and being forced to rise over the cold dome).

### **Severity**

The severity of a winter storm depends on several factors including temperature, wind speed, type of precipitation, rate of deposition, and time of day and/or year the storm occurs. Everyone is potentially at risk during winter storms. The actual threat to the individual depends on the specific situation. Recent observations indicate the following:

- Related to ice and snow:
  - About 70% occur in automobiles
  - About 25% are people caught out in the storm
  - Majority are males over 40 years old
- Related to exposure to cold:
  - 50% are people over 60 years old
  - Over 75% are males
  - About 20% occur in the home

Dangers associated with exposure to cold include frostbite, hypothermia, and wind chill.

### **Location**

There have been five significant winter storms recorded in Aiken County within the past 59 years. The most recent storm took place on February 12, 2010. The following figure 28 details the five storms that affected the County. Individual jurisdictions are not discussed in detail because the events were part of a county wide and statewide disaster. The participating jurisdictions are assumed to be incorporated in the winter event report.



Figure 28. Historic Occurrences of Winter Storms in Aiken County

Date	Location	Type	Description
January 2, 2002	Statewide	Winter Storm	<ul style="list-style-type: none"> <li>▪ Winter storm moved across the southeastern states and continued into January 3</li> <li>▪ Mixture of snow and sleet</li> <li>▪ Freezing rain produced 1/4 to around 1/2 inch of ice and snow accumulations ranged from 2 to 8 inches</li> <li>▪ Numerous auto accidents</li> <li>▪ Driving conditions were treacherous</li> <li>▪ Homes and businesses without power on the 2nd and 3rd</li> </ul>
January 25, 2004	Statewide	Ice Storm	<ul style="list-style-type: none"> <li>▪ Ice accumulations of 1/2 to 3/4 of an inch</li> <li>▪ Trees, large limbs, and power lines down</li> <li>▪ Driving conditions were treacherous</li> <li>▪ Several power outages reported</li> <li>▪ Freezing rain and freezing drizzle</li> </ul>
January 26, 2004	Statewide	Ice Storm	<ul style="list-style-type: none"> <li>▪ Ice accumulations of 1/4 to 1/2 of an inch</li> <li>▪ Trees, large limbs, and power lines down</li> <li>▪ Driving conditions were treacherous</li> <li>▪ Several power outages reported</li> <li>▪ Freezing rain and freezing drizzle</li> </ul>
January 29, 2005	Statewide	Ice Storm	<ul style="list-style-type: none"> <li>▪ Ice accumulations of 1/4 to 1/2 of an inch</li> <li>▪ Trees, large limbs, and power lines down</li> <li>▪ Driving conditions were treacherous</li> <li>▪ Several power outages reported</li> <li>▪ Freezing rain and freezing drizzle</li> </ul>
February 12, 2010	Statewide	Winter Storm	<ul style="list-style-type: none"> <li>▪ Several power outages reported</li> <li>▪ 4 to 6 inches of snow reported across the county</li> </ul>
Source: NCDC			

### Extent

The five significant winter storms/ice storms that affected Aiken County as part of a statewide event caused minor damages; auto accidents, downed power lines and trees, power outages, ice accumulations.

## Probability

Figure 29. Winter Storm Probability for Aiken County				
Location	# of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (% Chance per Year)
County/Statewide	5	59	11.8	8.5%
Source: NCDC				

Based on the data from the above figure, it is estimated that a winter storm event may occur every 11.8 years, with an 8.5% chance of a storm occurring every year in Aiken County. However, mild winter storm events are common in this region of the State. Typically Aiken County experiences some ice, sleet, or snow event annually. During the months of December to March these events are more likely to occur.

## Vulnerability

Heavy accumulations of snow can distress a community; standing commuters, closing vital businesses and facilities, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can also result in downed trees and power lines. The cost of snow removal, repairing damages, and the loss of business can have a severe economic impact on Aiken County and its communities.

Ice storms can also have a significant impact on the County. Heavy accumulations of ice can bring down trees and topple utility poles and communication towers. Ice can disrupt communication and power for days while utility companies repair extensive damage. Even small accumulations of ice can be extremely dangerous to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces.

Additionally, Aiken County total market value assessments by classification for the 2010 tax year was reported as follows:

Residential	\$7,162,222,836
Commercial	\$1,605,943,899
Agricultural	\$ 483,367,703

There are also a total of 103,091 parcels recorded for the County.

Overall, Aiken County has a low vulnerability to major winter storms. In examining these five documented events, it is evident that such winter storms can cause much damage to a community that is not prepared for such hazardous conditions involving heavy ice, sleet, and snow.

## 2.2 Overall Risk Probability and Frequency

*The Task Force Committee reviewed this section for the update process and made the necessary changes to Figure 30 to reflect the updated statistics described in Section 2.1.*

To determine the probability of a natural hazard event, the number of events, total number of years those events have been recorded, and the frequency of events must be determined. The recurrence interval is also helpful in portraying how common a certain type of hazard is. Dividing the number of years by the number of events produces the recurrence interval, or how often the event will occur per year. The percentage frequency of events is determined by dividing the number of events by the total number of years and multiplying by 100. This gives a reliable sense of the chance a hazard will occur per year.

Figure 30 below is necessary in determining overall hazard vulnerability. The figure also helps to define what types of events are more frequent in Aiken County.

Figure 30. All Hazards Probability for Aiken County				
Hazard	# of Events	Years in Record	Recurrence Interval (in years)	Hazard Frequency % (chance per year)
Tornado	39	59	1.5	66.0%
Hurricane/Tropical Storm	20	158	7.9	12.6%
Hail	129	59	0.5	218.6%**
Drought	26	59	2.3	44.1%
Earthquake	4	22	5.5	18.2%
Wildfire	11,898	63	<0.50	18,885.7%**
Flood	28	35	1.3	80.0%
Winter Storm (Snow & Ice)	5	59	11.8	8.5%
Data Sources: National Climatic Data Center, USC Hazards and Vulnerability Research Institute, SC State Climate Office, SC Forestry Commission				
* Unable to calculate (cannot divide by zero) ** Percent is greater than 100%, therefore hazard can be expected to occur more than once per year				

## 2.3 Overall Vulnerability Assessment

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*No changes were made to the mathematical methodology for prioritizing hazards, after review by the Task Force Committee. However, the overall vulnerability summary figures on the following pages have changed due to the updated hazard data as part of the update process.*

### **Prioritization of Hazards for Aiken County**

Based on these findings and the results of technical research the following hazards were selected as priority hazards for Aiken County: Tornadoes, Hurricanes/Tropical Storms, Hail, Drought, Earthquakes, Wildfires, Flooding, and Winter Storms.

To assess and evaluate hazards, four criteria have been established by the task force committee and each has been given a rating of low, medium, or high risk.

1. History – A record of occurrences
2. Vulnerability – The number of people and the value of property that could be affected
3. Impact – Assuming the greatest event possible and the worst case scenario.
4. Probability – The likelihood an event will occur (chances per year)
5. Priority Score- Composite score value for each hazard weighing priority attention to planning

In the scoring system, each of the four criteria identified for describing and analyzing potential hazards is assigned a rating and their respective number.

Low	1 point
Medium	5 points
High	10 points

Since some criteria are judged to be more important than others, a weighting factor was established to balance out the total scoring. The following weights are used:

History	2
Vulnerability	5
Impact	10
Probability	7

A composite score for each hazard is arrived at by multiplying the score value assigned to each criterion by its weight and then summing the four totals. For example:

Hazard: Flood

History	Medium	5pts x 2 (weighting factor) = 10 pts
Vulnerability	Medium	5pts x 5 (weighting factor) = 25 pts
Impact	High	10pts x 10 (weighting factor) = 100 pts
Probability	Medium	5pts x 7 (weighting factor) = 35 pts
		Total = 160 pts

All information has been compiled and created as to the various hazards in the County. Those hazards with the highest numerical scores will receive priority attention for planning and mitigation purposes. The methods used for determining the rating of High, Medium, and Low risks are as follows:

History: Risk determined by past occurrences in each participating jurisdiction, where available, and by county wide occurrences.

Vulnerability: Based on the total population from the jurisdiction and an estimated projection on property values and facilities within the jurisdiction.

Impact: Risk determination was established by taking into account the vulnerability of the jurisdiction/county as well as past history of occurrence. Determination was also based on the extent of the event located in previous hazard profile section of the plan.

Probability: Determined by hazard frequency percentage located in the previous section of overall risk probability and frequency.

The following figure 31 and figure 32 are the overall vulnerability summary for hazards within Aiken County and its incorporated jurisdictions. Plan goals and objectives are prioritized according to these figures.

Figure 31. Aiken County Hazard Identification and Analysis Worksheet

Aiken County					
Type of Hazard	Probability	Vulnerability	Impact	History	Total Score
Tornado	Medium	Medium	Medium	Medium	
<b>Priority Score:</b>	35	25	50	10	<b>120</b>
Hurricane/Tropical Storm	Low	Medium	Medium	Low	
<b>Priority Score:</b>	7	25	50	2	<b>84</b>
Hail	High	Medium	Medium	High	
<b>Priority Score:</b>	70	25	50	20	<b>165</b>
Drought	Medium	Medium	Medium	Low	
<b>Priority Score:</b>	35	25	50	2	<b>102</b>
Earthquake	Low	Low	Low	Low	
<b>Priority Score:</b>	7	5	10	2	<b>24</b>
Wildfire	High	Medium	High	High	
<b>Priority Score:</b>	70	25	100	20	<b>205</b>
Flood	Medium	Medium	High	Medium	
<b>Priority Score:</b>	35	25	100	10	<b>170</b>
Winter Storms	Low	Medium	Low	Low	
<b>Priority Score:</b>	7	25	10	2	<b>44</b>

Figure 32. Aiken County: Incorporated Jurisdictions Hazard Identification and Analysis Worksheet						
Municipality	Type of Hazard	Probability	Vulnerability	Impact	History	Total Score
Aiken	Tornado	Low	High	Low	Low	
	<b>Priority Score:</b>	7	50	10	2	69
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	High	High	Medium	High	
	<b>Priority Score:</b>	70	50	50	20	190
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					
	Earthquake	Low	High	Low	Low	
	<b>Priority Score:</b>	7	50	10	2	69
	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					
	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					
Burnettown	Tornado	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	Medium	Medium	Low	Medium	
	<b>Priority Score:</b>	35	25	10	10	80
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					
	Earthquake	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					
	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					
Jackson	Tornado	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	Low	Low	Low	Medium	
	<b>Priority Score:</b>	7	5	10	10	32
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					
	Earthquake	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					

	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					
Monetta	Tornado	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					
	Earthquake	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					
	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					
New Ellenton	Tornado	Low	Medium	Low	Low	
	<b>Priority Score:</b>	7	25	10	2	44
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					
	Earthquake	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					
	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					
North Augusta	Tornado	Low	High	Low	Low	
	<b>Priority Score:</b>	7	50	10	2	69
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	Medium	High	Medium	Medium	
	<b>Priority Score:</b>	35	50	50	10	145
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					
	Earthquake	Low	Medium	Low	Low	
	<b>Priority Score:</b>	7	25	10	2	44



	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					
	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					
Perry	Tornado	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					
	Earthquake	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					
	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					
Salley	Tornado	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					
	Earthquake	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					
	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					
Wagener	Tornado	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	24
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					

	Earthquake	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	<b>24</b>
	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					
	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					
Windsor	Tornado	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	<b>24</b>
	Hurricane/Tropical Storm	COUNTYWIDE				
	<b>Priority Score:</b>					
	Hail	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	<b>24</b>
	Drought	COUNTYWIDE				
	<b>Priority Score:</b>					
	Earthquake	Low	Low	Low	Low	
	<b>Priority Score:</b>	7	5	10	2	<b>24</b>
	Wildfire	COUNTYWIDE				
	<b>Priority Score:</b>					
	Flood	COUNTYWIDE				
	<b>Priority Score:</b>					
	Winter Storms	COUNTYWIDE				
	<b>Priority Score:</b>					

## **2.4 Community Mitigation Capability Assessment**

*No changes were made to this section after the Task Force Committee reviewed and analyzed during the update process.*

### **Purpose**

The main purpose of this section is to examine the policies, ordinances, and codes that have been put in place to reduce the impacts of natural hazards. In some instances, especially in the more rural jurisdictions, such existing plans do not exist. In these cases, the town is typically covered underneath the county's plans. The following is a collection of policies concerning natural hazards, mitigation, and emergency preparedness, reviewed by the Lower Savannah Council of Governments. This section is essential for the examination of current natural hazard mitigation. The review of the following plans aided the development of this hazard mitigation by allowing the plan developers to see what is already in place to deal with natural hazards.

Aiken County's Emergency Management Division provides overall coordination during major emergencies, such as hurricanes, tornados, and other natural and manmade disasters. The EMD is responsible for all hazards planning, natural and technological, hazard mitigation, preparedness for, response to, and recovery from disasters, and the coordination of the Emergency Preparedness Committee.

Aiken County has an Emergency Operations Plan that was developed for use by Aiken County Government Officials to ensure mitigation and preparedness, appropriated response, and timely recovery from hazards that may affect Aiken County. The plan has three major parts: letter of promulgation approves the plan and assigns responsibilities, basic plan outlines policies and general procedures that provide a common basis for joint county and municipal governments operations in a natural, technological, or purposeful harm disaster, and Emergency Support Functions (ESFs) providing guidelines for the development of appropriate mechanisms to facilitate the prompt and efficient application of resources in any emergency or disaster situation.

Comprehensive plans and zoning ordinances exist in Aiken County and all five out of the ten incorporated municipalities. Integrating mitigation concepts and policies with existing comprehensive plans provides and expanded means for implementing initiatives through established, legal frameworks. The foundation of these plans lies in the promotion of health, safety, efficiency, and well being for all segments of the population. Some of the primary plan objectives include preservation of the County's unique natural environment and historic heritage, creation of a stable and diverse economy, and promoting sustainable developments. A local hazard mitigation initiative can be strengthened by finding opportunities where the

implementation of other County goals and policies also supports the mitigation recommendations presented in this plan.

Zoning ordinances cover the unincorporated areas of the county and five of the municipalities. Zoning can be used to restrict growth in high risk areas, allow low density development or designate only certain uses in hazard prone areas. All the zoning ordinances require erosion control practices for ground disturbing activities, protection of existing waterways, and revegetation. These practices and others promote best management practices and reduce the risk of flooding hazard in particular.

Aiken County has land development regulations that provide policy for infrastructure for new development. Like zoning regulations, these regulations provide best management practices to reduce the risk of flooding hazards.

Building codes are important in mitigation because codes are developed for areas of the state in consideration of types, frequency and intensity of hazards present in that geographic region. Consequently, structures that are built to applicable codes are inherently resistant to many hazards like strong wind, floods, and earthquakes. Additionally, Aiken County has a mobile and manufactured home ordinance that provides separate standards for those types of housing

Intergovernmental cooperation is a great asset to the implementation of hazard mitigation actions. This way local, county, and State agencies can act as resources for each other. Interaction between the County, towns, and regional planning organizations occurs in areas such as plan development and grant writing.

The major conclusion reached after conducting the capability assessment is that Aiken County will need to rely on technical and financial assistance from various resources to effectively implement hazard mitigation actions over the next five years. The constraints facing the County and especially the municipalities include both limited staff resources and extremely limited funding.

During this planning process, it is apparent that the County has a strong capability to bring together various groups to work together in crafting better communities of the future. The same cooperative effort, if joined with the appropriate technical and financial assistance from regional, state, and federal resources, can be harnessed to implement the priority hazard mitigation actions. A sustained effort by citizens, staff, and local officials can create a more sustainable and disaster resistant future.

Each of the local governments has the capacity to handle mitigation issues, but is limited due to funding and limited staff. The results of the capability assessment help to provide the framework for developing recommendation for specific mitigation actions. It also helps to identify shortfalls in the local government capabilities as well as draw attention to existing

successes. The capability assessment was analyzed then used to rank the mitigation strategies according to the capability of the county or the municipalities to implement the actions.

### **Incorporation of the requirements of the mitigation plan into existing planning mechanisms**

Existing Planning Mechanisms

<b>Jurisdiction</b>	<b>Comprehensive Plan</b>	<b>Capital Improvement Plan</b>	<b>Building Code/LDR</b>	<b>Flood Hazard Ordinance</b>	<b>Zoning Ordinance</b>	<b>Emergency Operations Plan**</b>
Aiken County	Yes	Yes	Yes	Yes	Yes	Yes
Aiken	Yes	Yes	Yes	Yes	Yes	Yes
Burnettown	Yes	No	Yes*	Yes	Yes	Yes
Jackson	Yes	No	Yes*	Yes	Yes	Yes
Monetta	No	No	Yes*	No	No	Yes
New Ellenton	Yes	Yes	Yes*	Yes	Yes	Yes
North Augusta	Yes	Yes	Yes	Yes	Yes	Yes
Perry	No	No	Yes*	No	No	Yes
Salley	No	No	Yes*	No	No	Yes
Wagener	No	No	Yes*	No	No	Yes
Windsor	No	No	Yes*	No	No	Yes

\*Enforced by County

\*\* Municipalities covered by County EOP

There are several ways to incorporate the hazard mitigation plan requirements into the existing planning processes. First, the comprehensive plans are updated every five years and cover features of the jurisdictions such as natural resources and community facilities. Planning commissions within each jurisdiction revise the plans then recommend the revised plan to the local governing bodies for approval. Using this process, hazard mitigation elements can be included in plan updates.

Capital improvement activities are usually included as part of the comprehensive plans. The jurisdictions are covered under the County CIP. The zoning ordinances are built from the findings of the comprehensive plan, so changes to the zoning ordinances can be made after the comprehensive plan is updated.

Updating the comprehensive plan would cover areas such as economic development, land use, natural resources, road construction and community facilities. From that, the zoning ordinance could reflect needed changes for issues such as development, land uses, storm water retention or road grading activities.

Building codes are standard across the county and can be updated with hazard mitigation findings by the governing body of each local government. In addition, the state has adopted the

4/11/2011

Southern Building Code. As changes are made to the state building code by the state legislature local jurisdictions may adopt those changes and incorporate them into local building codes.

Public hearings, which provide an opportunity for public comment, are required prior to adoption of any of the above planning mechanisms.



## **Part Three:**

# **Mitigation Strategy**

## 3.1 Mitigation Strategy

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*After review and analysis from the Task Force Committee, the Mitigation Strategy section has remained unchanged for the update process.*

The Mitigation Strategy section describes how Aiken County and its incorporated municipalities will reduce or eliminate potential losses from hazards identified in the Natural Hazard Risk Assessment section. The strategy focuses on existing and potential mitigation actions that will mitigate the effects of a natural hazard event on Aiken County's population, economy, and property. The Mitigation Strategy is a coordinated effort by various agencies and partners to develop and implement a comprehensive range of inventive and effective natural hazard mitigation actions.

### Mitigation Strategy Approach

- Establish mitigation goals and objectives that aim to reduce or eliminate Aiken County's long-term vulnerability to natural-hazard events
- Identify and analyze a comprehensive range of hazard-specific mitigation actions that aim to achieve the goals and objectives of the Mitigation Strategy
- Describe how Aiken County will prioritize, implement, and administer mitigation actions

### FEMA Requirements

The Task Force Committee developed the mitigation strategy consistent with the process and steps presented in the Federal Emergency Management Agency's (FEMA) How-To-Guide: Developing the Mitigation Plan. This section satisfies the following requirements:

- **Requirement §201.6(c)(3)(i):** The hazard mitigation strategy **shall** include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
- **Requirement §201.6(c)(3)(ii):** The mitigation strategy **shall** include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. The mitigation strategy must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.
- **Requirement §201.6(c)(3)(iii):** The mitigation strategy **shall** include an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include



a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

## **Process**

Using the findings from the risk assessment and the capabilities assessment as a guide the task force developed the following mitigation goals, objectives, and strategies for implementation. Goals and objectives were developed by the Task Force, Lower Savannah Council of Government representatives, and FEMA representatives and included a period provided for comment and revision. Once the final goals and objectives were determined the Task Force developed the mitigation strategies that would aid the county and participating jurisdictions in meeting the goals and objectives identified in the plan. Strategies were selected using the information obtained from the capabilities assessment, which identified existing programs and shortfalls related to mitigation activities.

The first step in the mitigation actions and prioritization process was the county Task Force reviewed a broad range of potential mitigation actions. From these proposed actions, the Task Force developed a prioritization method based on a number of different factors. The projects were ranked based on a cost-benefit review that showed which projects were most needed, which of these projects was the most likely to be accomplished, and which would most effectively address mitigation needs. Those projects that required minimal funds were considered higher in priority because of the high likelihood that they could be accomplished as well as having a maximum cost-benefit ratio.

In addition to reviewing potential monetary costs, the team considered the social impact of each potential project, the technical capabilities of the local government to carry through the project, impact on the environment, ability of the local government to maintain the project, and any political or legal effects of the decision. Actions that can immediately aid in the mitigation of the most likely and dangerous natural hazards are higher in priority under each of the goals for Aiken County and the participating municipalities. This cost-benefit review was the basis for each of the project feasibility rankings.

Each action and project includes the following: a priority rank, project name, description, responsible party, and timeframe. The participating municipalities will rely on grants and other sources in order to fund mitigation projects.

Based on the recommendations of the Task Force the following implementation schedule has been developed. Projects have been listed by priority according to the ranking assigned by the Task Force (High, Medium, or Low). Feasibility to implement the projects is also ranked High, Medium or Low based on the results of the capability assessment.

## Cost Benefit Review

A key criterion for mitigation projects to be eligible for funding is that they must be cost-effective. If the project benefits are higher than the project costs, then the project is cost-effective. In order to ensure a consistent approach in determining the cost-effectiveness of all mitigation projects, Aiken County will use the FEMA Benefit Cost Analysis (BCA) module and process. A Benefit-Cost Analysis (BCA) is a method for determining the potential positive effects of a specific mitigation action and comparing them to the cost of the action. To assess and demonstrate the cost-effectiveness of mitigation actions, FEMA has developed a suite of BCA software, including hazard-specific modules. Agencies seeking funding under one of FEMA's mitigation grant programs will perform a detailed BCA using this software prior to the submission of the grant application.

Aiken County will weigh the effectiveness of the mitigation actions based on the implementation timeframe, the history of occurrences for specific hazards, and the cost of the project.

## Implementation and Administration

The following categories have been identified as information for each action that will guide Aiken County and its participating municipalities in the implementation and administration of the actions: description, agencies, timeframe, cost, funding source, and priority. It also serves to coordinate the various agencies involved to avoid duplicating or conflicting efforts. The mitigation strategies contain a wide variety of actions that mitigate the effects of natural hazards on the population, economy, and property of Aiken County.

<b>Implementation Key</b>	
<b>Column Header</b>	<b>Description</b>
<b>Mitigation Action &amp; Description</b>	Contains the title and description of the action
<b>Agency</b>	Lists the agency that has primary jurisdiction over the mitigation action and any supporting entities that will assist in the implementation, funding, or maintenance of the mitigation action
<b>Project Timeframe/Duration</b>	Estimates when the project will begin and approximately how long it will take to complete. "Ongoing" refers to actions that are either underway or have no definitive end date
<b>Estimated Project Cost</b>	Estimates costs associated with implementing each mitigation action
<b>Possible Funding Source(s)</b>	Identifies possible sources of funding including capital funding, grants, bonds, and other types of funding
<b>FEMA Category</b>	Identifies the associated FEMA mitigation action category (Prevention, Property Protection, Public Education and Awareness, Natural Resource Protection, Emergency Services, and Structural Projects)
<b>Goals and Objectives</b>	Identifies the hazard mitigation goals and objectives addressed by the mitigation action
<b>Priority</b>	Lists the results of the mitigation action prioritization

## 3.2 Aiken County Goals and Objectives

*The Task Force Committee reviewed and analyzed the County's goals and objectives and revised Figure 33 as part of the update process.*

### Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate Aiken County's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the County and its participating municipalities want to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Aiken County's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Task Force Committee reviewed and analyzed all goals to ensure they would reduce or avoid long-term vulnerabilities to the identified hazards. Aiken County will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
Objective 1.3	Train emergency responders.
Objective 1.4	Strengthen local building code enforcement.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Educate public officials, developers, realtors, contractors, building owners, and

	the public about hazard risks and building requirements.
<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in Aiken County</b>	
Objective 5.1	Continue the implementation of zoning codes.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 33: Aiken County Hazard Mitigation Goals and Objectives

### **3.3 Aiken County Mitigation Actions**

*Additional mitigation actions were included in this section based on the Task Force Committee review and recommendations. Those changes can be seen in Figure 34 on page 85.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within Aiken County, and also the protection of the citizens.

#### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

#### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of Aiken County's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the County's programs, plans, projects, or policies that the county may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions based on the hazard vulnerability, historical occurrence of the hazard, cost effectiveness, and compliance with NFIP.

### **Status on Strategies**

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that some of the previous strategies for Aiken County were not implemented due to the lack of funding sources. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns.

Aiken County Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Timeframe	Hazard(s)	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	Aiken County/Emergency Management	Completed	ALL	N/A	PDM, HMGP	Public Education and Awareness	1.1,1.2,1.3	Medium	Complete	In place	Achieved
Implement and enforce zoning codes and building codes to ensure no new structures are built within the floodplains.	Aiken County/Building and Planning	Completed	Flood	N/A	N/A	Prevention	3.2,3.6,5.1,5.2	High	Complete	Continuous process	Enforcement is necessary
Establishment and identification of emergency shelters during times of natural hazards.	Emergency Management	Completed	ALL	N/A	N/A	Emergency Services/Property Protection	1.2, 6.1, 6.2, 6.3	Medium	Complete	In place	Achieved
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Aiken County/SCDNR/SCDOT	*Ongoing	Flood	N/A	Federal and State Grants	Property Protection	3.2,3.5,3.6,5.1,5.2	Medium	Depending on funding	5 years	Depending on funding
Develop an enhanced notification system for the citizens using a variety of communication media to simultaneously notify, alert, and/or instruct citizens prior to and during an emergency.	Aiken County/Emergency Management	Completed	ALL	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1,1.2,1.3,2.1	Medium	Complete	In place	Emergency telephone notification system, National Weather Service transmitter, Alert FM System

Retro Fit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	*Ongoing	ALL	N/A	PDM/HMGP	Emergency Services/Property Protection	3, 1, 3, 2, 3, 3, 3, 4, 3, 5, 3, 6	High	Depending on funding	5 years	Depending on funding
Continue to regularly inspect roads and bridges throughout the county to ensure they are ready for extra service if a disaster strikes.	Aiken County/SCDOT/Emergency Management	*Ongoing	ALL	N/A	General Fund/Local or Federal grants	Emergency Services/Prevention	1, 2, 2, 3, 4, 1	High	This is will be an on-going project that will continue to be implemented and developed over time	Continuous	This is a new strategy
Continue to regularly review local government comprehensive plans and ordinances to ensure that they include provisions for pre- and post-disaster planning.	Aiken County Planning and Development	*Ongoing	ALL	N/A	Local or Federal grants	Prevention/Property Protection	1, 4, 2, 2, 3, 2, 3, 3, 4, 3, 5, 5, 1, 5, 2	High	Continuous process	In place; continuous	Achieved; done on a regular basis

Figure 34: Aiken County Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption



## 3.4 City of Aiken Goals and Objectives

*The Task Force Committee reviewed and analyzed the City of Aiken's goals and objectives and revised Figure 35 as part of the update process.*

### Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the City of Aiken's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the City wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Aiken's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The City of Aiken will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
Objective 1.3	Train emergency responders.
Objective 1.4	Strengthen local building code enforcement.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Educate public officials, developers, realtors, contractors, building owners, and the public about hazard risks and building requirements.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the City of Aiken</b>	
Objective 5.1	Continue the implementation of zoning codes.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 35: City of Aiken Hazard Mitigation Goals and Objectives

## **3.5 City of Aiken Mitigation Actions**

*Additional mitigation actions were included in this section based on the Task Force Committee review and recommendations. Those changes can be seen in Figure 36 on page 91.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the City of Aiken, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss

properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the City of Aiken's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the city's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that none of the previous strategies for the City of Aiken were implemented due to the lack of funding sources. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

City of Aiken Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012- over a 3-year term	Identify funding source
Implement and enforce zoning codes and building codes to ensure no new structures are built within the floodplains.	City of Aiken/Building and Planning	Flood	*Ongoing	N/A	N/A	Prevention	1.4, 3.2, 3.3	Medium	Completed	Currently in place	Continuous process that requires enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Complete	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Low	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on funding	5 years	New identified action
Develop an enhanced notification system for the citizens using a variety of communication media to simultaneously notify, alert, and/or instruct citizens prior to and during an emergency	County/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/ Public Education and Awareness	1.1, 2.3, 4.1	Medium	Depending on funding	5 years	Would be based on funding
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1, 1.3, 2.3, 3.1, 3.3, 3.4, 3.5, 4.1, 6.1, 6.2	High	Depending on funding	5 Years	New identified action

Figure 36: City of Aiken Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption

## 3.6 Town of Burnetttown Goals and Objectives

*The Task Force Committee reviewed and analyzed the Town of Burnetttown goals and objectives and revised Figure 37 as part of the update process.*

### Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of Burnetttown long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Burnetttown's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of Burnetttown will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
Objective 1.3	Train emergency responders.
Objective 1.4	Strengthen local building code enforcement.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
Objective 2.4	Educate residents on meaning of warning systems and scheduled testing of systems.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.

Objective 3.5	Educate public officials, developers, realtors, contractors, building owners, and the public about hazard risks and building requirements.
<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of Burnetttown</b>	
Objective 5.1	Continue the implementation of zoning codes.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 37: Town of Burnetttown Hazard Mitigation Goals and Objectives

## **3.7 Town of Burnettown Mitigation Actions**

*Additional mitigation actions were included in this section based on the Task Force Committee review and recommendations. Those changes can be seen in Figure 38 on page 96.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of Burnettown, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss



properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the Town of Burnetttown's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that none of the previous strategies for the Town of Burnetttown were implemented due to the lack of funding sources. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

Town of Burnet(town Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012- over a 3-year term	Identify funding source
Implement and enforce zoning codes and building codes to ensure no new structures are built within the floodplains.	County/County Building and Planning	Flood	*Ongoing	N/A	N/A	Prevention	1.4, 3.2, 3.3	Medium	Completed	Currently in place	Continuous process that requires enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Low	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on funding	5 years	Identify funding source
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1, 1.3, 2.3, 3.1, 3.3, 3.4, 3.5, 4.1, 6.1, 6.2	High	Depending on funding	3 Years	New identified action

Figure 38: Town of Burnnettown Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption

## **3.8 Town of Jackson Goals and Objectives**

*The Task Force Committee developed the Town of Jackson's goals and objectives and revised as part of the update process.*

### **Developing Goals and Objectives**

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of Jackson's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Jackson's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of Jackson will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of Jackson</b>	
Objective 5.1	Consider the implementation of zoning codes, to be enforced by the County.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 39: Town of Jackson Hazard Mitigation Goals and Objectives

## **3.9 Town of Jackson Mitigation Actions**

*Additional mitigation actions were included in this section based on the Task Force Committee review and recommendations. Figure 40 on page 101 describes those mitigation actions.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of Jackson, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss

properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the Town of Jackson's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that none of the previous strategies for the Town of Jackson were implemented due to the lack of funding sources. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

Town of Jackson Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012-over a 3-year term	Identify funding source
Continue the implementation of zoning codes and building codes to ensure no new structures are built within the floodplains.	Town of Jackson	Flood	*Ongoing	N/A	N/A	Prevention	5.1,5.2	Medium	Completed	Currently in place	Continuous process requiring enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Medium	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on funding	5 years	Identify funding source
Notification of the public in cases of emergency.	County/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1, 2.3, 4.1	High	Currently in place	Completed	Continuous process during hazard events
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,3.4,3.5,4.1,6.1,6.2	High	Depending on funding	3 Years	New identified action

Figure 40: Town of Jackson Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption

## 3.10 Town of Monetta Goals and Objectives

*The Task Force Committee developed the Town of Monetta's goals and objectives and revised as part of the update process.*

### Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of Monetta's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Monetta's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of Monetta will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.



<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of Monetta</b>	
Objective 5.1	Continue the implementation of zoning codes, to be enforced by the County.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 41: Town of Monetta Hazard Mitigation Goals and Objectives

## **3.11 Town of Monetta Mitigation Actions**

*Additional mitigation actions were included in this section based on the Task Force Committee review and recommendations. Figure 42 on page 106 describes those mitigation actions.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of Monetta, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss

properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the Town of Monetta's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that none of the previous strategies for the Town of Monetta were implemented due to the lack of funding sources. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

Town of Monetta Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012-over a 3-year term	Identify funding source
Continue the implementation of zoning codes and building codes to ensure no new structures are built within the floodplains.	Aiken County Planning and Building	Flood	*Ongoing	N/A	N/A	Prevention	5.1,5.2	Medium	Completed	Currently in place	Continuous process requiring enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Medium	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on Funding	5 years	Identify funding source
Notification of the public in cases of emergency.	County/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1, 2.3, 4.1	High	Currently in place	Completed	Continuous process during hazard events
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,4.3,5.4,1.6,1.6.2	High	Depending on Funding	3 Years	New identified action

Figure 42: Town of Monetta Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption

## **3.12 Town of New Ellenton Goals and Objectives**

*The Town of New Ellenton is a new participant in the update process. Therefore, the goals and objectives are new as part of this update.*

### **Developing Goals and Objectives**

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of New Ellenton's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce New Ellenton's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of New Ellenton will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Ensure existing critical facilities and emergency shelters are better able to withstand the forces of a hazard.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of New Ellenton</b>	
Objective 5.1	Continue the implementation of zoning codes, to be enforced by the County.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 43: Town of New Ellenton Hazard Mitigation Goals and Objectives

## **3.13 Town of New Ellenton Mitigation Actions**

*The Town of New Ellenton is a new participant in this update; therefore, the mitigation actions are all new actions and are illustrated in Figure 44 on page 111.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of New Ellenton, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss

properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the Town of New Ellenton's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

The Town of New Ellenton did not participate in the original HMP process. The following mitigation actions are new and have been identified for this update, as the Town of New Ellenton is now a participating municipality in Aiken County's HMP. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns



Town of New Ellenton Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012-over a 3-year term	Open with Work being done
Continue the implementation of zoning codes and building codes to ensure no new structures are built within the floodplains.	Town of New Ellenton Building and Zoning	Flood	*Ongoing	N/A	N/A	Prevention	5.1,5.2	Medium	Completed	Currently in place	Continuous process requiring enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Medium	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on funding	5 years	Identify funding source
Notification of the public in cases of emergency.	County/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1, 2.3, 4.1	High	Currently in place	Completed	Continuous process during hazard events
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan Bring up to wind resistant code the Town of New Ellenton Fire Station and Greendale Elementary Gymnasium	Emergency Management  Town of New Ellenton/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,4.3,5.4,1.6,1.6.2	High	Depending on funding	3 Years	New identified action
Develop an Emergency Evacuation Plan for the citizens of New Ellenton	Town of New Ellenton	ALL	Immediate	N/A	PDM/HMGP	Property Protection	3.1,3.3,3.5	High	Depending on funding	5 years	Identify funding source
						Emergency Services	1.1,1.2,4.1	High	Depending on funding	2-3 years	Identify funding source

Figure 44: Town of New Ellenton Hazard Mitigation Actions

\* Ongoing is defined as continuing without termination or interruption

## **3.14 City of North Augusta Goals and Objectives**

*The Task Force Committee developed the City of North Augusta's goals and objectives and revised as part of the update process*

### **Developing Goals and Objectives**

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the City of North Augusta's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the City wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce North Augusta's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The City of North Augusta will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Ensure existing critical facilities and emergency shelters are better able to withstand the forces of a hazard.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the City of North Augusta</b>	
Objective 5.1	Continue the implementation of zoning codes.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 45: City of North Augusta Hazard Mitigation Goals and Objectives

## **3.15 City of North Augusta Mitigation Actions**

*Additional mitigation actions were included in this section based on the Task Force Committee review and recommendations. Those changes can be seen in Figure 46 on page 116.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the City of North Augusta, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss

properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the City of North Augusta's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the city's programs, plans, projects, or policies that the city may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that none of the previous strategies for the City of North Augusta were implemented due to the lack of funding sources. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

City of North Augusta Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012-over a 3-year term	Open with Work being done
Continue the implementation of zoning codes and building codes to ensure no new structures are built within the floodplains.	City of North Augusta Building and Zoning	Flood	*Ongoing	N/A	N/A	Prevention	5.1,5.2	Medium	Completed	Currently in place	Continuous process requiring enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Medium	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on funding	5 years	Identify funding source
Notification of the public in cases of emergency.	County/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1, 2.3, 4.1	High	Currently in place	Completed	Continuous process during hazard events
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,4.3,5.4,1.6,1.6.2	High	Depending on funding	3 Years	New identified action

Figure 46: City of North Augusta Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption

## 3.16 Town of Perry Goals and Objectives

*The Task Force Committee developed the Town of Perry's goals and objectives and revised as part of the update process*

### Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of Perry's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Perry's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of Perry will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Ensure existing critical facilities and emergency shelters are better able to withstand the forces of a hazard.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of Perry</b>	
Objective 5.1	Continue the implementation of zoning codes. Enforced by County
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 47: Town of Perry Hazard Mitigation Goals and Objectives



## **3.17 Town of Perry Mitigation Actions**

*Additional mitigation actions were included in this section based on the Task Force Committee review and recommendations. Those changes can be seen in Figure 48 on page 121.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of Perry, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss

properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the Town of Perry's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that none of the previous strategies for the Town of Perry were implemented due to the lack of funding sources. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

Town of Perry Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012-over a 3-year term	Open with Work being done
Continue the implementation of zoning codes and building codes to ensure no new structures are built within the floodplains.	Aiken County Building and Zoning	Flood	*Ongoing	N/A	N/A	Prevention	5.1,5.2	Medium	Completed	Currently in place	Continuous process requiring enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Medium	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on funding	5 years	Identify funding source
Notification of the public in cases of emergency.	County/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1, 2.3, 4.1	High	Currently in place	Completed	Continuous process during hazard events
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,4.3,5.4,1.6,1.6.2	High	Depending on funding	3 Years	New identified action

Figure 48: Town of Perry Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption

## 3.18 Town of Salley Goals and Objectives

*The Task Force Committee developed the Town of Salley's goals and objectives and revised as part of the update process*

### Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of Salley's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Salley's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of Salley will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Ensure existing critical facilities and emergency shelters are better able to withstand the forces of a hazard.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of Salley</b>	
Objective 5.1	Continue the implementation of zoning codes. Enforced by County.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 49: Town of Salley Hazard Mitigation Goals and Objectives

## **3.19 Town of Salley Mitigation Actions**

*Additional mitigation actions were included in this section based on the Task Force Committee review and recommendations. Those changes can be seen in Figure 50 on page 126.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of Salley, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss

properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the Town of Salley's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that none of the previous strategies for the Town of Salley were implemented due to the lack of funding sources. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

Town of Salley Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012-over a 3-year term	Open with Work being done
Continue the implementation of zoning codes and building codes to ensure no new structures are built within the floodplains.	Aiken County Building and Zoning	Flood	*Ongoing	N/A	N/A	Prevention	5.1,5.2	Medium	Completed	Currently in place	Continuous process requiring enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Medium	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on funding	5 years	Identify funding source
Notification of the public in cases of emergency.	County/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1, 2.3, 4.1	High	Currently in place	Completed	Continuous process during hazard events
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,4.3,5.4,1.6,1.6.2	High	Depending on funding	3 Years	New identified action

Figure 50: Town of Salley Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption



## 3.20 Town of Wagener Goals and Objectives

*The Task Force Committee developed the Town of Wagener's goals and objectives and revised as part of the update process*

### Developing Goals and Objectives

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of Wagener's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Wagener's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of Wagener will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

Hazard Mitigation Goals and Objectives	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Ensure existing critical facilities and emergency shelters are better able to withstand the forces of a hazard.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of Wagener</b>	
Objective 5.1	Continue the implementation of zoning codes. Enforced by County.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 51: Town of Wagener Hazard Mitigation Goals and Objectives

## **3.21 Town of Wagener Mitigation Actions**

*Additional mitigation actions were included in this section based on the Task Force Committee review and recommendations. Those changes can be seen in Figure 52 on page 131.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of Wagener, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss

properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the Town of Wagener's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

After reevaluating and reviewing the mitigation actions for the plan update, it was evident that none of the previous strategies for the Town of Wagener were implemented due to the lack of funding sources. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

Town of Wagener Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012-over a 3-year term	Open with Work being done
Continue the implementation of zoning codes and building codes to ensure no new structures are built within the floodplains.	Aiken County Building and Zoning	Flood	*Ongoing	N/A	N/A	Prevention	5.1,5.2	Medium	Completed	Currently in place	Continuous process requiring enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Medium	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on funding	5 years	Identify funding source
Notification of the public in cases of emergency.	County/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1, 2.3, 4.1	High	Currently in place	Completed	Continuous process during hazard events
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,4.3,5.4,1.6,1.6.2	High	Depending on funding	3 Years	New identified action

Figure 52: Town of Wagener Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption

## **3.22 Town of Windsor Goals and Objectives**

*The Town of Windsor is a new participant in the update process. Therefore, the goals and objectives are new as part of this update.*

### **Developing Goals and Objectives**

The first step in developing a hazard mitigation strategy is to establish goals and objectives that aim to reduce or eliminate the Town of Windsor's long-term vulnerability to natural hazard events. Mitigation goals are general guidelines explaining what the Town wants to achieve in terms of hazard and loss prevention. Objectives are specific, measurable strategies or implementation steps used to achieve the identified goals. Developing clear goals and objectives helped reinforce Windsor's overall purpose and mission for undertaking a mitigation planning process.

The goals and objectives set forth below provide the necessary framework to develop a mitigation strategy. The Town of Windsor will re-evaluate its hazard mitigation goals and objectives each plan maintenance cycle to ensure they continue to represent the hazard mitigation priorities.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 1: Protect public health and safety</b>	
Objective 1.1	Improve systems that provide warning and emergency communications.
Objective 1.2	Reduce the impacts of hazards on vulnerable populations.
<b>Goal 2: Increase public preparedness and awareness for natural disasters</b>	
Objective 2.1	Enhance understanding of natural hazards and the risks they pose.
Objective 2.2	Improve hazard information, including databases, maps, articles in local media, instructional web site, pamphlets, information packets, etc.
Objective 2.3	Improve public knowledge of hazards and protective measures allowing individuals to appropriately prepare for and respond to hazard events.
<b>Goal 3: Protect property</b>	
Objective 3.1	Implement mitigation programs that protect critical facilities and services, and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.
Objective 3.2	Consider known hazards when identifying a site for new facilities and systems.
Objective 3.3	Adopt and enforce public policies to minimize hazard impacts on buildings, infrastructure, and neighborhoods and enhance safe construction in high hazard areas.
Objective 3.4	Integrate new hazard and risk information into building codes and land use planning mechanisms.
Objective 3.5	Ensure existing critical facilities and emergency shelters are better able to withstand the forces of a hazard.

<b>Hazard Mitigation Goals and Objectives</b>	
<b>Goal 4: Emergency Services</b>	
Objective 4.1	Immediate actions taken in response to a hazard event can minimize the impact of hazard incidents on people and property.
<b>Goal 5: Reduce the potential effects of flooding on homes and buildings in the Town of Windsor</b>	
Objective 5.1	Continue the implementation of zoning codes, to be enforced by the County.
Objective 5.2	Study flood areas to implement needed changes in development and storm drainage.
<b>Goal 6: Ensure protection and emergency shelters</b>	
Objective 6.1	Shelters must be identified to provide protection to the public.
Objective 6.2	Identify buildings approved for occupancy during natural hazards.
Objective 6.3	The number of shelters should be adequate and safe for the amount of people that may potentially need them.

Figure 53: Town of Windsor Hazard Mitigation Goals and Objectives

## **3.23 Town of Windsor Mitigation Actions**

*The Town of Windsor is a new participant in this update; therefore, the mitigation actions are all new actions and are illustrated in Figure 54 on page 136.*

Mitigation actions include programs, plans, projects, or policies that help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force Committee identified and analyzed a comprehensive range of hazard-specific mitigation actions with particular emphasis on actions that affect new and existing buildings and infrastructure within the Town of Windsor, and also the protection of the citizens.

### **Identification**

The Task Force Committee identified both existing and potential mitigation actions within their respective agencies that have the following criteria:

- Reduce or eliminate the long-term risk to human life and property from at least one of the eight natural hazards identified in the Risk Assessment Section
- Fall under one or more of the six FEMA mitigation action categories
- Achieve one or more of the hazard mitigation goals and objectives

### **Mitigation Action Categories**

FEMA organizes mitigation actions into six broad categories. These categories allow similar types of mitigation actions to be compared, and provides a standardized method for eliminating unsuitable actions. All mitigation actions identified in this strategy fall within one of the FEMA mitigation action categories below:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples from this strategy include building and construction code revisions, zoning regulation changes, and computer-hazard modeling.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples from this strategy include seismic retrofits, roadway elevations, and floodproofing.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples from this strategy include programs that target severe repetitive loss



properties and vulnerable populations.

4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples from this strategy include projects creating open space or wetlands.
5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Examples from this strategy include enhancements that provide advanced warning and redundant communications.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Examples from this strategy include projects that control floodwater, reconstruct dams and seawalls, and construct green roofs.

### **Summary of Mitigation Actions**

The final list of the Town of Windsor's mitigation actions is in the figure below. Many of the actions protect public health and safety, promote a sustainable economy, protect the environment, and increase public preparedness for disasters. The mitigation actions are the town's programs, plans, projects, or policies that the town may implement to help reduce or eliminate the long-term risk to human life and property from natural hazards. The Task Force identified, analyzed, and prioritized all actions.

### **Status on Strategies**

Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

The Town of Windsor did not participate in the original HMP process. The following mitigation actions are new and have been identified for this update, as the Town of Windsor is now a participating municipality in Aiken County's HMP. Note some mitigation actions identified in the plan update may not ultimately be implemented due to prohibitive costs, scale, low benefit/cost analysis ratios, or other concerns

Town of Windsor Hazard Mitigation Actions											
Mitigation Action and Description	Agency	Hazard(s)	Timeframe	Estimated Project Cost	Possible Funding Source(s)	FEMA Category	Goals and Objectives	Prioritization	Implementation Status	Implementation Schedule	Milestones Achieved, Impediments to Implementation
Develop a continuing communications and education program including instructional web-site, pamphlets, information packets and articles in the local media.	County/Emergency Management	ALL	Immediate	N/A	PDM, HMGP	Public Education and Awareness	2.1, 2.2, 2.3	High	Depending on funding	End of 2012-over a 3-year term	Open with Work being done
Continue the implementation of zoning codes and building codes to ensure no new structures are built within the floodplains.	Aiken County Building and Zoning	Flood	*Ongoing	N/A	N/A	Prevention	5.1,5.2	Medium	Completed	Currently in place	Continuous process requiring enforcement
Establishment and identification of emergency shelters during times of natural hazards.	County/Emergency Management	ALL	Immediate	N/A	N/A	Emergency Services/Property Protection	1.2, 2.3, 6.1, 6.2, 6.3	Medium	Completed	Currently in place	Completed at this date
Identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	Emergency Management/SCDNR	Flood	*Ongoing	N/A	Federal and State Grants	Property Protection	2.1, 2.2, 5.2	Low	Depending on funding	5 years	Identify funding source
Notification of the public in cases of emergency.	County/Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Public Education and Awareness	1.1, 2.3, 4.1	High	Currently in place	Completed	Continuous process during hazard events
Retrofit Critical Facilities *See Aiken County Critical Infrastructure Protection Plan	Emergency Management	ALL	*Ongoing	N/A	PDM/HMGP	Emergency Services/Property Protection	1.1,1.3,2.3,3.1,3.3,4.3,5.4,1.6,1.6.2	High	Depending on funding	3 Years	New identified action

Figure 54: Town of Windsor Hazard Mitigation Actions

\*Ongoing is defined as continuing without termination or interruption



## **Part Four:**

# **Plan Maintenance**

## **4.1 Plan Maintenance and Update**

*As part of the update process, the Task Force Committee reviewed and analyzed this section and made the following changes: the monitoring initiatives were added, Figure 55 on page 140 gives a new plan update timeframe, incorporation of the plan into existing planning mechanisms, and the continued public involvement.*

The Plan Maintenance section of Aiken County's Natural Hazard Mitigation Plan (HMP) describes the formal process that will ensure the Plan remains an effective and relevant document. This section establishes the method and schedule for monitoring, evaluating, and updating the HMP during a five-year plan-update cycle. It also established how Aiken County will maintain community involvement in the Plan.

### **Plan Maintenance Approach**

- Incorporate hazard mitigation actions into existing planning mechanisms
- Determine how mitigation projects and actions will be monitored
- Establish indicators of effectiveness or success
- Develop an evaluation and revision schedule to ensure the Plan is up-to-date at the end of the five-year cycle
- Establish a process for public input and community involvement during the planning cycle

### **FEMA Requirements Addressed**

The Task Force Committee created a plan maintenance strategy consistent with the process and steps presented in the FEMA How-To-Guide: Bringing the Plan to Life (FEMA 386-4). The following FEMA requirements are addressed in this section:

- **Requirement §201.6(c)(4)(i):** The plan maintenance process ***shall*** include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.
- **Requirement §201.6(c)(4)(ii):** The plan ***shall*** include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, where appropriate.
- **Requirement §201.6(c)(4)(iii):** The plan maintenance process ***shall*** include a discussion on how the community will continue public participation in the plan maintenance process.

## **Monitoring**

Aiken County will monitor the implementation of mitigation actions identified in the Plan. During the five-year planning cycle, the following initiatives will be undertaken.

- Collect reports from the agencies involved in implementing mitigation projects or activities identified in the Mitigation Strategy section of this Plan
- Maintain and update the mitigation action table
- Conduct site visits and obtain reports of completed or initiated mitigation actions to incorporate in the plan revision as needed
- Research and document new natural disaster information pertaining to Aiken County and its incorporated municipalities during the planning cycle and incorporate into a revised Risk Assessment section as needed
- Organize meetings on an as needed basis with the Task Force Committee to discuss relevant hazard mitigation issues, provide status updates, and discuss available grant opportunities
- Coordinate, compile, and disseminate hazard mitigation funding information and applications
- Convene a meeting of the Task Force Committee following a natural disaster or when funding is announced to prioritize and submit potential mitigation actions for funding

The above activities outline plan maintenance during the four years leading up to the fifth year of the planning cycle. The Task Force Committee will be responsible for compiling, documenting, and incorporating all changes derived from the activities listed above into a revised plan document.

## **Evaluation**

The Aiken County HMP will be evaluated on an as needed basis to determine the effectiveness of its projects, programs, and policies. The Task Force Committee will be responsible for scheduling and organizing the meetings, collecting, analyzing and incorporating reports, and providing revised drafts. The Task Force Committee members will assess the current version of the Plan and determine the improvements necessary for the plan update.

A thorough examination of the Plan will take place during the fifth year of the process to ensure Aiken County has an updated HMP at the end of the planning cycle. The Task Force Committee will review the goals and action items to determine their relevance to changing situations in the County and incorporated municipalities, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. The Committee will look at any changes in County resources that may influence the plan implementation (such as funding) and

program changes to determine need for reassignment. The Committee will also review all portions of the Plan to determine if this information should be updated or modified, given any new available data. The Committee will evaluate the content of the Plan using the following criteria:

- Are the mitigation actions effective?
- Are there any changes in land development that affect mitigation priorities?
- Are the goals, objectives, and mitigation actions relevant given any changes in the County?
- Are the goals, objectives, and mitigation actions relevant given any changes to State or Federal regulations or policy?
- Is there any new data that affects the Risk Assessment portion of the Plan?

### **Update**

The Task Force Committee will update the HMP every five years to reflect the results of the reports and on-going plan evaluation. Throughout the planning cycle, the Committee will compile new information and incorporate it into the Plan. The Committee will also assess and incorporate recommended comments expressed by FEMA in the initial review into the plan revision. At the end of the planning cycle, the Committee will submit the updated Plan to the State Emergency Management Office (SCEMD) and FEMA for review. After FEMA has approved the Aiken County HMP, the County and its incorporated municipalities will formally adopt the Plan. The following figure is an outline of how the Plan will be updated after the 2010 FEMA approval.

<b>Plan Update Schedule</b>		
<b>Timeframe</b>	<b>Participants</b>	<b>Outcome</b>
First quarter 2011	Task Force Committee	Discuss mitigation action progress and possible plan improvements
Fourth quarter 2012	Task Force Committee	Reconvene to discuss mitigation action progress and plan improvements
First quarter 2013	Aiken County	Apply for plan update grant funding
First quarter 2014	Task Force Committee	Reconvene and begin plan update
Third quarter 2014	Task Force Committee, SCEMD	Submit draft plan update to SCEMD for review and comments
Fourth quarter 2014	FEMA, Task Force Committee, SCEMD	Submit plan to FEMA for final approval
First quarter 2015	Aiken County, participating municipalities	Re-adopt the FEMA-approved HMP

Figure 55: Plan Update Schedule

### **Incorporation into Existing Planning Mechanisms**

As part of the local capability assessment conducted during the planning process, the Task Force Committee identified current plans, programs, policies/ordinances, and studies/reports that will augment or help support mitigation planning efforts. The Committee, which will meet on an as needed basis, will be the mechanism for ensuring the County and the participating municipalities integrates hazard mitigation into their future planning activities. Following the HMP approval and adoption, the Committee will work to incorporate, where applicable, the HMP into the planning mechanisms identified on page 75 under Section 2.4: Community Mitigation Capability Assessment. Incorporating the hazard mitigation strategies into these identified planning mechanisms is a fairly simple process. For example, the comprehensive plans include natural resources, land usage, and community facilities information that could easily include hazard mitigation elements into the plan.

To demonstrate the seriousness about planning for the safety, security, and vitality of its people, Aiken County and its participating jurisdictions will take various steps to successfully incorporate hazard mitigation planning into its comprehensive planning, programming and operational systems. A comprehensive plan can easily include hazard mitigation and recovery in the goals and objectives. Functional plans (i.e. Watershed Management Plans, Long Range Plans, Market and Targeted Industry Plans, Parks and Recreation Plans, Solid Waste Plans, etc.) can incorporate and support hazard mitigation planning by including risk as a performance measure when defining and evaluating alternatives and policy recommendations. A Capital Improvement Program (CIP) can integrate hazard mitigation strategies. The Zoning Ordinance incorporates standards that promote the health, safety, and welfare of the public and property owner. A Zoning Ordinance easily allows for the hazard mitigation strategies to be included as part of the land use regulations, development standards, regulation of stormwater runoff, etc. Building Codes ensure that construction is safe and sustainable at its completion. Uniform building codes create a foundation for emergency responders to base operations on. Eliminating unsafe, blighted, or vacant buildings prevents hazards such as fires or criminal activity. Hazard mitigation strategies can be incorporated into Building Codes. The County and participating municipalities will exude every possible measure to ensure that the local governments incorporates hazard mitigation strategies and planning within the existing planning and programming documents as mentioned above.

Throughout the plan maintenance cycle, the Committee will work to integrate hazard mitigation goals and actions into the general operations of Aiken County agencies and the participating municipalities. The Committee will work with agencies to identify opportunities as outlined below:

- Update work plans, policies, or procedures to include hazard mitigation concepts
- Establish mitigation funding within capital and operational budgets
- Issue plans, policies, executive orders, regulations, or other directives to carry out mitigation actions
- Add hazard mitigation elements to all applicable plans

### **Continued Public Involvement**

Aiken County is dedicated to continued public involvement in the hazard mitigation planning and review process. During all phases of plan maintenance, the public will have the opportunity to provide feedback. The 2010 Plan will be maintained and available for review through 2014. Individuals will have an opportunity to submit comments for the Plan update at any time. The Task Force Committee will compile all comments and present them at the meetings where members will consider them for incorporation into the revision. To help publicize the revised plan, a notice will be posted requesting feedback on an updated draft HMP. The Committee will hold community involvement meetings as determined, with representatives from various agencies, to be held at the County governmental facilities.





## **Part Five:**

# **Plan Adoption**

## 5.1 Overview

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Formal plan adoption is a required part of the planning process and demonstrates Aiken County, the City of Aiken, Town of Burnetown, Town of Jackson, and Town of Monetta, Town of New Ellenton, City of North Augusta, Town of Perry, Town of Salley, Town of Wagener, and Town of Windsor's commitment to fulfilling the mitigation goals and objectives outlined in the Plan. In addition to fulfilling the requirements of the Disaster Mitigation Act of 2000, the County Council and City/Town Council adoption of the Hazard Mitigation Plan (HMP) will establish the Plan as a policy for Aiken County and the participating municipalities, which will define the actions the various agencies should take to comply with or implement the HMP.

Following a formal plan review by the Federal Emergency Management Agency (FEMA) and the South Carolina Emergency Management Division (SCEMD), FEMA will issue an "Approval Pending Adoption" to Aiken County. Upon review and approval of the HMP, Aiken County Council, Aiken City Council, Burnetown Town Council, Jackson Town Council, Monetta Town Council, New Ellenton Town Council, North Augusta City Council, Perry Town Council, Salley Town Council, Wagener Town Council, and Windsor Town Council will then formally adopt the HMP.

### Plan Adoption Process

- Obtain "Approval Pending Adoption" status from FEMA
- Draft an adoption resolution or an ordinance to meet plan requirements and demonstrate Aiken County's, Aiken's, Burnetown's, Jackson's, Monetta's, New Ellenton's, North Augusta's, Perry's, Salley's, Wagener's, and Windsor's commitment to protect its residents and built environment from the effects of natural hazards
- Adopt HMP

### FEMA Requirements Addressed

Aiken County and the Task Force Committee created a plan adoption strategy consistent with the process steps presented in FEMA's How-To-Guide: Bringing the Plan to Life (FEMA 386-4). This section satisfies the following FEMA requirement:

- **Requirement §201.6(c)(5):** The local hazard mitigation plan *shall* include documentation that the plan had been formally adopted by the governing body of the jurisdiction requesting approval of the plan.

## 5.2 Adoption Resolution

Sponsor(s) : Judicial and Public Safety Committee  
Committee Referral : Judicial and Public Safety Committee  
Committee Consideration Date : November 16, 2010  
Committee Recommendation :  
Effective Date : November 17, 2010

RESOLUTION NO. 10-11-233

COUNCIL ADMINISTRATOR FORM OF GOVERNMENT FOR AIKEN COUNTY

(To Adopt the Update of Aiken County's Natural Hazard Mitigation Plan 2010.)

WHEREAS:


1. The Lower Savannah Council of Governments and the Aiken County Emergency Management Division in conjunction with the South Carolina Emergency Management Division and FEMA Region IV has prepared an updated Natural Hazard Mitigation Plan for Aiken County; and
2. An adopted and updated Natural Hazard Mitigation Plan is required in order for Aiken County and participating communities to be eligible to receive FY 2011 Pre-Disaster Mitigation funding providing for pre-disaster mitigation planning and implementation of cost-effective mitigation projects prior to a disaster event; and
3. FEMA has tentatively approved the updated Aiken County Mitigation Plan with final approval being subject to adoption by the County and the affected communities within the County along with a final public hearing.

NOW, THEREFORE, BE IT RESOLVED, BY THE AIKEN COUNTY COUNCIL THAT:

1. Aiken County Council does hereby adopt the updated Aiken County Natural Hazard Mitigation Plan.

Adopted at the regular meeting of Aiken County Council on November 16, 2010.

ATTEST:

  
Tamara Sullivan, Council Clerk

SIGNED:

  
Ronnie Young, Chairman

COUNCIL VOTE: Unanimous  
ABSENT: Smith

## **5.3 SCEMD Approval Letter**

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**SCEMD APPROVAL LETTER TO BE INSERTED**

## 5.4 FEMA Approval Letter

U.S. Department of Homeland Security  
FEMA Region IV  
3003 Chamblee Tucker Road  
Atlanta, GA 30341



**FEMA**

April 8, 2011

Ms. Melissa L. Berry  
State Hazard Mitigation Officer  
South Carolina Emergency Management Division  
2779 Fish Hatchery Road  
West Columbia, South Carolina 29172

Attention: Mr. Jon Boettcher, Chief of Plans and Mitigation

Reference: Multi-Jurisdictional Hazard Mitigation Plan: Aiken County

Dear Ms. Berry:

We are pleased to inform you that the Aiken County Multi-Jurisdictional Hazard Mitigation Plan is in compliance with the federal hazard mitigation planning standards resulting from the Disaster Mitigation Act of 2000, as contained in 44 CFR 201.6. The plan is approved for a period of five (5) years, to April 8, 2016.

This plan approval extends to the following participating jurisdictions that provided copies of their resolutions adopting the plan:

- Aiken County, Unincorporated

The approved participating jurisdictions are hereby eligible applicants through the State for the following mitigation grant programs administered by the Federal Emergency Management Agency (FEMA):

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Severe Repetitive Loss (SRL)
- Flood Mitigation Assistance (FMA)

A fifth program, Repetitive Flood Claims (RFC), does not have a requirement for a local Hazard Mitigation Plan. National Flood Insurance Program (NFIP) participation is required for some programs.

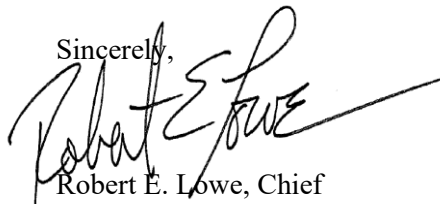
Several other jurisdictions also participated in the Aiken County Plan. When those jurisdictions have submitted their supporting documentation of adoption of the Plan, they will be added as eligible applicants for the above referenced grant programs.

We commend the participants in the Aiken County plan for the development of a solid, workable plan that will guide hazard mitigation activities over the coming years. Please note that all requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted.

For example, a specific mitigation activity or project identified in the plan may not meet the eligibility requirements for FEMA funding, and even eligible mitigation activities are not automatically approved for FEMA funding under any of the aforementioned programs. In addition, please be aware that if any of the approved jurisdictions participating in this plan are placed on probation or are suspended from the National Flood Insurance Program, they may be ineligible for certain types of federal funding.

We strongly encourage each community to perform an annual review and assessment of the effectiveness of their hazard mitigation plan; however, a formal plan update is required at least every five (5) years. We also encourage each Community to conduct a plan update process within one (1) year of being included within a Presidential Disaster Declaration or of the adoption of major modifications to their local Comprehensive Land Use Plan or other plans that affect hazard mitigation or land use and development. When the plan is amended or revised, it must be resubmitted through the State as a “plan update” and is subject to a formal review and approval process by our office. If the plan is not updated prior to the required five (5) year update, please ensure that the draft update is submitted at least six (6) months prior to expiration of this plan.

The State and the participants in the Aiken County plan should be commended for their close coordination and communications with our office in the review and subsequent approval of the plan. If you or Aiken County have any questions or need any additional information, please do not hesitate to contact Jean Neptune, of the Hazard Mitigation Assistance Branch, at (770) 220-5474, or Linda L. Byers, of my staff, at (770)-220-5498.

Sincerely,  
  
Robert E. Lowe, Chief  
Risk Analysis Branch  
Mitigation Division



## **Part Six:**

# **Appendices**

## **Appendix A: Acronym List**

<b>Acronym List</b>	
<b>Acronym</b>	<b>Definition</b>
BCA	Benefic-Cost Analysis
BFE	Base Flood Elevation
BMP	Best Management Practices
DMA 2000	Disaster Mitigation Act of 2000
DOT	Department of Transportation
EF-Scale	Enhanced Fujita Scale
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
F-Scale	Fujita Scale
Ft	Feet
FTA	Federal Transit Administration
FY	Fiscal Year
GIS	Geographic Information System
HAZUS-MH	Hazards U.S. Multi-Hazard
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
MMI	Modified Mercalli Intensity
Mph	Miles Per Hour
N/A	Not Applicable
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
PDM	Pre-Disaster Mitigation
SRL	Severe Repetitive Loss
STAPLEE	Social, Technical, Administrative, Political, Legal, Economical, Environmental
TBD	To Be Determined



## **Appendix B: Glossary**

<b>Glossary</b>	
<b>Term</b>	<b>Definition</b>
100-Year Flood	The term “100-year flood” can be misleading. The 100-year flood does not necessarily occur once every 100 years. Rather, it is the flood that has a 1 % chance of being equaled or exceeded in any given year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The Federal Emergency Management Agency (FEMA) defines it as the 1 % annual chance flood, which is now the standard definition used by most federal and state agencies and by the National Flood Insurance Program (NFIP).
Agricultural Drought	Links the various characteristics of meteorological drought to agricultural impacts, while focusing on precipitation shortages and soil-water deficits.
Annualized Capital Stock Losses	Long-term average losses in a given year
Base Flood Elevation (BFE)	The water surface elevation of a 100-year flood event (a flood that has a 1 % chance of occurring in any given year as defined by the NFIP). The base flood is a statistical concept used to ensure that all properties
Beaufort Wind Scale	A simplified scale to aid in the estimation of wind speed and corresponding typical effects.
Benefit-Cost Analysis	A systematic, quantitative method of comparing projected benefits to projected costs of a project or policy. It is used as a measure of cost
Capability Assessment	Provides a description and analysis of a community’s current capacity to address threats associated with hazards. The assessment includes two components: an inventory of an agency’s mission, programs, and policies, and an analysis of its capacity to carry them out. A capability assessment is an integral part of the planning process in which a community’s actions to reduce losses are identified, reviewed, and analyzed, and the framework for implementation is identified.
Coastal Storms	Tropical cyclones formed in the atmosphere over warm ocean areas. Wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or “eye. Circulation is counterclockwise in the Northern Hemisphere.
Community Rating System	A voluntary program under the NFIP that rewards participating communities (provides incentives) for exceeding the minimum requirements of the NFIP and completing activities that reduce

	flood hazard risk by providing flood insurance premium discounts.
Cultural Facilities	A critical facility is vital to the City's ability to provide essential services and protect life and property. Loss of a critical facility would result in a severe economic or catastrophic impact.
Dam Failure	An uncontrolled release of impounded water resulting in downstream flooding.
Debris	The scattered remains of assets broken or destroyed during the occurrence of a hazard. Debris caused by wind or water hazards can cause additional damage to other assets.
Disaster Mitigation Act of 2000 (DMA 2000)	The latest federal legislation enacted to encourage and promote proactive, pre-disaster planning as a condition of receiving financial assistance under the Robert T. Stafford Act. The DMA emphasizes planning for disasters before they occur. Under the DMA, a pre-disaster hazard mitigation program and new requirements for the national post-disaster hazard mitigation grant program (HMGP) were established.
Drought	A prolonged period with no rain. Limited winter precipitation accompanied by moderately dry periods during the spring and summer months can also lead to drought conditions.
Earthquakes	The sudden motion or trembling of the ground produced by abrupt displacement of rock masses, usually within the upper 10–20 miles of the earth's surface.
Enhanced Fujita Scale	National Weather Service's revised Fujita-scale, which is a complex, systematic approach to measuring the strength of a tornado.
Federal Emergency Management Agency (FEMA)	An independent federal agency (now part of the Department of Homeland Security) created in 1978 to provide a single point of accountability for all federal activities related to disaster mitigation and emergency preparedness, response, and recovery.
Flash Flooding	Caused by short-term, high-intensity rainfall that occurs in inland areas
Flood Insurance Rate Map (FIRM)	The official map of a community for which FEMA has delineated the special flood hazard area (SFHA) and the risk premium zones applicable to the community.
Floodplain	Any land area that becomes inundated with water during a flood

Floods	A general and temporary condition of partial or complete inundation on normally dry land. Flooding can be categorized as coastal, riverine, or flash.
Fujita Scale (F-Scale)	Standard measurement for rating the strength of a tornado.
Geographic Information Systems (GIS)	A computer software application that relates data regarding physical and other features on the earth to a database for mapping and analysis.
Goal	A general guideline that explains what is to be achieved. Goals are usually broad-based, long-term, policy-type statements and represent global visions. Goals help define the benefits that a plan is trying to
Ground Acceleration	Shaking of the ground resulting from seismic waves caused by an earthquake.
Hailstorms	Shower-like precipitation in the form of irregular pellets, or balls of ice more than five millimeters in diameter, falling from a cumulonimbus
Hazard	A source of potential danger or adverse condition that could harm people and/or cause property damage.
Hazard Mitigation	Reduction or alleviation of the loss of life, personal injury, and property damage that could result from a disaster through long- and short-term strategies. Hazard mitigation involves strategies such as planning, policy changes, programs, projects, and other activities that could mitigate the impacts of hazards.
Hazard Mitigation Grant Program (HMGP)	Authorized under Section 202 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster.
Hazard Mitigation Plan (HMP)	A collaborative document that identifies hazards that could affect a community, assesses vulnerability to hazards, and represents consensus decisions reached on how to minimize or eliminate the
Hazards U.S. Multi-Hazard (HAZUS-MH)	A nationally applicable standardized methodology and software program, developed by FEMA, which is under contract with the National Institute of Building Sciences. The program estimates potential losses from earthquakes, hurricane winds, and floods. In HAZUS-MH, current scientific and engineering knowledge is coupled with Geographic Information Systems (GIS) technology to produce estimates of hazard-

Hurricane	A tropical storm with winds that have reached a constant speed of 74
Intensity (earthquakes)	Measures the effects of an earthquake at a particular place and is
Magnitude (earthquakes)	Measurement of the total amount of energy and is expressed in terms of the Richter scale
Mitigation Actions	Specific projects, plans, or policies that achieve goals and objectives that minimize the effects from a disaster and reduce the loss of life and
Mitigation Strategy	A systematic process for analyzing, prioritizing, and implementing the identified mitigation actions in the Hazard Mitigation Plan.
Modified Mercalli Intensity	A scale used for measuring the intensity of an earthquake. The scale quantifies the effects of an earthquake on the Earth's surface, humans, objects of nature, and man-made structures on a scale of I through XII
National Flood Insurance Program (NFIP)	The three components of the NFIP are flood insurance, floodplain management, and flood hazard mapping. Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes Federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary
Objective	A short-term aim that, when combined with other objectives, forms a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.
Peak Ground Acceleration (PGA)	Measures the rate of change in motion of the earth's surface and expresses it as a percent of the established rate of acceleration due to
Preparedness	Actions that strengthen the capability of government, citizens, and communities to respond to disasters.
Presidential Disaster Declaration	Typically made for events that cause more damage than state and local governments and resources can handle without federal government assistance. Generally, no specific dollar loss threshold has been established for such declarations. A Presidential Disaster Declaration puts into motion long-term federal recovery programs, some of which are matched by state programs, designed to help disaster victims, businesses, and public entities.

Recovery	Recovery refers to actions taken by an individual or community after a catastrophic event to restore order and community lifelines.
Repetitive Loss Property	Any NFIP-insured property that, since 1978 and regardless of any change(s) of ownership during that period, has experienced any of the following: 1) Four or more paid flood losses exceeding \$1,000 each 2) Two paid flood losses exceeding \$1,000 each within any 10-year period since 1978 3) Three or more paid losses that equal or exceed the current value of the insured property
Richter Scale	A logarithmic scale used to express the total amount of energy released by an earthquake. Its values typically fall between 0 and 9, with each increase of 1 representing a 10-fold increase in energy.
Risk	The estimated impact that a hazard would have on people, services, facilities, and structures in a community. Risk measures the likelihood of a hazard occurring and resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low hazard. Risk also can be expressed in terms of potential monetary losses associated with the intensity of likelihood of sustaining damage above a particular threshold due to occurrence of a specific type of the hazard.
Risk Assessment	The process of measuring potential loss of life, personal injury, economic injury, and property damage resulting from hazards. This process assesses the vulnerability of people, buildings, and infrastructure to hazards and focuses on 1) hazard description 2) severity 3) probability 4) location 5) historic occurrences 6) impact to NYC 7) structural vulnerability and 8) potential loss estimates.
River Flooding	Caused when rivers and streams overflow their banks.
Saffir-Simpson Scale	Use by the National Weather Service, this scale uses wind speed to determine the category strength of a hurricane on a scale of 1 to 5.
STAPLEE	A set of criteria used to examine the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) opportunities and constraints of implementing a particular mitigation measure using a consistent framework.
Storm Surge	An offshore rise of water associated with a low-pressure weather system, typically a tropical cyclone. Storm surge is caused primarily by high winds pushing on the ocean's surface. The wind causes the water to pile up higher than the ordinary sea level.

Tornadoes	A local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. The vortex, up to several hundred yards wide, is visible to the observer as a whirlpool-like column of winds rotating about a hollow cavity or funnel.
Tropical Depression	An organized system of clouds and thunderstorms, with a defined surface circulation, and maximum sustained winds of 38 miles per hour or less.
Tropical Storms	An organized system of strong thunderstorms, with a defined surface circulation, and maximum sustained winds of 39 to 73 miles per hour.
Wildfires	Any instance of uncontrolled burning in grasslands, brush, or woodlands.
Windstorms	Short-duration events involving straight-line winds or gusts exceeding 50 mph. These gusts can produce winds of sufficient strength to cause property damage. Windstorms are especially dangerous in areas with significant tree stands, exposed property, poorly constructed buildings, mobile homes (manufactured housing units), major infrastructure, and aboveground utility lines. A windstorm can topple trees and power lines; cause damage to residential, commercial, critical facilities; and leave tons of debris in its wake.
Winter Storms	Includes ice storms and blizzards. Extreme cold often accompanies winter storms. The National Weather Service (NWS) characterizes blizzards as being combinations of winds in excess of 35 mph with considerable falling or blowing snow, which frequently reduces visibility.

## **Appendix C: Meetings, Notices, Sign-in Sheets**

### **SC Emergency Management Division**

**2779 Fish Hatchery Road**

**West Columbia, SC 29172**

**(803) 737-8500 FAX (803) 737-8570**

**Visit our website at [www.scemd.org](http://www.scemd.org)**

## **TRAINING GRAM**

### ***Workshop Announcement:***

### **Pre-Disaster Mitigation Grant (PDM) Application**

**Date: 22 August, 2008**

**Location:** SCEMD, Pine Ridge Armory, 2779 Fish Hatchery Road,  
West Columbia, SC 29172 – Downstairs Training Room

**Course Time:** 9:00 a.m. - 3:00 p.m.

**Course Description:** This workshop is designed to train stakeholders in how to apply for grants through the Federal Emergency Management Agency's Pre-Disaster Mitigation (PDM) Program for Fiscal Year 2009. The PDM program provides funds to state and local governments and PNPs to prepare Pre-Disaster Mitigation plans and to conduct a variety of projects intended to lessen the impact of a disaster on communities when it occurs. Topics include, environmental compliance, types of projects, eligible and ineligible projects, Benefit-Cost Analysis (BCA), FEMA's selection process, planning development, Scope of Work (SOW), work scheduling, cost estimation and case studies. This is one of a series of workshops to be held in Columbia, via statewide teleconference, and at other locations around the state with other dates to be announced. Please check the SCEMD web page for schedule updates.

**Who Should Attend:** The target audience for this course includes Tribal and local government officials, community and business leaders, emergency service personnel, emergency managers, state agency administrators, county and municipal administrators, local Councils of Governments, special-purpose districts, private non-profit organizations, and other stakeholders.

**Workshop Cost:** This is a free workshop.

**To apply:** Go to our website at [www.scemd.org](http://www.scemd.org) (click on Training then click on SCEMD Course Application Instructions) and follow the instructions. Applicants selected to attend the course will be notified by email three weeks prior to the course.

**If you have questions regarding this training or other training events call or email SCEMD Training at 803-737-8500 or [training@emd.state.sc.us](mailto:training@emd.state.sc.us). Additional information concerning on-line registration is available at [www.scemd.org](http://www.scemd.org) (click on training).**



Lower Savannah  
Council of Governments

P.O. Box 850, Aiken, South Carolina, 29802

Tel. (803) 649-7981 - Fax (803) 649-2248

[www.lscog.org](http://www.lscog.org)

## MEMO

**TO:** County Emergency Management Coordinators  
**CC:** County Administrators, SC EMD  
**FROM:** Amanda J. Sievers, LSCOG  
**DATE:** September 8<sup>th</sup>, 2008  
**RE:** Local Government Hazard Mitigation Plans

Lower Savannah Council of Governments is holding a meeting on **Wednesday, September 17<sup>th</sup> at 10:00am** in the LSCOG large conference room. We will be updating you on the hazard mitigation process and the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Your county hazard mitigation plan is scheduled to be updated within the next two years in order to comply with FEMA regulations. We need to begin immediately with the planning process in order to ensure that your Pre-Disaster Mitigation (PDM) funding is not at stake. Enclosed you will find a list of eligible activities for PDM funded projects.

The PDM grant will provide for a comprehensive regional hazard mitigation plan that the LSCOG, with county participation, will undertake. The plan will be consistent with other regional plans in the state and will comply with FEMA regulations regarding DMA 2000. Without a FEMA-approved hazard mitigation plan, local governments will not be eligible for PDM funding. Though counties are not required to partner with the COG in developing the plans, we suggest that for the sake of consistency and to ensure compliance, all Lower Savannah counties participate.

**It is essential that both administrators and emergency management coordinators attend this very important meeting.** I anticipate your attendance and look forward to seeing you on **Wednesday, September 17<sup>th</sup> at 10:00am.** If there are any questions please feel free to contact me at (803) 649-7981 or email [asievers@lscog.org](mailto:asievers@lscog.org).

Serving the counties of: Aiken ~ Aiken ~ Bamberg ~ Barnwell ~ Calhoun ~ Orangeburg





**LOWER SAVANNAH COUNCIL OF GOVERNMENTS**

**Regional Hazard Mitigation Planning Meeting**

**Agenda**

**September 17<sup>th</sup>, 2008**

---

Welcome and Introductions	<i>Jennifer Tinsley</i>
Update of Pre-Disaster Mitigation (PDM) Program -Hazard Mitigation Planning	<i>Amanda Sievers</i>
Current Status and Timeframe for Plans -Plan Updates	<i>Amanda Sievers</i>
PDM Grant Application Process	<i>Amanda Sievers</i>
Memorandum of Agreement	<i>Jennifer Tinsley</i>
General Discussion	<i>All</i>
Adjourn	

## LOWER SAVANNAH REGION HAZARD MITIGATION MEETING

Lower Savannah Council of Governments Large Conference Room

September 17<sup>th</sup>, 2008 10:00AM – 12:00PM

## ATTENDANCE SHEET

NAME	AGENCY	PHONE #	EMAIL
1. Roger Riley	Barnwell Co.	803 541-1001	rriley@barnwellsc.com
2. Jim H. G. [unclear]	Barnwell Co.	803-541-1000	jmathew@barnwellsc.com
3. Ed [unclear]	SCENDREGG	803 900 2663	E.Young@eml.sc.gov
4. PAUL MATTHEWS	AIKEN CO EMD	803 642-1620	pmatthews@aikencounty.sc.gov
5. Gidget Stanley	Allendale EMD	803-584-4081	gstanley@allendalecounty.com
6. CRY KILLIAN	AIKEN CO	803-642-2012	ckillian@aikencounty.sc.gov
7. Sharon Hammond		803-245-4313	DAmberg@bell/south.net
8. LEE Pritchett	Calhoun Co.	803 874-2435	ccadmin@SC.RA.co
9. Bill Minikiewicz	Calhoun Co.	803 655-7625	cces@alltel.net
10. Gray Warr	SCEND	803-737-8846	gwarr@eml.sc.gov
11. Amanda K. Loach	SCEND	803-737-8665	aloach@eml.sc.gov
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			



# MEMO

**To: County Administrators**

**CC: County Emergency Management Directors**

**From: Jennifer D. Tinsley, Director of Planning and IT**

**Date: September 18, 2008**

**Re: Hazard Mitigation Plan Updates for the Lower Savannah Region**

As a follow up to our meeting on September 17th, I would like to summarize the hazard mitigation status for the Lower Savannah region. Lower Savannah Council of Governments (LSCOG) would like to assist the local governments in its six-county region with updating the county hazard mitigation plans.

Hazard mitigation plans are important for several reasons: reducing the potential for private property loss and public property damage; minimizing possible disruptions to a community's economy as a result of a disaster; and protecting hospitals, power plants and other vital facilities from hazard-related damages or losses. The plans are required under the **Disaster Mitigation Act of 2000** and must be in place in order for local governments to continue to receive Federal planning assistance funds. Once a hazard mitigation plan is approved by FEMA and adopted by the local government, it must be updated **every five years** to maintain eligibility for funding of pre-disaster mitigation planning grants. **Local mitigation plans must be approved by FEMA in order for communities to receive pre-disaster mitigation grants for local mitigation projects.**

In the Lower Savannah region, all county plans were adopted in March 2005 and therefore must be updated before March 2010. The LSCOG plans to apply for a Pre-Disaster Mitigation (PDM) planning grant to assist the counties with updating their hazard mitigation plans. As we did with the original hazard mitigation plans, we are proposing that the counties provide the required 25% match for the PDM grant.

The PDM planning grant budget is as follows, assuming participation from all six counties:

PROJECT COST: \$75,000 (\$12,500 per county)  
FEMA SHARE: \$56,250  
COUNTY MATCH: \$18,750 (\$3,125 per county)

Please keep in mind that the plans will need to be updated whether or not the grant is awarded. The PDM planning grant cycle will be very competitive and there is no assurance that the grant will be funded.

If your county plans on participating in this project, **we will need a letter of commitment for the match funds (\$3,125) before October 24th**, which is the deadline for submitting the PDM grant application to SCEMD. Any other documentation of support from the community would be helpful as well. We will be working with your Emergency Management Director throughout the grant application process.

Please feel free to contact me or Amanda Sievers at 803.649.7981 if you have any questions. We look forward to working with you on this important project.

828 Richland Avenue, West  
Aiken, SC 29801  
Telephone: 803-642-2012  
Fax: 803-642-2124

## Aiken County Government

October 23, 2008

OFFICIAL COPY

Ms. Jennifer Tinsley  
Director of Planning and IT  
Lower Savannah Council of Governments  
Post Office Box 850  
Aiken, South Carolina 29802

Dear Jennifer,

At its regular meeting of October 21, 2008, Aiken County Council authorized providing \$3,125 in matching funds for the Pre-Disaster Mitigation (PDM) Planning Grant being sought by Lower Savannah Council of Governments. We understand this grant will be used to update our hazard mitigation plans originally adopted in 2005. I am sorry this is so late in the process, but Council had not met since our original planning session in September.

I trust you will find this information useful. Please do not hesitate to contact me should you have questions or need any additional information.

Sincerely,



J. Clay Valliant  
County Administrator

JCK/mr

Cc: Mr. Todd Glover, Assistant County Administrator  
Mr. Nick Bianco, Emergency Services Director

## SC Emergency Management Division

2779 Fish Hatchery Road

West Columbia, SC 29172

(803) 737-8500 FAX (803) 737-8570

Visit our website at [www.scemd.org](http://www.scemd.org)

# TRAINING GRAM

## *Workshop Announcement:*

### **Mitigation Planning Workshop for Local Governments (G318)**

**Course Dates:** October 29-30, 2008

**Course Times:** 10:00 a.m. - 5:00 p.m. (1<sup>st</sup> day)

8:30 a.m. - 4:00 p.m. (2<sup>nd</sup> day)

**Course Location:** SCEMD, Pine Ridge Armory, 2779 Fish Hatchery Road, West Columbia, SC 29172

**Course Description:** This 2-day workshop is designed to aid local jurisdictions in the update of Local Hazard Mitigation Plans. This workshop discusses the Disaster Mitigation Act of 2000 which amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by, among other things, adding a new section 322--Mitigation Planning. Section 322 requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans as a condition of receiving Hazard Mitigation Grant Program (HMGP) funds to "brick and mortar" mitigation projects. The Mitigation Planning Workshop for Local Governments assists representatives of local communities or multi-jurisdictional planning areas to develop a mitigation plan that meets community needs as well as the Section 322 local government planning requirements as described in 44 CFR Section 201.6. This workshop explains each of the requirements, demonstrates how FEMA's new Mitigation Planning How-to-Guides can be used to address each requirement, and provides opportunities to begin the planning process in group activities with representatives of the same community planning area.

**Who Should Attend:** The target audience for this workshop includes the following representatives of local government: local planners, county planners, COG's, emergency managers, emergency program managers, other staff with expertise needed for mitigation projects.

**Workshop Cost:** This is a free workshop.

**Reimbursements:** Eligible participants living more than 50 miles from the course location will be reimbursed the cost of lodging and meals at the current state reimbursement rate. Information on making hotel reservation and travel reimbursements will be provided along with a course acceptance email.

**To apply:** Go to our website at [www.scemd.org](http://www.scemd.org) (click on Training then click on SCEMD Course Application Instructions) and follow the instructions. Applicants selected to attend the course will be notified by email no later than August 15, 2008.

**If you have specific questions regarding Mitigation Training please contact Gray Warr at 803-737-8846. For general training information contact SCEMD Training at 803-737-8500 or**

**[training@emd.state.sc.us](mailto:training@emd.state.sc.us) Additional information concerning on-line registration is available at [www.scemd.org](http://www.scemd.org) (click on training)**

## SC Emergency Management Division

2779 Fish Hatchery Road

West Columbia, SC 29172

(803) 737-8500 FAX (803) 737-8570

Visit our website at [www.scemd.org](http://www.scemd.org)

# TRAINING GRAM

## *Workshop Announcement:*

### **Mitigation Planning Workshop for Local Governments (G318)**

**Course Dates:** April 14-15, 2009

**Course Times:** 10:00 a.m. - 5:00 p.m. (1<sup>st</sup> day)

8:30 a.m. - 4:00 p.m. (2<sup>nd</sup> day)

**Course Location:** SCEMD, Pine Ridge Armory, 2779 Fish Hatchery Road, West Columbia, SC 29172

**Course Description:** This 2-day workshop is designed to aid local jurisdictions in the update of Local Hazard Mitigation Plans. This workshop discusses the Disaster Mitigation Act of 2000 which amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by, among other things, adding a new section 322--Mitigation Planning. Section 322 requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans as a condition of receiving Hazard Mitigation Grant Program (HMGP) funds to "brick and mortar" mitigation projects. The Mitigation Planning Workshop for Local Governments assists representatives of local communities or multi-jurisdictional planning areas to develop a mitigation plan that meets community needs as well as the Section 322 local government planning requirements as described in 44 CFR Section 201.6. This workshop explains each of the requirements, demonstrates how FEMA's new Mitigation Planning How-to-Guides can be used to address each requirement, and provides opportunities to begin the planning process in group activities with representatives of the same community planning area.

**Who Should Attend:** The target audience for this workshop includes the following representatives of local government: local planners, county planners, COG's, emergency managers, emergency program managers, other staff with expertise needed for mitigation projects.

**Workshop Cost:** This is a free workshop.

**Reimbursements:** Eligible participants living more than 50 miles from the course location will be reimbursed the cost of lodging and meals at the current state reimbursement rate. Hotel and travel reimbursements information will be provided along with a course acceptance notification.

### **NEW APPLICATION PROCEDURES**

Course registration will open approximately 4 months prior to the course date. To apply, go to [www.scemdlms.org](http://www.scemdlms.org). Applicants selected to attend the course will be notified by email approximately three weeks prior to the course. Your response is required in order to complete the registration and enrollment process for the course. One week prior to the course you will receive a reminder email requesting final confirmation of attendance. In order to insure receipt of all LMS correspondence, be sure your contact information, especially your email address, is current in LMS.

**If you have questions regarding this training or other training events call or email SCEMD Training at 803-737-8500 or [training@emd.sc.gov](mailto:training@emd.sc.gov). Additional information concerning on-line registration is available at [www.scemd.org](http://www.scemd.org) (click on training).**



## MEMO

**TO:** County Emergency Management Coordinators  
**CC:** County Administrators  
**FROM:** Amanda J. Sievers, LSCOG  
**DATE:** July 1<sup>st</sup>, 2009  
**RE:** Hazard Mitigation Plan Updates for the Lower Savannah Region

Lower Savannah Council of Governments (LSCOG) has been successful in the Pre-Disaster Mitigation (PDM) 2009 selection for a grant award to develop mitigation plan updates. Your county hazard mitigation plan is scheduled to be updated in order to comply with FEMA regulations. We need to begin immediately with the planning process in order to ensure that your PDM funding is not at stake.

LSCOG will be sending a Memorandum of Agreement to all counties once an official grant award notification has been received. Meanwhile, we are requesting that all county Emergency Management Coordinators begin forming their Hazard Mitigation Task Force Committees (police chief, fire chief, public works director, etc.), who will be active participants in the mitigation plan update process.

The PDM grant will provide for a comprehensive regional natural hazard mitigation plan that the LSCOG, with county participation, will undertake. Hazard mitigation plans are important for several reasons: reducing the potential for private property loss and public property damage; minimizing possible disruptions to a community's economy as a result of disaster; and protecting vital facilities (e.g. hospitals, power plants, etc.) from natural hazard-related damages or losses. The plan will be consistent with other regional plans in the state and will comply with FEMA regulations regarding Disaster Mitigation Act (DMA) 2000. Without a FEMA-approved natural hazard mitigation plan, local governments will not be eligible to receive PDM funding for local mitigation projects.

**LSCOG is requesting that all Emergency Management Coordinators submit their Task Force Committee contact information to Amanda J. Sievers by Thursday, July 16<sup>th</sup>, 2009.** It is essential to form your Task Force Committee in order to move forward with the plan update. We would like to achieve 100% participation from all jurisdictions, including each municipality in the region. Please keep this in mind when selecting your Task Force Committee. I anticipate your timely response with the necessary information so we can begin scheduling meetings with you.

If there are any questions please feel free to contact me at (803) 649-7981 or email [asievers@lscog.org](mailto:asievers@lscog.org).



## MEMO

**TO: Elected Officials of the Lower Savannah Region**

**CC: County Emergency Management Directors**

**FROM: Amanda Sievers, Associate Planner**

**DATE: July 16<sup>th</sup>, 2009**

**RE: Natural Hazard Mitigation Plan Update**

The Lower Savannah Council of Governments (LSCOG) in conjunction with SC Emergency Management Division, FEMA Region IV, and the six counties of the LSCOG region are in the process of updating your natural hazard mitigation plan as required by the Disaster Mitigation Act of 2000. The six counties- Aiken, Aiken, Aiken, Barnwell, Calhoun, and Orangeburg- are all participating in the planning process. This memorandum serves to inform you that your municipal participation is needed to achieve full compliance.

All jurisdictions, including municipalities, are **required** to have a FEMA approved natural hazard mitigation plan in order to receive grant funding through the FEMA grant program. LSCOG is assisting with the plan updates, but each municipality must also participate and adopt the multi-jurisdictional plan of their respective county in order to remain eligible for FEMA funding. LSCOG, FEMA, SCEMD, and County EMD's are strongly urging all municipalities to participate so as to lessen the impact of natural disasters and maintain grant eligibility. We expect 100% participation from all municipalities.

County EMD have been contacting the municipalities in their respective counties, and have begun forming task force committees who will be official participants of the plan update. The County EMD have provided their committee's contact information to LSCOG, who is in the process of scheduling upcoming meetings with each county and the task force committees to discuss the required plan update.

You will be informed soon of the task force meeting for your area. It is critical that a representative of your municipality participate in these efforts.

If your municipality has not previously participated in the planning process of the natural hazard mitigation plan, and you have questions or concerns, please feel free to contact Amanda J. Sievers at (803) 649-7981 or [asievers@lscog.org](mailto:asievers@lscog.org) as soon as possible to discuss how your local input is critical to developing an effective plan.





## MEMO

**TO:** County Emergency Management Directors and Elected Officials

**CC:** Task Force Committee Members

**FROM:** Amanda Sievers, LSCOG

**DATE:** August 5<sup>th</sup>, 2009

**RE:** Hazard Mitigation Plan Update Meetings

This MEMO serves to inform you that the Lower Savannah COG has scheduled three kick-off meetings regarding the county hazard mitigation plan update. In order to develop the plans we need your input and participation.

We have scheduled the meetings for August 25<sup>th</sup>, 26<sup>th</sup>, and 27<sup>th</sup>. Please see the following for the specific date/time and location for your county meeting:

<b><u>County</u></b>	<b><u>Date/Time</u></b>	<b><u>Place</u></b>
Aiken/Barnwell	<b>Tues. August 25<sup>th</sup> @ 10:00 AM</b>	Aiken- Aiken County Council Auditorium
Calhoun/ Orangeburg	<b>Wed. August 26<sup>th</sup> @ 10:00 AM</b>	Orangeburg- Orangeburg County Administrative Building (3 <sup>rd</sup> Floor Training Room)
Aiken/Bamberg	<b>Thurs. August 27<sup>th</sup> @ 10:00 AM</b>	Bamberg- Bamberg County Council Chambers

You need only attend the meeting scheduled for your county. We will be discussing hazard mitigation goals and strategies, so come prepared to provide input for your county.

**It is important that we get input from everyone involved in the hazard mitigation planning process. Your future funding is at stake.**

Feel free to contact me at (803) 649-7981 or [asievers@lscog.org](mailto:asievers@lscog.org) if you have any questions.

4/11/2011



Lower Savannah  
Council of Governments

P.O. Box 850, Aiken, South Carolina, 29802

Tel. (803) 649-7981 - Fax (803) 649-2248

[www.lscog.org](http://www.lscog.org)

August 18, 2009

Mr. Clay Killian  
County Administrator  
Aiken County Government  
828 Richland Avenue, West  
Aiken, SC 29801

Dear Clay,

Enclosed you will find the Memorandum of Agreement between Aiken County and Lower Savannah Council of Governments (LSCOG) to update the county's hazard mitigation plan. LSCOG has successfully been awarded the FEMA Pre-Disaster Mitigation Grant # **PDMC-PL-04-SC-2009-001**. The grant period is 07/14/2009 through 07/14/2012. Two copies of the MOA have been provided. Please sign both of the copies; keeping one for your records, and sending the other copy back to LSCOG.

Also enclosed is a copy of the grant application award letter for your information, and the county's match requirement agreement letter.

Thank you for your cooperation. Please do not hesitate to contact me should you have questions or need any additional information.

Sincerely,

F. Wayne Rogers

Executive Director

Lower Savannah Council of Governments

FWR/ajs

Cc: Mr. Paul Matthews, Aiken County Emergency Management Director



**LOWER SAVANNAH COUNCIL OF GOVERNMENTS**

**Hazard Mitigation Planning Meeting**

**Agenda**

**August 25<sup>th</sup>, 2009**

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Welcome and Introductions	<i>Amanda Sievers</i>
Hazard Mitigation Planning Update	<i>Amanda Sievers</i>
Current Status and Timeframe for Plans	<i>Amanda Sievers</i>
Plan Update Process	<i>Amanda Sievers</i>
General Discussion	<i>All</i>
Adjourn	

## AIKEN AND BARNWELL COUNTY HAZARD MITIGATION MEETING

## AIKEN COUNTY COUNCIL AUDITORIUM

AUGUST 25, 2009 10:00AM

## ATTENDANCE SHEET

NAME	AGENCY	PHONE #	EMAIL
1. <u>Robney Abbey</u>	<u>Aiken DPS</u>	<u>642-7020</u>	<u>robney@cityofaikensc.gov</u>
2. <u>Charles Williams</u>	<u>North Augusta PS</u>	<u>441-4254</u>	<u>Charles.W@northaugusta.net</u>
3. <u>Brian Brazier</u>	<u>Aiken DPS</u>	<u>293-7836</u>	<u>bbrazier@cityofaikensc.gov</u>
4. <u>Harvey Tullison</u>	<u>Town of Jackson</u>	<u>471-2228</u>	<u>olamedic@nol.com</u> <u>sally2@pbcomm.net</u>
5. <u>N.R. SALLEY, JR.</u>	<u>TOWN OF SALLEY</u> <u>TOWN OF WILLISTON</u>	<u>758-3485</u>	<u>nsalley2@pbcomm.net</u>
6. <u>SCOTT NEELY</u>	<u>TOWN OF WAGNER</u>	<u>646-3581</u>	<u>rsneely@atlantic.net</u>
7. <u>Ed Williams</u>	<u>Town of Barnwell</u>	<u>803-593-2676</u>	
8. <u>Ed Rockwell</u>	<u>Blackville</u>	<u>234-9655</u>	<u>rockwellr@bellsouth.net</u>
9. <u>Timbo Williams</u>	<u>Barnwell County</u> <u>Fire Service</u>	<u>541-1070</u>	<u>timbofireco@barnwellsc.com</u>
10. <u>Jessica Barnwick</u>	<u>Barnwell County</u> <u>Emergency Management</u>	<u>541-1001</u>	<u>jbarnwick@barnwellsc.com</u>
11. <u>Roger Riley</u>	<u>Barnwell Co</u> <u>Emergency Mgt.</u> <u>Hilde Fire Dept</u>	<u>541-1001</u>	<u>rriley@barnwellsc.com</u>
12. <u>Darren Tonne</u>	<u>Town of Hilde</u> <u>Aiken Co.</u>	<u>793-7452</u>	<u>darrentonne@yahoo.com</u>
13. <u>PAUL MATTHEWS</u>	<u>EMD</u> <u>Aiken Co.</u>	<u>803-642-1620</u>	<u>Pmatthews@aikencountyse.gov</u>
14. <u>David Ruth</u>	<u>EMD</u> <u>City of Barnwell</u>	<u>813-642-1623</u>	<u>druth@aikencountyse.gov</u>
15. <u>Thomas Dicks</u>		<u>803-257-1930</u>	<u>barnwell@bellsouth.net</u>

## **Appendix D: Hazard Mitigation Crosswalk Review**

**LOCAL MITIGATION PLAN REVIEW SUMMARY**

The plan cannot be approved if the plan has not been formally adopted. Each requirement includes separate elements. All elements of the requirement must be rated "Satisfactory" in order for the requirement to be fulfilled and receive a score of "Satisfactory." Elements of each requirement are listed on the following pages of the Plan Review Crosswalk. A "Needs Improvement" score on elements shaded in gray (recommended but not required) will not preclude the plan from passing. Reviewer's comments must be provided for requirements receiving a "Needs Improvement" score.

**Prerequisite(s) (Check Applicable Box)**

**1. Adoption by the Local Governing Body:**  
§201.6(c)(5) OR

NOT MET	MET
N/A	N/A

**2. Multi-Jurisdictional Plan Adoption:** §201.6(c)(5)

	X
	X

**AND**  
**3. Multi-Jurisdictional Planning Participation:** §201.6(a)(3)

**Planning Process**

**4. Documentation of the Planning Process:** §201.6(b) and §201.6(c)(1)

N	S
	X

**Risk Assessment**

**5. Identifying Hazards:** §201.6(c)(2)(i)

N	S
	X
	X
	X

**6. Profiling Hazards:** §201.6(c)(2)(i)

**7. Assessing Vulnerability: Overview:** §201.6(c)(2)(ii)

**8. Assessing Vulnerability: Addressing Repetitive Loss Properties.** §201.6(c)(2)(ii)

**9. Assessing Vulnerability: Identifying Structures, Infrastructure, and Critical Facilities:** §201.6(c)(2)(ii)(B)

**10. Assessing Vulnerability: Estimating Potential Losses:** §201.6(c)(2)(ii)(B)

**11. Assessing Vulnerability: Analyzing Development Trends:** §201.6(c)(2)(ii)(C)

**12. Multi-Jurisdictional Risk Assessment:** §201.6(c)(2)(iii)

X			
X			
X			

\*States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements.

**SCORING SYSTEM**

Please check one of the following for each requirement.

**N – Needs Improvement:** The plan does not meet the minimum for the requirement. Reviewer's comments must be provided.

**S – Satisfactory:** The plan meets the minimum for the requirement. Reviewer's comments are encouraged, but not required.

**Mitigation Strategy**

	N	S
13. Local Hazard Mitigation Goals: §201.6(c)(3)(i)		X
14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)		X
15. Identification and Analysis of Mitigation Actions: NFIP Compliance. §201.6(c)(3)(ii)		X
16. Implementation of Mitigation Actions: §201.6(c)(3)(iii)		X
17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)		X

**Plan Maintenance Process**

	N	S
18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(ii)		X
19. Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)		X
20. Continued Public Involvement: §201.6(c)(4)(iii)		X

**Additional State Requirements\***

	N	S
Insert State Requirement		
Insert State Requirement		
Insert State Requirement		

**LOCAL MITIGATION PLAN APPROVAL STATUS**

PLAN NOT APPROVED

See Reviewer's Comments

PLAN APPROVED

## Local Mitigation Plan Review and Approval Status

Jurisdiction: Aiken County	Title of Plan: Aiken County Multi-Jurisdictional Natural Hazard Mitigation Plan	Date of Plan: October 2010
Local Point of Contact: David Ruth	Address: 828 Richland Avenue W Aiken, SC 29801	
Title: County Emergency Management Coordinator		
Agency: Aiken County		
Phone Number: (803) 642-1623	E-Mail: druth@aikencountysc.gov	

State Reviewer:	Title:	Date:
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FEMA Reviewer: Jordon H. Ricks Linda L. Byers (QC)	Title: Hazard Mitigation Community Planner Lead Planning Specialist	Date: 9-14-2010; 10-21-2010; 4-8-2011 (final review) September 21, 2010
Date Received in FEMA Region IV	8-16-2010; 10-14-2010 (revisions); 4-7-2011 (first adoption resolution)	
Plan Not Approved	September 21, 2010	
Plan Approved	April 8, 2011	
Date Approved	April 8, 2011	

Jurisdiction:	DFIRM		NFIP Status*			
	In Plan	Not In Plan	Y	N	N/A	CRS Class
1. Aiken County (Unincorporated)		X	X			9
2. Aiken, City of		X	X			-

LOCAL MITIGATION PLAN REVIEW CROSSWALK				FINAL	Aiken County, SC			October 2010
3.	Burnettown, Town of				X	X		-
4.	Jackson, Town of				X	X		-
5.	Monetta, Town of				X		X	-
6.	New Ellenton, Town of				X	X		-
7.	North Augusta, City of				X	X		-
8.	Perry, Town of				X		X	-
9.	Salley, Town of				X		X	-
10.	Wagener, Town of				X		X	-
11.	Windsor, Town of				X		X	-



PREREQUISITE(S)**1. Adoption by the Local Governing Body**

**Requirement §201.6(c)(5):** *[The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Has the local governing body adopted <b>new or updated</b> plan?	Sect. 5.2, p 144  N/A	To be adopted upon approval  This is an update for a multi-jurisdictional Plan.	N/A	N/A
B. Is supporting documentation, such as a resolution, included?	Sect. 5.2, p 144  N/A	Resolution to be inserted upon approval and adoption  This is an update for a multi-jurisdictional Plan.	N/A	N/A
SUMMARY SCORE			N/A	N/A

## 2. Multi-Jurisdictional Plan Adoption

### LOCAL MITIGATION PLAN REVIEW CROSSWALK

FINAL

Aiken County, SC

October 2010

Requester must document that it has been formally adopted.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Does the <b>new or updated</b> plan indicate the specific jurisdictions represented in the plan?	<p>Sect. 1.5, p 13</p> <p>Part 1.6 (p. 15-16)</p>	<p>Participating municipalities: City of Aiken, Town of Burnetown, Town of Jackson, Town of Monetta, Town of New Ellenton, City of North Augusta, Town of Perry, Town of Salley, Town of Wagener, Town of Windsor</p> <p>The updated Plan indicates that the following communities are represented for this update:</p> <ul style="list-style-type: none"> <li>• Aiken County, Unincorporated</li> <li>• Aiken, City of</li> <li>• Burnetown, Town of</li> <li>• Jackson, Town of</li> <li>• Monetta, Town of</li> <li>• New Ellenton, Town of</li> <li>• North Augusta, City of</li> <li>• Perry, Town of</li> <li>• Salley, Town of</li> <li>• Wagener, Town of</li> <li>• Windsor, Town of</li> </ul>		X
B. For each jurisdiction, has the local governing body adopted the <b>new or updated</b> plan?	<p>Sect. 5.2, p 144</p> <p>N/A</p>	<p>To be adopted upon approval</p> <p>None of the local governing bodies have adopted the updated Plan.</p> <p><b><u>REQUIRED:</u></b></p> <p>The updated Plan must be adopted within one calendar year of FEMA's "approval pending adoption" of the Updated Plan.</p> <p><i>For more information, see "Adoption by the Local Governing Body", in the Local Multi-Hazard Mitigation Planning Guidance, p. 17-18.</i></p> <p><b><u>RECEIVED:</u></b></p> <p>Unincorporated Aiken County was the first participating jurisdiction to adopt the updated Plan. The local governing body signed its adoption resolution on 16 November 2010.</p>		X
Aiken County Natural Hazard Mitigation Plan				176

C. Is supporting documentation, such as a resolution, included for each participating jurisdiction?	Sect. 5.2, p 144 N/A	<p>To be adopted upon approval</p> <p>No documentation of adoption has been received from any of the local governing bodies.</p> <p><b><u>REQUIRED REVISION:</u></b></p> <p>The updated Plan shall include a copy of the resolution or other documentation of formal adoption of the Updated Plan within one calendar year.</p> <p><i>For more information, see “Adoption by the Local Governing Body”, in the Local Multi-Hazard Planning Guidance, p. 17-18.</i></p> <p><b><u>RECEIVED:</u></b></p> <p>FEMA received an adoption resolution for the Plan from Unincorporated Aiken County on 7 April 2011.</p>	X	X
		<b>SUMMARY SCORE</b>	X	X

**PLANNING PROCESS:** §201.6(b): *An open public involvement process is essential to the development of an effective plan.*

### 3. Multi-Jurisdictional Planning Participation

**Requirement §201.6(a)(3):** *Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process ... Statewide plans will not be accepted as multi-jurisdictional plans.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Does the <b>new or updated</b> plan describe <b>how</b> each jurisdiction participated in the plan's development?	<p>Sect. 1.5, p 13 Sect. 1.6, pp15-16 App. C, p 155</p> <p>Part 1.6 (p. 15-16)</p>	<p>Participant involvement and considerations to be satisfied</p> <p>The updated Plan explains that there was a set of considerations that had to be satisfied in order for cities and towns to have been official participants in the planning process.</p> <p>Aiken County and all ten of the municipalities received formal recognition as participants because each had one city/town employee included as a member of the County's Natural Hazard Plan Task Force Committee.</p>		X
B. Does the updated plan identify all participating jurisdictions, including new, continuing, and the jurisdictions that no longer participate in the plan?	<p>Sect. 1.6, pp 15-16</p> <p>Part 1.6 (p. 15-16); Part 3.12 (p. 107); Part 3.13 (p. 109); Part 3.22 (p. 132); Part 3.23 (p. 134)</p>	<p>Aiken County achieved 100% participation</p> <p>The updated Plan reveals that Aiken County achieved 100% participation from all ten incorporated municipalities in the development of the Plan.</p> <p>New active participants in this update process:</p> <ul style="list-style-type: none"> <li>• Town of New Ellenton</li> <li>• Town of Windsor</li> </ul> <p>In the sections that describe the goals and objectives along with the mitigation strategies for these towns, there are introductory statements reiterating their newcomer status.</p>		X
<b>SUMMARY SCORE</b>				X

## 4. Documentation of the Planning Process

**Requirement §201.6(b):** In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

**Requirement §201.6(c)(1):** [The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan provide a narrative description of the process followed to prepare the <b>new or updated</b> plan?	Sect. 1.4, pp 9-11 Sect. 1.7, p 17  Part 1.4 (p. 10-11); Part 1.5 (p. 12-14); Appendix C (p. 155-167)	The planning process is described and the steps that were undertaken. A public participation process is also described in Sect. 1.7  The updated Plan thoroughly describes the process followed during this planning effort, which began with the establishment of the Task Force Committee and concluded with the development of the mitigation strategies.  The process began with the SCEMD PDM Grant Application Workshop on 22 August 2008. Agendas and summaries of all subsequent hearings/meetings/workshops through 29 July 2010 are provided.		X
B. Does the <b>new or updated</b> plan indicate who was involved in the <b>current</b> planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, etc.?)	Sect. 1.5, pp 12-14 Sect. 1.6, pp 15-16 Sect 1.7, p 17  Part 1.5 (p. 12-13); Part 1.6 (p. 15-16)	The planning process is documented and the participating municipalities involved. All meetings, training, and public comment hearings are recorded. A public participation process is also described.  The updated Plan states that the process was led by the Aiken County Task Force Committee. This group included staff from...  <ul style="list-style-type: none"> <li>• Lower Savannah Council of Governments</li> <li>• heads of County emergency service offices</li> <li>• representatives from incorporated municipalities</li> <li>• private entities</li> </ul>		X

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- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

**Requirement §201.6(c)(1):** [The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Location in the			SCORE
		The Plan lists the 19 individuals that comprised the Committee's membership. There was at least one affiliate from each participating jurisdiction in the Committee.	
C. Does the <b>new or updated</b> plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?)	Sect. 1.7, p 17  Part 1.7 (p. 17)	<p>To engage the community in the hazard mitigation planning process, the Task Force Committee held public input meetings designed to inform the participants about hazard mitigation, generate discussion, and receive feedback on the HMP; letters were sent to communities; news releases in area newspapers and other media outlets informed area residents; etc. Public meetings were held during the drafting stage and prior to plan adoption.</p> <p>The updated Plan explains that the public was invited to attend a meeting and comment during the drafting stage on 25 August 2009. Also, the public was invited to comment on the final draft plan on 29 July 2010.</p> <p>As for prior to adoption, the updated Plan does not document that the public has had the opportunity to comment on the Plan prior to its final approval.</p> <p><i>*Formal adoption of the plan by the participating jurisdictions will not take place until FEMA has formally approved the plan. Therefore, the public notice prior to formal adoption will not take place until then. Reworded on pg. 17 to reflect this.</i></p> <p><b><u>REQUIRED REVISION:</u></b></p> <p>The updated Plan must indicate how the public was given</p>	



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- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

**Requirement §201.6(c)(1):** [The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Location in the		SCORE
	<p>opportunities to comment on the plan during the drafting stage <i>and</i> prior to plan approval.</p> <p><i>For more information, see “Documentation of the Planning Process,” in the Local Multi-Hazard Mitigation Planning Guidance (July 2008), Requirements §201.6(b) and §201.6(c)(1), p.26-27.</i></p> <p><b><u>Recommended Revision:</u></b></p> <p>The Plan states that a public notice of the adoption hearing will be inserted in the County’s local newspapers. (See bottom of page 17) Provide documentation when this public notice has been completed.</p> <p><b><u>REVISION RECEIVED:</u></b></p> <p>The revised Plan includes a statement explaining that a public notice of an adoption hearing will occur once FEMA has formally approved the Plan.</p> <p>However, this element cannot receive a “Satisfactory” score because this hearing has not yet occurred. The score will be changed after the final adoption meeting has been documented.</p> <p><b><u>RECEIVED:</u></b></p> <p>Unincorporated Aiken County was the first participating jurisdiction to adopt the updated Plan.</p>	X

## 4. Documentation of the Planning Process

**Requirement §201.6(b):** In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

**Requirement §201.6(c)(1):** [The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Location in the			SCORE
		Although the revised Plan does not provide an attendance record of the adoption meeting held by this community, it is assumed that the public was given an opportunity to comment during the final meeting.	
D. Does the new or updated plan discuss the opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?	Sect. 1.7, p 17  Part 1.7 (p. 17)	Throughout the planning and update process, there have been opportunities for public input. The process provided neighboring communities, other agencies, the private sector, and academia an opportunity to participate in the planning process.  The updated Plan states that opportunities for input were solicited from neighboring communities, other agencies, the private sector, non-profits, and academia.  The Task Force Committee held public input meetings designed to inform these participants about hazard mitigation and receive feedback on the HMP.	X
E. Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?	Sect. 1.4, p 10  Part 1.4 (p. 10)	List of existing planning mechanisms and ways incorporated into the HMP  The updated Plan confirms that Aiken County referenced several existing sources of information during the planning process. A few of the acknowledged plans/studies/guides include: <ul style="list-style-type: none"> <li>• Aiken County Comprehensive Plan</li> <li>• Aiken County Zoning Ordinance</li> <li>• Aiken County Land Development Regulations</li> </ul>	X



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- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

**Requirement §201.6(c)(1):** [The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Location in the			SCORE
		<ul style="list-style-type: none"> <li>SC Emergency Operations Plan</li> </ul>	
F. Does the updated plan document how the planning team reviewed and analyzed each section of the plan and whether each section was revised as part of the update process?	<p>Opening , italicized paragraph/sentence of each Section</p> <p>First few lines beneath the title of each section throughout the Plan</p>	<p>Explains how plan either changed or remained the same for the update process</p> <p>The opening of each section in the updated Plan includes italicized text explaining how the section was reviewed by the Task Force Committee and whether it was updated or remained the same.</p> <p>Although the Committee thoroughly reviewed and analyzed every section, the following ones remained unchanged:</p> <ul style="list-style-type: none"> <li>• Part 1:               <ul style="list-style-type: none"> <li>○ Section 1</li> <li>○ Section 3</li> </ul> </li> <li>• Part 2:               <ul style="list-style-type: none"> <li>○ Section 3 (prioritization methodology)</li> <li>○ Section 4</li> </ul> </li> <li>• Part 3:               <ul style="list-style-type: none"> <li>○ Section 1</li> </ul> </li> </ul> <p>Explanations are given for these unaltered sections.</p>	X
SUMMARY SCORE			X

**RISK ASSESSMENT:** §201.6(c)(2): *The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.*

### 5. Identifying Hazards

**Requirement §201.6(c)(2)(i):** *[The risk assessment shall include a] description of the type ... of all natural hazards that can affect the jurisdiction.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan include a description of the types of all natural hazards that affect the jurisdiction?	<p>Sect. 2.1, pp 19-22</p> <p>Part 2.1 (p. 21-22)</p>	<p>Tornadoes, Hurricanes, Hail, Drought, Earthquakes, Wildfires, Flood, Winter Storms</p> <p>The updated Plan examines the following eight (8) natural hazards:</p> <ul style="list-style-type: none"> <li>• Drought</li> <li>• Earthquakes</li> <li>• Flood</li> <li>• Hail</li> <li>• Hurricanes</li> <li>• Tornadoes/Severe Windstorm</li> <li>• Wildfires</li> <li>• Winter Storms</li> </ul> <p>All of these hazards were recognized in the previous plan—there are no new natural hazards affecting Aiken County.</p>		X
SUMMARY SCORE				X

### 6. Profiling Hazards

**Requirement §201.6(c)(2)(i):** *[The risk assessment shall include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the risk assessment identify the location (i.e., geographic area affected) of each natural hazard addressed in the new or updated plan?	<p>Sect. 2.1, pp 23-64</p> <p>Part 2.1 (p. 23-64); Appendix E</p>	<p>Each hazard is identified and addressed by location</p> <p>The updated Plan identifies the locations in Aiken County that are affected by each of the natural hazards addressed. Narratives and maps are used to identify specific geographic</p>		X

LOCAL MITIGATION PLAN REVIEW CROSSWALK				Aiken County, SC	October 2010
		FINAL	territories.		
B. Does the risk assessment identify the <b>extent</b> (i.e., magnitude or severity) of each hazard addressed in the <b>new or updated</b> plan?		Sect. 2.1, pp 23-64 Part 2.1 (p. 23-64)	<p>The extent of each hazard is addressed by location</p> <p>The updated Plan provides information concerning the possible extent (i.e., “How bad can it be?”) of the natural hazards addressed in the Plan. Scientific scales or quantitative measurements are provided adequately within the hazard profiles.</p> <p>For example, the extent of flooding is demonstrated with the National Weather Services (NWS) Flood Categories.</p>	X	
C. Does the plan provide information on <b>previous occurrences</b> of each hazard addressed in the <b>new or updated</b> plan?		Sect. 2.1, pp 23-64 Part 2.1 (p. 23-65); Appendix E	<p>A historical record of hazard occurrences is addressed</p> <p>The Plan update provides information pertaining to previous hazard events within each of the individual profiles. If applicable, the recorded events are summarized in narratives or with tables that include descriptive information of the event (e.g., location, date, duration, level of severity, damages, etc.).</p> <p>The Hazards Probability chart for Aiken County (Figure 30) also provides information about previous occurrences, indicating the number of events that have occurred within a given number of years in record.</p> <p>In Appendix E, the earthquakes map not only pinpoints the location of previous events within Aiken County, but also includes the date and magnitude of those tremors.</p>	X	
D. Does the plan include the <b>probability of future events</b> (i.e., chance of occurrence) for each hazard addressed in the <b>new or updated</b> plan?		Sect. 2.1, pp 23-64 Part 2.1 (p. 23-65)	<p>The probability of future events is described for each hazard addressed by location</p> <p>Figure 30 in the updated Plan displays the hazard frequency percentage, which is described as the chance a hazard event will occur per year. Recurrence intervals are also presented for each hazard. This table indicates that wildfires have the greatest likelihood of occurrence, while winter storms have the least.</p>	X	

LOCAL MITIGATION PLAN REVIEW CROSSWALK			FINAL	Aiken County, SC	October 2010
				Future occurrence analysis is also presented at the conclusion of each hazard's individual profile.	
SUMMARY SCORE					X

#### 7. Assessing Vulnerability: Overview

**Requirement §201.6(c)(2)(ii):** [The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the <b>new or updated</b> plan include an <b>overall summary</b> description of the jurisdiction's <b>vulnerability</b> to each hazard?	Sect. 2.2, p 65 Sect. 2.3, pp 66-72  Part 2.1 (p. 22); Part 2.3 (p. 66-68)	The updated Plan summarizes the County's vulnerability to each hazard through the presentation of Figure 5. This table indicates that the following hazards affect only specific jurisdictions: <ul style="list-style-type: none"> <li>• Tornadoes/Severe Windstorms</li> <li>• Hail</li> <li>• Earthquakes</li> </ul> All the other hazards have a countywide impact.  Figure 31 is a hazard analysis worksheet that examines vulnerability. It is based on the number of people and the value of property that could be affected within each jurisdiction. All hazards except for earthquakes received equal vulnerability ratings—Aiken County is five times less vulnerable to earthquakes in comparison to other hazards.		X
B. Does the <b>new or updated</b> plan address the <b>impact</b> of each hazard on the jurisdiction?	Sect. 2.1, pp 23-64 Sect. 2.3, pp 68-72  Part 2.1 (p. 23-64); Part 2.3 (p. 66-68)	The Aiken County Hazard Identification and Analysis Worksheet (Figure 31) addresses the impact of each natural hazard. Impact is assessed by examining past history of occurrence, while also assuming the greatest event possible and the worst case scenario. The two identified hazards in this table that received the highest impact ratings: wildfire and flooding.  The individual profiles of each hazard also present impact by describing property damage or injuries. For instance, an April 2009 tornado event in the Beech Island area caused over \$5 million in property damage and the indirect death of		X

LOCAL MITIGATION PLAN REVIEW CROSSWALK			FINAL	Aiken County, SC	October 2010
				a motorist.	
SUMMARY SCORE					X

### 8. Assessing Vulnerability: Addressing Repetitive Loss Properties

**Requirement §201.6(c)(2)(ii):** [The risk assessment] *must* also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe vulnerability in terms of the types and numbers of <i>repetitive loss properties</i> located in the identified hazard areas?	Sect. 2.1, p 59  Part 2.1 (p. 59)	Aiken County and its incorporated municipalities have had no such property identified as a repetitive loss property  The updated Plan states that no such property has been identified as a repetitive loss property in Aiken County.		X
SUMMARY SCORE				X

### 9. Assessing Vulnerability: Identifying Structures

**Requirement §201.6(c)(2)(ii)(A):** The plan *should* describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area ....

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the <b>new or updated</b> plan describe vulnerability in terms of the <b>types and numbers of existing</b> buildings, infrastructure, and critical facilities located in the identified hazard areas?	N/A  Part 1.2 (p. 6); Appendix E	<b>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</b>  Although there are two maps of Aiken County's critical facilities, the updated Plan does not provide any information that describes vulnerability in terms of types and numbers of existing development located in the identified hazard areas.  <b>Recommended Revisions:</b> <ul style="list-style-type: none"> <li>Base the information for this assessment on an inventory of existing buildings, infrastructure, and critical facilities that are located within identified hazard areas. Examples may include but are not limited to the following:</li> </ul>	X	

LOCAL MITIGATION PLAN REVIEW CROSSWALK				FINAL	Aiken County, SC	October 2010
					<ul style="list-style-type: none"><li>○ Building stock</li><li>○ Critical facilities</li><li>○ Transportation systems</li><li>○ Lifeline utility systems</li><li>○ Communication systems and networks</li><li>○ Historic, cultural, and natural resource areas</li></ul> <ul style="list-style-type: none"><li>● Include construction characteristics such as year built, building materials, and foundation types.</li></ul> <p><b><u>REVISION RECEIVED:</u></b></p> <p>None</p>	
B. Does the <b>new or updated</b> plan describe vulnerability in terms of the <b>types and numbers</b> of <b>future</b> buildings, infrastructure, and critical facilities located in the identified hazard areas?	N/A	N/A		<p><b>Note: A “Needs Improvement” score on this requirement will not preclude the plan from passing.</b></p> <p>The updated Plan does not offer any information regarding the vulnerability in terms of types and numbers of future structures.</p> <p><b><u>Recommended Revisions:</u></b></p> <ul style="list-style-type: none"><li>● Include a discussion of vulnerability in terms of types and numbers of future buildings, infrastructure, and critical facilities for all the natural hazards addressed in the Plan.</li><li>● Base the information on an inventory of proposed structures located within the identified hazard area boundaries.</li><li>● Determine how far into the future the assessment will go in considering such structures, including planned and approved development.</li></ul> <p><b><u>REVISION RECEIVED:</u></b></p> <p>None</p>	X	
					X	
				SUMMARY SCORE		



## 10. Assessing Vulnerability: Estimating Potential Losses

**Requirement §201.6(c)(2)(ii)(B):** [The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate . . .

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the <b>new or updated</b> plan estimate <b>potential dollar losses</b> to vulnerable structures?	N/A  Part 2.1 (p. 31, 36, 45, 51, 54, 60, 64)	<p><b>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</b></p> <p>At the conclusion of several hazard profiles, information appears about Aiken County's total market value assessments for agricultural, commercial, and residential properties in the 2010 tax year. The total number of parcels recorded for Aiken County is 103,091 units.</p> <p>However, the updated Plan does not offer any information regarding the estimated potential dollar losses to existing and future vulnerable structures.</p> <p><b><u>Recommended Revision:</u></b></p> <p>After describing vulnerability of existing and future structures for all the identified natural hazards, the updated Plan should estimate potential dollar loss for those structures.</p> <p>Examples of loss estimates caused by hazard events include annualized losses and annual percent loss ratios.</p> <p><b><u>REVISION RECEIVED:</u></b></p> <p>None</p>	X	
B. Does the <b>new or updated</b> plan describe the <b>methodology</b> used to prepare the estimate?	N/A  N/A	<p><b>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</b></p> <p>Due to the lack of any information regarding the estimated potential dollar losses to existing and future vulnerable structures, the updated Plan does not contain any explanation of methodology used to conduct such analysis.</p>	X	

LOCAL MITIGATION PLAN REVIEW CROSSWALK			FINAL	Aiken County, SC	October 2010
			<p><b><u>Recommended Revision:</u></b></p> <p>After describing vulnerability of existing and future structures for all the identified natural hazards, the updated Plan should explain the methodology used to estimate potential dollar losses of these structures.</p> <p><b><u>REVISION RECEIVED:</u></b></p> <p>None</p>		
			SUMMARY SCORE		
			X		

#### 11. Assessing Vulnerability: Analyzing Development Trends

**Requirement §201.6(c)(2)(ii)(C):** [The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the <b>new or updated</b> plan describe land uses and development trends?	N/A	<p><b>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</b></p> <p>The updated Plan fails to provide any information that describes land uses and development trends in Aiken County.</p> <p><b><u>Recommended Revision:</u></b></p> <p>The updated plan should include a general overview of land use and types of development occurring within the community, highlighting any changes since the previously approved plan. Specifically, it should include existing and future land use in identified hazard areas.</p> <p><b><u>REVISION RECEIVED:</u></b></p> <p>None</p>	X	
			SUMMARY SCORE	
			X	



## 12. Multi-Jurisdictional Risk Assessment

**Requirement §201.6(c)(2)(iii):** For multi-jurisdictional plans, the risk assessment **must** assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the <b>new or updated</b> plan include a risk assessment for each participating jurisdiction as needed to reflect unique or varied risks?	Sect. 2.1, pp 23-64  Part 2.3 (p. 67-72)	Each participating jurisdiction has a risk assessment reflecting varied risks and uniqueness  Figure 32 of the updated Plan identifies unique or varied risk for each of the participating jurisdictions. This hazard analysis worksheet evaluates the probability, vulnerability, impact, and history of the natural hazards. Separate assessments are provided for each of the jurisdictions.  In addition, the individual hazard profiles contain maps that pinpoint the specific locations where hazard events have occurred in Aiken County.		X
SUMMARY SCORE				X

**MITIGATION STRATEGY:** §201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

## 13. Local Hazard Mitigation Goals

**Requirement §201.6(c)(3)(i):** [The hazard mitigation strategy **shall** include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A Does the <b>new or updated</b> plan include a description of mitigation <b>goals</b> to reduce or avoid long-term vulnerabilities to the identified hazards?	Sect. 3.2, pp 81-82 Sect. 3.4, pp 87-88 Sect. 3.6, pp 92-93 Sect. 3.8, pp 97-98 Sect. 3.10, pp 102-103	Aiken County and its participating municipalities have a list of goals and objectives to develop a mitigation strategy  The updated Plan identifies the following six broad hazard mitigation goals, which apply for all the		X

	<p>Sect. 3.12, pp 107-108 Sect. 3.14, pp 112-113 Sect. 3.16, pp 117-118 Sect. 3.18, pp 122-123 Sect. 3.20, pp 127-128 Sect. 3.22, pp 132-133</p> <p>Part 3, Sect. 2 through 22 (p. 81-133)</p>	<p>participating jurisdictions in Aiken County:</p> <ol style="list-style-type: none"> <li>1. Protect public health and safety</li> <li>2. Increase public preparedness and awareness for natural hazards</li> <li>3. Protect property</li> <li>4. [Provide] emergency services</li> <li>5. Reduce the potential effects of flooding on homes and buildings in Aiken County</li> <li>6. Ensure protection and emergency shelters</li> </ol> <p>Each of these goals is further described with a set of objectives that address a specific task for achieving the goals.</p>		X
<b>SUMMARY SCORE</b>				

#### 14. Identification and Analysis of Mitigation Actions

**Requirement §201.6(c)(3)(ii):** *[The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan identify and analyze a comprehensive range of specific mitigation actions and projects for each hazard?	<p>Sect. 3.3, p 85 Sect. 3.5, p 91 Sect. 3.7, p 96 Sect. 3.9, p 101 Sect. 3.11, p106 Sect. 3.13, p 111 Sect. 3.15, p 116 Sect. 3.17, p 121 Sect. 3.19, p 126 Sect. 3.21, p 131 Sect. 3.23, p 136</p> <p>Part 3, Sect. 3 through 23 (p. 83-136)</p>	<p>The updated Plan presents a set of eleven (11) mitigation action tables that contain a total of 69 mitigation actions for Aiken County and its participating jurisdictions. Although these listed actions address all six of the objectives, only ten (10) are unique—the jurisdictions share these projects that are rather general and county-wide in application.</p> <p>The tables include a “Hazards” column that indicates which of the identified natural hazards is addressed by each action item.</p> <p>The listed actions indicate an association with only flooding or “ALL [hazards]”. Thus, it can be inferred that there is at least one action that will mitigate each of the natural hazards in this Plan.</p>		X

LOCAL MITIGATION PLAN REVIEW CROSSWALK			FINAL	Aiken County, SC	October 2010
B	Do the identified actions and projects address reducing the effects of hazards on <b>new</b> buildings and infrastructure?	<p>Sect. 3.3, p 85 Sect. 3.5, p 91 Sect. 3.7, p 96 Sect. 3.9, p 101 Sect. 3.11, p 106 Sect. 3.13, p 111 Sect. 3.15, p 116 Sect. 3.17, p 121 Sect. 3.19, p 126 Sect. 3.21, p 131 Sect. 3.23, p 136</p> <p>Part 3, Sect. 3 through 23 (p. 83-136)</p>	<p>The mitigation action tables for each jurisdiction in the updated Plan identifies one mitigation action that addresses reducing the effects of hazards on new buildings and infrastructure:</p> <p>“Implement and enforce zoning...and building codes to ensure no new structures are built within the floodplains.”</p>		X
C.	Do the identified actions and projects address reducing the effects of hazards on <b>existing</b> buildings and infrastructure?	<p>Sect. 3.3, p 85 Sect. 3.5, p 91 Sect. 3.7, p 96 Sect. 3.9, p 101 Sect. 3.11, p 106 Sect. 3.13, p 111 Sect. 3.15, p 116 Sect. 3.17, p 121 Sect. 3.19, p 126 Sect. 3.21, p 131 Sect. 3.23, p 136</p> <p>Part 3, Sect. 3 through 23 (p. 83-136)</p>	<p>The updated Plan identifies a few mitigation actions that address reducing the effects of hazards on existing buildings and infrastructure in every jurisdiction.</p> <p>Such activities include retrofitting critical facilities and “bringing up to wind resistant code” a couple of structures in New Ellenton.</p>		X
SUMMARY SCORE					X

#### 15. Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance

**Requirement: §201.6(c)(3)(ii):** *[The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	
		N	S

LOCAL MITIGATION PLAN REVIEW CROSSWALK			FINAL	Aiken County, SC	October 2010
A. Does the new or updated plan describe the jurisdiction (s) participation in the NFIP?	<p>Sect. 2.1, p 60</p> <p>Part 2.1 (p. 60)</p>	<p>NFIP participation for Aiken County and municipalities</p> <p>The updated Plan confirms that Aiken County along with the following jurisdictions are active NFIP participants, having continued compliance with its requirements and objectives:</p> <ul style="list-style-type: none"> <li>• Aiken</li> <li>• Burnettown</li> <li>• Jackson</li> <li>• New Ellenton</li> <li>• North Augusta</li> </ul> <p>The following jurisdictions, however, are not listed as participants and are considered “not mapped”:</p> <ul style="list-style-type: none"> <li>• Monetta</li> <li>• Perry</li> <li>• Salley</li> <li>• Wagener</li> <li>• Windsor</li> </ul>			X
	<p>B. Does the mitigation strategy identify, analyze and prioritize actions related to continued compliance with the NFIP?</p>	<p>Sect. 3.3, pp 83-86</p> <p>Sect. 3.5, pp 89-91</p> <p>Sect. 3.7, pp 94-96</p> <p>Sect. 3.9, pp 99-101</p> <p>Sect. 3.11, pp 104-106</p> <p>Sect. 3.13, pp 109-111</p> <p>Sect. 3.15, pp 114-116</p> <p>Sect. 3.17, pp 119-121</p> <p>Sect. 3.19, pp 124-126</p> <p>Sect. 3.21, pp 129-131</p> <p>Sect. 3.23, pp 134-136</p> <p>Part 3, Sect. 2 through 23 (p. 81-136)</p>	<p>The mitigation strategies for Aiken County and municipalities maintains a conscious effort to comply with NFIP</p> <p>The Mitigation Strategy section of the updated Plan does identify, analyze and prioritize actions related to continued compliance with the NFIP.</p> <p>For instance, each participating jurisdiction presents two objectives for the goal of reducing the potential effects of flooding on homes and buildings:</p> <ul style="list-style-type: none"> <li>• Objective 5.1: “Continue the implementation of zoning codes.”</li> <li>• Objective 5.2: “Study flood areas to</li> </ul>		X

LOCAL MITIGATION PLAN REVIEW CROSSWALK			FINAL	Aiken County, SC	October 2010
				implement needed changes in development and storm drainage.”  Regarding specific mitigation actions, all jurisdictions in Aiken County vow to identify flood prone areas and determine appropriate improvements to drainage services and levels of flood protection.	
SUMMARY SCORE					X

#### 16. Implementation of Mitigation Actions

**Requirement: §201.6(c)(3)(iii):** [The mitigation strategy section **shall** include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the <b>new or updated</b> mitigation strategy include how the actions are <b>prioritized</b> ? (For example, is there a discussion of the process and criteria used?)	Sect. 3.3, pp 83-85 Sect. 3.5, pp 89-90 Sect. 3.7, pp 94-95 Sect. 3.9, pp 99-100 Sect. 3.11, pp 104-105 Sect. 3.13, pp 109-110 Sect. 3.15, pp 114-115 Sect. 3.17, pp 119-120 Sect. 3.19, pp 124-125 Sect. 3.21, pp 129-130 Sect. 3.23, pp 134-135  Part 3.1 (p. 79)	The updated Plan states that all potential mitigation actions will be reviewed and ranked according to...  <ul style="list-style-type: none"> <li>• Most needed</li> <li>• Most likely to be accomplished</li> <li>• Most effectively address mitigation needs</li> </ul> Projects that required minimal funds were considered higher in priority because of the high likelihood that they could be accomplished as well as their favorable cost-benefit ratio.		X
B. Does the <b>new or updated</b> mitigation strategy address how the actions will be implemented and administered, including the responsible department, existing and potential resources and the timeframe to complete each action?	Sect. 3.3, p 86 Sect. 3.5, p 91 Sect. 3.7, p 96 Sect. 3.9, p 101 Sect. 3.11, p 106 Sect. 3.13, p 111 Sect. 3.15, p 116 Sect. 3.17, p 121 Sect. 3.19, p 126	The updated Plan indicates the following information about each mitigation action for Aiken County and the participating jurisdictions:  <ul style="list-style-type: none"> <li>• Description</li> <li>• Agencies involved</li> <li>• Timeframe and duration</li> <li>• Estimated cost</li> <li>• Possible funding source(s)</li> </ul>		X

LOCAL MITIGATION PLAN REVIEW CROSSWALK			FINAL	Aiken County, SC	October 2010
			Sect. 3.21, p 131 Sect. 3.23, p 136  Part 3.1 (p. 80)	<ul style="list-style-type: none"> <li>Priority</li> </ul>	
C. Does the <b>new or updated</b> prioritization process include an emphasis on the use of a <b>cost-benefit review</b> to maximize benefits?			Sect. 3.1, p 80  Part 3.1 (p. 79-80)	<p>The updated Plan explains that a cost-benefit review is one of the factors included in the prioritization process used by the Task Force. Aiken County will use the FEMA Benefit Cost Analysis (BCA) module and process, for which a description has been included.</p> <p>In addition, the County will weigh the effectiveness of the mitigation actions based on the following:</p> <ul style="list-style-type: none"> <li>Implementation timeframe</li> <li>History of occurrences for specific hazards</li> <li>Project cost</li> </ul>	X
D. Does the <b>updated</b> plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged ( <i>i.e.</i> , deferred), does the updated plan describe why no changes occurred?			Sect. 3.3, p 86 Sect. 3.5, p 91 Sect. 3.7, p 96 Sect. 3.9, p 101 Sect. 3.11, p 106 Sect. 3.13, p 111 Sect. 3.15, p 116 Sect. 3.17, p 121 Sect. 3.19, p 126 Sect. 3.21, p 131 Sect. 3.23, p 136  Part 3, Sect. 3 through 23 (p. 83-136)	<p>The mitigation action tables for each jurisdiction present information about the implementation status and, if applicable, milestones achieved or impediments to implementation for the listed projects in the updated Plan.</p> <p>Almost every action item that has been on the implementation schedule since the previous plan has not been completed due to funding issues. This includes the high-priority task of retrofitting critical facilities throughout Aiken County.</p>	X
SUMMARY SCORE					X

#### 17. Multi-Jurisdictional Mitigation Actions

**Requirement §201.6(c)(3)(iv):** For multi-jurisdictional plans, there **must** be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.



Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the <b>new or updated</b> plan include identifiable <b>action items</b> for each jurisdiction requesting FEMA approval of the plan?	Sect. 3.3, p 86 Sect. 3.5, p 91 Sect. 3.7, p 96 Sect. 3.9, p 101 Sect. 3.11, p 106 Sect. 3.13, p 111 Sect. 3.15, p 116 Sect. 3.17, p 121 Sect. 3.19, p 126 Sect. 3.21, p 131 Sect. 3.23, p 136  Part 3, Sect. 3 through 23 (p. 83-136)	Part Three of the updated Plan contains separate mitigation action tables for each of Aiken County's participating jurisdictions.  Each table fully describes each action in terms of how they will be implemented and administered, along with their operational timeframe and implementation status.		X
B. Does the <b>updated</b> plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged ( <i>i.e.</i> , deferred), does the updated plan describe why no changes occurred?	Sect. 3.3, p 86 Sect. 3.5, p 91 Sect. 3.7, p 96 Sect. 3.9, p 101 Sect. 3.11, p 106 Sect. 3.13, p 111 Sect. 3.15, p 116 Sect. 3.17, p 121 Sect. 3.19, p 126 Sect. 3.21, p 131 Sect. 3.23, p 136  Part 3, Sect. 3 through 23 (p. 84-135)	The updated Plan includes brief passages that provide information concerning the overall status of mitigation strategies listed in the previous plan.  Statements declare that none of the actions were implemented since the previous update for every jurisdiction in Aiken County—"lack of funding sources" is the culprit.  The towns of New Ellenton and Windsor, however, did not participate in the previous planning effort, so their listed actions are considered "new".		X
<b>SUMMARY SCORE</b>				X

**PLAN MAINTENANCE PROCESS****18. Monitoring, Evaluating, and Updating the Plan**

**Requirement §201.6(c)(4)(i):** [The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the <b>new or updated</b> plan describe the method and schedule for <b>monitoring</b> the plan, including the responsible department?	Sect. 4.1, p 139 Part 4.1 (p. 139)	<p>The updated Plan indicates that the Task Force Committee will coordinate the monitoring process during the five-year planning cycle.</p> <p>The specific monitoring duties include...</p> <ul style="list-style-type: none"> <li>collecting reports from the agencies involved in implementing mitigation activities</li> <li>conducting site visits</li> </ul> <p>In regard to scheduling, the Committee will convene meetings either following a natural disaster or when funding is announced.</p>		X
B. Does the <b>new or updated</b> plan describe the method and schedule for <b>evaluating</b> the plan, including how, when and by whom ( <i>i.e.</i> the responsible department)?	Sect. 4.1, pp 139-140 Part 4.1 (p. 139-140)	<p>The following information describes the evaluation process included in the Plan:</p> <ul style="list-style-type: none"> <li><u>Responsible Party</u>: Task Force Committee</li> <li><u>Schedule</u>: "on an as needed basis"</li> <li><u>Method</u>: <ul style="list-style-type: none"> <li>Analyze and incorporate reports</li> <li>Review goals and action items for relevance to changing conditions</li> <li>Assess changes in County resources</li> </ul> </li> </ul> <p>Also presented are the criteria that the Committee will use to evaluate the content of the Plan.</p>		X
C. Does the <b>new or updated</b> plan describe the method and schedule for <b>updating</b> the plan within the five-year cycle?	Sect. 4.1, p 140 Part 4.1 (p. 140)	The updated Plan explains that the Task Force Committee will oversee the updating process. The primary task will be incorporating into the Plan any new information presented within the reports.		X



		Figure 55 is a listing of seven quarterly meetings from 2011 until 2015. It identifies the meeting participants along with the anticipated outcome of each session.		
SUMMARY SCORE				X

### 19. Incorporation into Existing Planning Mechanisms

**Requirement §201.6(c)(4)(ii):** *[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the <b>new or updated</b> plan identify other local planning mechanisms available for incorporating the mitigation requirements of the mitigation plan?	Sect. 4.1, p 141 Sect. 2.4, p 75  Part 2.4 (p. 75)	Incorporation into existing planning mechanisms  The updated Plan displays a table that identifies the existing planning mechanisms for the participating jurisdictions. They exist for every jurisdiction and are as follows: <ul style="list-style-type: none"> <li>• Comprehensive Plan</li> <li>• Capital Improvement Plan</li> <li>• Building Code/LDR</li> <li>• Flood Hazard Ordinance</li> <li>• Zoning Ordinance</li> <li>• Emergency Operations Plan</li> </ul>		X
B. Does the <b>new or updated</b> plan include a process by which the local government will incorporate the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate?	Sect. 4.1, p 141  Part 2.4 (p. 75); Part 4.1 (p. 141)	The updated Plan explains that the Task Force Committee will collaborate with agencies to incorporate, where applicable, the mitigation strategies into the identified planning mechanisms. The four-step "fairly simple process" is outlined.		X
C. Does the <b>updated</b> plan explain how the local government incorporated the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate?	Sect. 4.1, p 141  Part 2.4 (p. 73-76); Part 4.1 (p. 141)	Although the Capability Assessment describes the existence of numerous ordinances and development frameworks, the updated Plan does not explain how the local governments of the participating jurisdictions incorporated mitigation strategies into their current planning and regulatory mechanisms.		

LOCAL MITIGATION PLAN REVIEW CROSSWALK			Aiken County, SC	October 2010
FINAL				
			<p>*added more documentation of incorporating hazard mitigation strategies and planning within other planning mechanisms for the local governments (pg 141)</p> <p><b><u>REQUIRED REVISION:</u></b></p> <p>The updated plan must explain how the local governments incorporated the mitigation plan into other planning mechanisms, when appropriate, as a demonstration of progress in local mitigation efforts.</p> <p><i>For more information, see “Incorporation into Existing Planning Mechanisms”, in the Local Multi-Hazard Mitigation Planning Guidance (July 2008), Requirement §201.6(c)(2)(i), p. 70-72.</i></p> <p><b><u>REVISION RECEIVED:</u></b></p> <p>The revised Plan thoroughly describes how the Committee integrated hazard mitigation elements into all applicable regulations and planning mechanisms. To name a few among several others, these include...</p> <ul style="list-style-type: none"> <li>• Watershed Management Plans</li> <li>• Solid Waste Plans</li> <li>• Zoning Ordinances</li> </ul>	X
	Part 4.1 (p. 141-142)			X
			<b>SUMMARY SCORE</b>	X

## 20. Continued Public Involvement

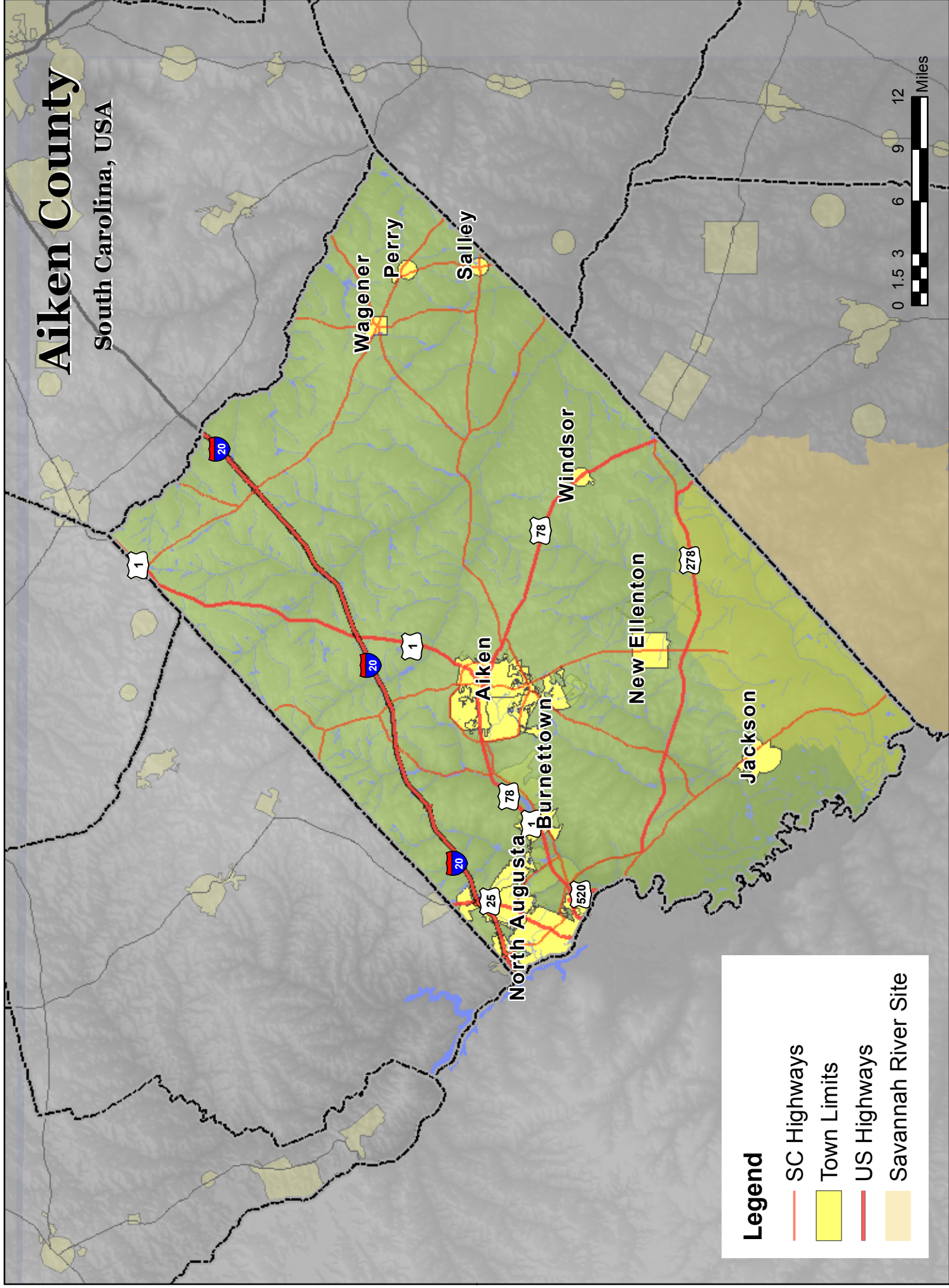
**Requirement §201.6(c)(4)(iii):** [The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan explain how continued public participation will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?)	Sect. 4.1, p 141 Part 4.1 (p. 141)	<p>The updated Plan discusses continued public involvement in the planning and review process:</p> <ul style="list-style-type: none"> <li>• Individuals will be able to provide feedback</li> </ul>		X

LOCAL MITIGATION PLAN REVIEW CROSSWALK			FINAL	Aiken County, SC	October 2010
				during all phases of plan maintenance, and they can submit comments about the Plan update at any time. <ul style="list-style-type: none"><li>The Task Force Committee will hold community involvement meetings that will include representatives from various agencies.</li><li>All comments will be presented during these meetings, and Committee members will consider them for incorporation into the revision.</li></ul>	
SUMMARY SCORE					X

# Aiken County

South Carolina, USA



## Legend

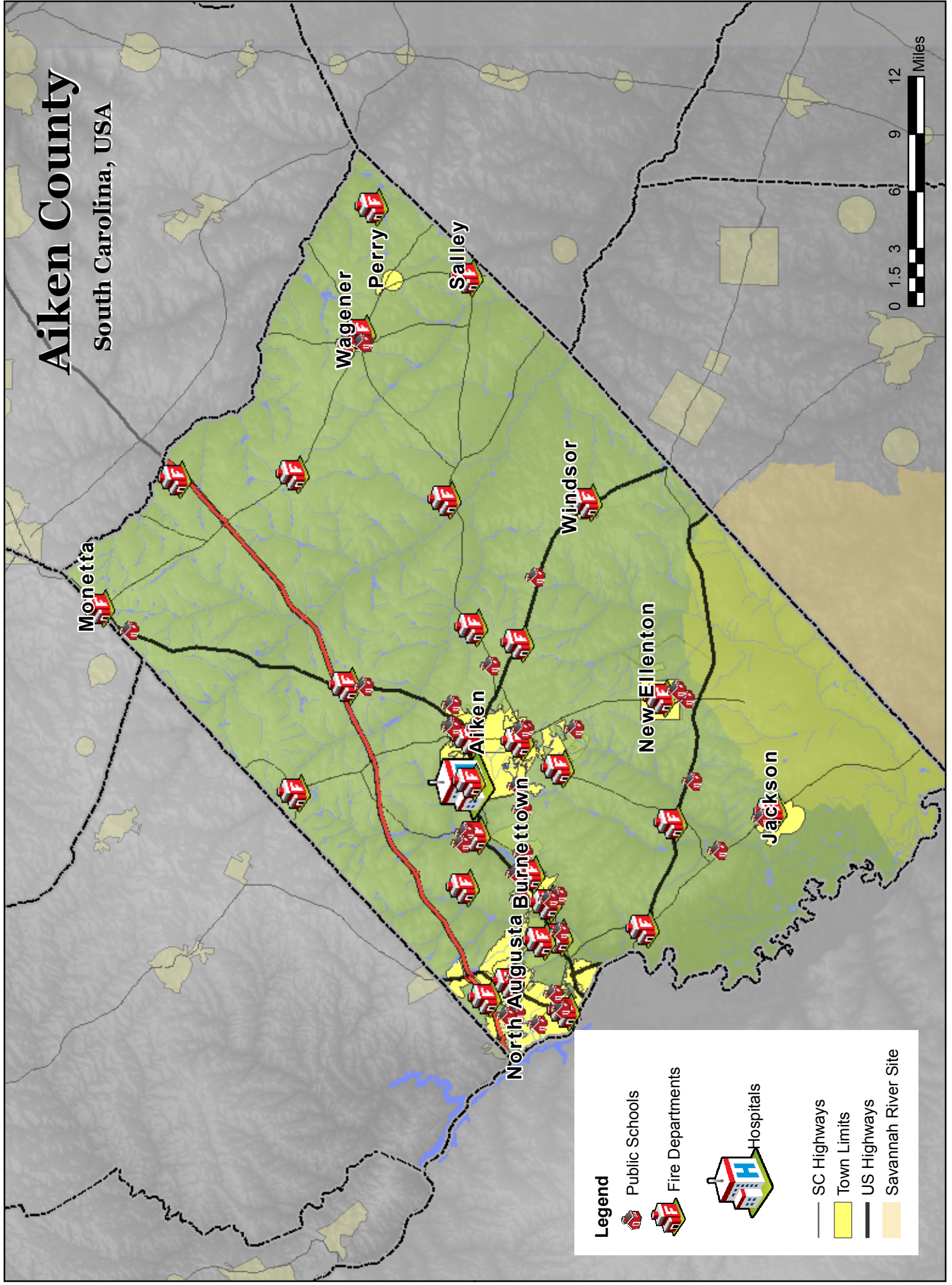
- SC Highways
- Town Limits
- US Highways
- Savannah River Site

0 1.5 3 6 9 12 Miles

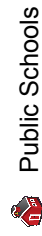


# Aiken County

South Carolina, USA



## Legend



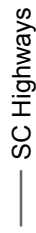
Public Schools



Fire Departments



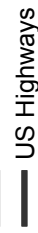
Hospitals



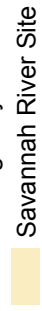
SC Highways



Town Limits



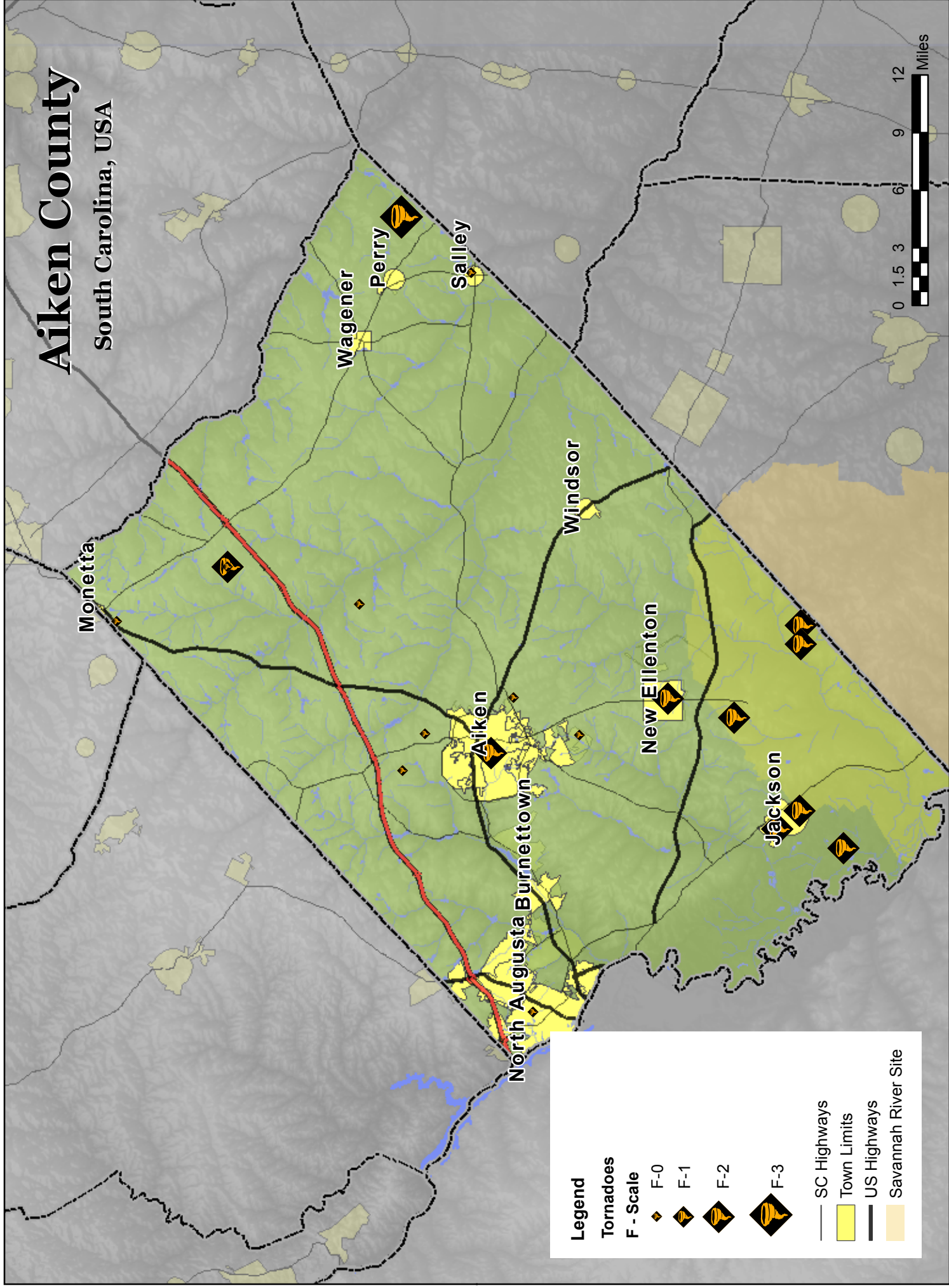
US Highways



Savannah River Site

# Aiken County

South Carolina, USA



## Legend

### Tornadoes

#### F - Scale

- F-0
- F-1
- F-2
- F-3

— SC Highways

— Town Limits

— US Highways

— Savannah River Site





# Aiken County

South Carolina, USA

Monetta

Wagner

Perry

Salley

Windsor

Aiken

New Ellenton

Jackson

North Augusta Burnnettown

## Legend

- Tropical Depression
- Tropical Storm
- US Highways
- SC Highways
- Town Limits
- Savannah River Site



# Aiken County

South Carolina, USA

Monetta

Wagner

Perry

Salley

Windsor

Aiken

New Ellenton

Jackson

North Augusta Burnettown

1.6  
Magnitude

2.9  
Magnitude

2.4  
Magnitude

1.2  
Magnitude

## Legend

### Earthquakes Magnitude

1.0 - 2.0

2.1 - 3.0

SC Highways

Town Limits

US Highways

Savannah River Site

0 1.5 3 6 9 12 Miles



**Legend**  
**Flood Zones**  
 100 year flood line  
 500 year flood line  
 Floodway

**Note:**  
 Flood boundaries are only an approximation from the Official FEMA Flood Maps (paper version)

**Towns and Locations:** NORTH AUGUSTA, BURNETTSTOWN, AIKEN, NEW ELLENTON, JACKSON, WINDSOR, SALLEY, PERRY.

**Roads:** Asauga Lake Rd S-33, Burnettsville Rd S-421, Silver Bluff Rd S-302, Williston Rd US-278, Atomic Rd SC-125, Whiskey Rd SC-19, Charleston Hwy US-78, Wagener Rd SC-302, Salley Rd SC-394, Veterans Rd S-22, White Pond Rd S-273, John Nunn Hwy S-389, Old Ninety-Six Indian Trail SC-39, Wire Rd S-29, New Holland Rd S-21, Edgelfield Hwy SC-19, Mount Pleasant Rd S-25, Wire Rd S-391, Columbia Hwy N US-1, Interstate 20 I-20.

**Other Features:** SAVANNAH RIVER SITE.

**Legend**  
**Flood Zones**  
 100 year flood line  
 500 year flood line  
 Floodway

**Note:**  
 Flood boundaries are only an approximation from the Official FEMA Flood Maps (paper version)

