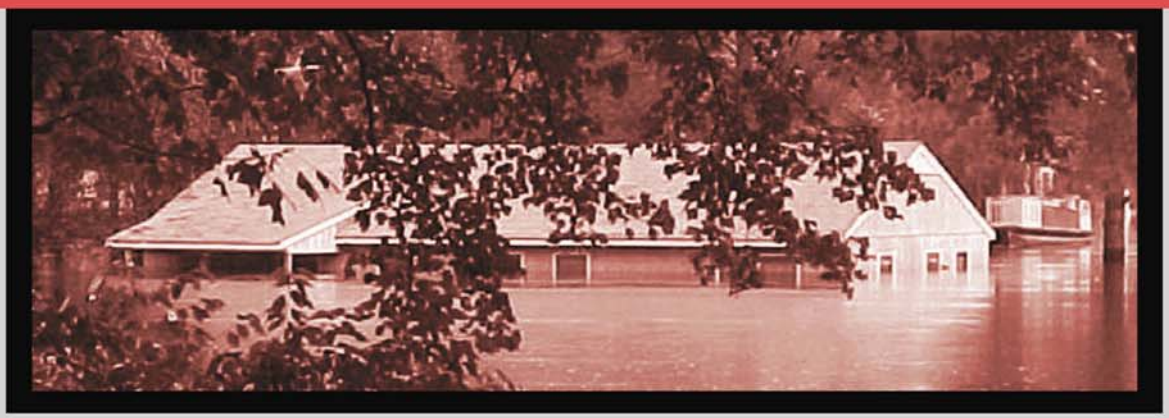
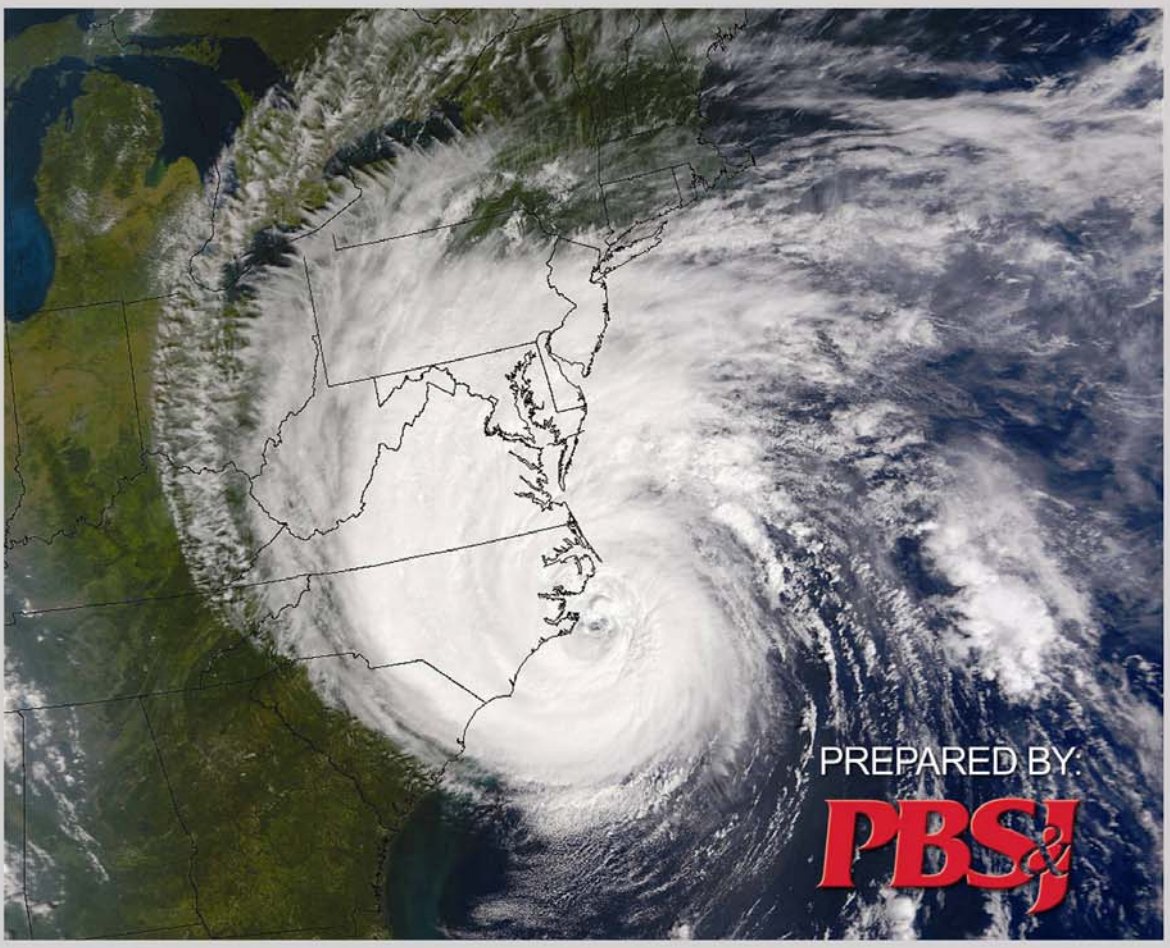
Southampton County

ALL-HAZARDS MITIGATION PLAN





FINAL JANUARY 2006

SOUTHAMPTON COUNTY ALL-HAZARDS MITIGATION PLAN

JANUARY 2006

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Introduction

This section provides a general introduction to the Southampton County All-Hazards Mitigation Plan. It consists of the following five subsections:

- Background
- Purpose
- Scope
- Authority
- Summary of Plan Contents

Background

Natural hazards, such as hurricanes, floods, tornadoes 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. In today's world we must also consider manmade hazards, such as technological accidents or deliberate acts of terrorism, as legitimate and significant threats to life, safety and property.

Southampton County is vulnerable to a wide range of natural and manmade hazards. These hazards threaten the safety of residents and have the potential to damage or destroy both public and private property, disrupt the local economy and impact the overall quality of life of individuals who live, work and play in Southampton County.

While the threat from hazardous events may never be fully eliminated, there is much we can do to lessen their potential impact upon our community and our citizens. By minimizing the impact of hazards upon our built environment, we can prevent such events from resulting in disasters. The concept and practice of reducing risks to people and property from known hazards is generally referred to as *hazard mitigation*.

FEMA Definition of Hazard Mitigation

"Any sustained action taken to reduce or eliminate the long-term risk to human life and property from [natural] hazards."

Hazard mitigation techniques include both structural measures, such as strengthening or protecting buildings and infrastructure from the destructive forces of potential hazards, and non-structural measures, such as the adoption of sound land use policies and the creation of public awareness programs. It is widely accepted that the most effective mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made. A comprehensive mitigation approach addresses hazard vulnerabilities that exist today and in the foreseeable future. Therefore it is essential that projected patterns of future development are evaluated and considered in terms of how that growth will increase or decrease a community's overall hazard vulnerability.

As a community formulates a comprehensive approach to hazard mitigation, a key component is to develop, adopt, and update as needed, a local hazard mitigation plan. A hazard mitigation plan establishes the broad community vision and guiding principles for reducing hazard risk, and further proposes specific mitigation actions to eliminate or reduce identified vulnerabilities.

The Southampton County All-Hazards Mitigation Plan is a logical first step toward incorporating hazard mitigation principles and practices into the routine

government activities and functions of Southampton County and its participating towns. At its most inner core, the Plan recommends specific actions to combat hazard vulnerability and protect its residents from losses to those hazards that pose the greatest risk. These mitigation actions go beyond simply recommending structural solutions to reduce existing vulnerability, such as elevation, retrofitting and acquisition projects. Local policies on community growth and development, incentives for natural resource protection, and public awareness and outreach activities are examples of other actions considered to reduce Southampton County's future vulnerability to identified hazards. The Plan is designed to be a living document, with implementation and evaluation procedures included to help achieve meaningful objectives and successful outcomes over time.

Disaster Mitigation Act of 2000

In an effort to reduce the Nation's mounting natural disaster losses, the U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) in order to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Section 322 of DMA 2000 emphasizes the need for state and local government entities to closely coordinate on mitigation planning activities, and makes the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for federal mitigation grant funds. These funds include the Hazard Mitigation Grant Program (HMGP) and the newly-created Pre-Disaster Mitigation (PDM) program, both of which are administered by the Federal Emergency Management Agency (FEMA) under the Department of Homeland Security. Communities with an adopted and federally-approved hazard mitigation plan thereby become pre-positioned and more apt to receive available mitigation funds before and after the next disaster strikes.

The Southampton County All-Hazards Mitigation Plan has been prepared in coordination with FEMA Region III and the Virginia Division of Emergency Management to ensure that the Plan meets all applicable DMA 2000 and state requirements. A *Local Mitigation Plan Crosswalk*, found in Appendix D, provides a summary of federal and state minimum standards and notes the location where each requirement is met within the Plan.

Purpose

The purpose of the Southampton County All-Hazards Mitigation Plan is to:

- Protect life, safety and property by reducing the potential for future damages and economic losses that result from hazards;
- Make communities safer places to live, work and play;
- Qualify for grant funding in both the pre-disaster and post-disaster environment;
- Speed recovery and redevelopment following future disaster events;
- Demonstrate a firm local commitment to hazard mitigation principles; and
- Comply with state and federal legislative requirements for local hazard mitigation plans.

Scope

The greater focus of this Plan will fall upon on those hazards determined to be "high" or "moderate" risk as determined through a detailed hazard risk assessment conducted for Southampton County.[1] Other hazards that pose a low or negligible risk will continue to be evaluated during future updates to the Plan, but they may not be fully addressed until they are determined to be of high or moderate risk. This enables Southampton County and the towns participating in the development and maintenance of the Plan to prioritize mitigation actions based on those hazards which are understood to present the greatest risk to lives and property.

The geographic scope (i.e. the planning area) for the Plan includes all of unincorporated Southampton County and the participating towns of Boykins, Branchville, Capron, Courtland, Ivor and Newsoms.

Authority

The Plan, developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans, has been adopted by Southampton County and each of the participating towns in accordance with the authority and police powers granted to counties and municipalities under §15.2-2223 through §15.2-2231 of the Virginia State Code. Copies of local adoption resolutions are provided in Appendix A. The Plan shall be routinely monitored and revised to maintain compliance with the following provisions, rules and legislation:

- Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390); and
- FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201.

Summary of Plan Contents

The remaining contents of this Plan are designed and organized to be as reader-friendly and functional as possible. While significant background information is included on the processes used and studies completed (e.g. risk assessment, capability assessment), this information is separated from the more meaningful planning outcomes or actions (e.g. mitigation strategy, mitigation action plans).

Section 2, ***Planning Process***, provides a complete narrative description of the process used to prepare the Plan. This includes the identification of who was involved, who participated on the planning team, and how the public and other stakeholders were involved. It also includes a detailed summary for each of the key meetings held along with any associated outcomes.

The ***Community Profile***, located in Section 3, describes the general makeup of Southampton County, including prevalent geographic, demographic and economic characteristics. In addition, building characteristics and land use patterns are discussed along with some general historical disaster data. This

[1] See Section 5: Vulnerability Assessment, for the comparative ranking of hazards and their determined risk classification.

baseline information provides a snapshot of the planning area and thereby assists County and town officials recognize those social, environmental and economic factors that ultimately play a role in determining community vulnerability to hazards.

The *Risk Assessment* is presented in two sections: Section 4, ***Hazard Identification and Analysis***; and Section 5, ***Vulnerability Assessment***. Together, these sections serve to identify, analyze and assess Southampton County's overall risk to hazards. The risk assessment also attempts to define any hazard risks that may uniquely or exclusively affect the individual town jurisdictions.

The Risk Assessment builds on available historical data from past hazard occurrences, establishes detailed profiles for each hazard, and culminates in a hazard risk ranking based on conclusions about the frequency of occurrence, spatial extent and potential impact of each hazard. FEMA's HAZUS®MH loss estimation methodology was also used in evaluating known hazard risks by their relative long-term cost in expected damages. In essence, the information generated through the risk assessment serves a critical function as communities seek to determine the most appropriate mitigation actions to pursue and implement — enabling communities to prioritize and focus their efforts on those hazards of greatest concern and those structures or planning areas facing the greatest risk(s).

The ***Capability Assessment***, found in Section 6, provides a comprehensive examination of each participating jurisdiction's capacity to implement meaningful mitigation strategies and identifies existing opportunities to increase and enhance that capacity. Specific capabilities addressed in this section include planning and regulatory capability, staff and organizational (administrative) capability, technical capability, fiscal capability, and political capability. Information was obtained through the use of detailed survey questionnaires for local officials and an inventory and analysis of existing plans, ordinances and relevant documents. The purpose of this assessment is to identify any existing gaps, weaknesses or conflicts in programs or activities that may hinder mitigation efforts, and to identify those activities that should be built upon in establishing a successful and sustainable local hazard mitigation program.

The *Community Profile*, *Risk Assessment*, and *Capability Assessment* collectively serve as a basis for determining the goals for the Southampton County All-Hazards Mitigation Plan, each contributing to the development, adoption and implementation of a meaningful *Mitigation Strategy* that is based on accurate background information.

The ***Mitigation Strategy***, found in Section 7, consists of broad countywide goal statements as well as an analysis of hazard mitigation techniques for Southampton County and its participating towns to consider in reducing hazard vulnerabilities. The strategy provides the foundation for detailed ***Mitigation Action Plans***, found in Section 8, that link specific mitigation actions for each jurisdiction to locally-assigned implementation mechanisms and target completion dates. Together, these sections are designed to make the Plan both strategic (through the identification of long-term goals) but also functional through the identification of short-term and immediate actions that will guide day-to-day decision-making and project implementation.

In addition to the identification and prioritization of possible mitigation projects, emphasis is placed on the use of program and policy alternatives to help make

Southampton County less vulnerable to the damaging forces of hazards while improving the economic, social and environmental health of the community. The concept of multi-objective planning was emphasized throughout the planning process, particularly in identifying ways to link hazard mitigation policies and programs with complimentary community goals related to housing, economic development, recreational opportunities, transportation improvements, environmental quality, land development, and public health and safety.

Plan Maintenance Procedures, found in Section 9, includes the measures that Southampton County and the participating towns will take to ensure the Plan's continuous long-term implementation. The procedures also include the manner in which the Plan will be regularly evaluated and updated to remain a current and meaningful planning document.

Planning Process

This section of the Plan describes the mitigation planning process undertaken by Southampton County in preparation of the Hazard Mitigation Plan. It consists of the following seven subsections:

- Overview of Hazard Mitigation Planning
- Preparing the Plan
- The Planning Team
- Community Meetings and Workshops
- Involving the Public and Identified Stakeholders
- Multi-jurisdictional Participation

Overview of Hazard Mitigation Planning

Local hazard mitigation planning is the process of organizing community resources, identifying and assessing hazard risks, and determining how to best minimize or manage those risks. This process results in a hazard mitigation plan that identifies specific mitigation actions, each designed to achieve both short-term planning objectives and a long-term community vision. To ensure the functionality of each mitigation action, responsibility is assigned to a specific individual, department or agency along with a schedule for its implementation. Plan maintenance procedures are established for the routine monitoring of implementation progress, as well as the evaluation and enhancement of the mitigation plan itself. These plan maintenance procedures ensure that Southampton County's All-Hazards Mitigation Plan remains a current, dynamic and effective planning document over time.

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 predisaster and post-disaster grant funding; and
- demonstrating a firm commitment to improving community health and safety.

Typically, mitigation planning is described as having the potential to produce long-term and recurring benefits by breaking the repetitive cycle of disaster loss. A core assumption of hazard mitigation is that predisaster investments will significantly reduce the demand for post-disaster assistance by lessening the need for emergency response, repair, recovery and reconstruction. Furthermore, mitigation practices will enable local residents, businesses and industries to re-establish themselves in the wake of a disaster, getting the community economy back on track sooner and with less interruption.

The benefits of mitigation planning go beyond solely 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. Thus, it is vitally important that any local mitigation planning process be integrated with other concurrent local planning efforts, and any proposed mitigation strategies must take into account other existing community goals or initiatives that will help complement or hinder their future implementation.

Preparing the Plan

Southampton County utilized the multi-jurisdictional mitigation planning process recommended by FEMA (Publication Series 386) to develop this All-Hazards Mitigation Plan. A Local Mitigation Plan Crosswalk, found in Appendix D, provides a detailed summary of FEMA's current minimum standards of acceptability for compliance with the Disaster Mitigation Act of 2000 and notes the location of where each requirement is met within the Plan. These standards are based upon FEMA's Interim Final Rule as published in the Federal Register on February 26, 2002, in Part 201 of the Code of Federal Regulations (CFR).

Although Southampton County's mitigation planning efforts began as early as 1999 following Hurricane Floyd, the process used to prepare this Plan included nine (9) major steps that were applied and completed over the course of approximately nine months beginning in April 2005. Each of these planning steps (illustrated in **Figure 2.1**) resulted in critical work products and outcomes that collectively make up the All-Hazards Mitigation Plan. These elements have been included as separate sections of the Plan and are further described in detail in Section 1: Introduction.

Figure 2.1: Southampton County Mitigation Planning Process

The Planning Team

A community-based planning team made up of local government officials and key stakeholders helped guide the development of this Plan. Beginning in May 2005, the County Administrator's Office engaged various County departments and local town officials in regular discussions as well as local meetings and planning workshops to discuss and complete tasks associated with preparing the Plan. This working group coordinated together on all aspects of the plan development process and became formally recognized as the *Southampton County Mitigation Advisory Committee*. In addition to regular meetings, committee members routinely communicated and were kept informed through a dedicated e-mail distribution group. Specifically, the tasks assigned to the committee members included:

- Participate in all mitigation planning meetings and workshops;
- Provide best available data as required for the risk assessment portion of the Plan;
- Help complete the local Capability Assessment Survey and provide copies of any mitigation or hazard-related documents for review and incorporation into the Plan;
- Support the development of the Mitigation Strategy, including the design and adoption of community goal statements;
- Help design and propose appropriate mitigation actions for their department/agency for incorporation into the Mitigation Action Plan;
- Review and provide timely comments on all study findings and draft plan deliverables; and

Southampton County Mitigation Advisory Committee

Table 2.1 lists the members of the Mitigation Advisory Committee who were responsible for participating in the development of the Plan. Committee members are listed in alphabetical order by last name.

Table 2.1: Southampton County Mitigation Advisory Committee

NAME	JURISDICTION / DEPARTMENT / AGENCY	TITLE
Barham, Ira H.	Town of Capron	Mayor
Barrett, Nancy	Town of Branchville	Council Member
Edwards, Spier	Town of Boykins	Mayor
Harris, Jr., Arthur B.	Town of Branchville	Mayor
Hersi, Hibak	Virginia Department of Emergency Management	Mitigation Planning Coordinator
Johnson, Mike	Southampton County	County Administrator
Joyner, Keith	Town of Ivor	Council Member
Mills, Deborah	Virginia Department of Emergency Management	Hazard Mitigation Program Manager
Porter, Jr., Harvey J.	Town of Newsoms	Mayor
Punchard, Darrin	PBS&J	Project Manager
Robinson, Mike	PBS&J	Risk Assessment Specialist
Randolph, James	Southampton County	Assistant County Administrator
Tarr, Eileen	Virginia Department of Emergency Management	Mitigation Planner
Wood, Larry	Town of Courtland	Council Member

Additional participation and input from other identified stakeholders and the general public was sought by the County during the planning process through phone calls and the distribution of e-mails, advertisements and public notices aimed at informing people on the status of the All-Hazards Mitigation Plan (public and stakeholder involvement is further discussed later in this section).

Community Meetings and Workshops

The preparation of this Plan required a series of meetings and workshops for facilitating discussion, gaining consensus and initiating data collection efforts with local community officials. More importantly, the meetings and workshops prompted continuous input and feedback from relevant local officials and stakeholders throughout the drafting stages of the Plan. Below is a summary of the key meetings and community workshops for the Southampton County Mitigation Advisory Committee.[1] In many cases, routine discussions and additional meetings were held by locals to accomplish planning tasks specific to their department of agency, such as the approval of locally specific mitigation actions for inclusion in their Mitigation Action Plan.

April 21, 2005
Project Kickoff Meeting with PBS&J

On March 29, 2005, Southampton County entered into a contractual agreement[2] with the consulting firm of PBS&J for assistance in the preparation of the All-Hazards Mitigation Plan. The initial meeting between Southampton County and PBS&J was held on April 21, 2005 and was attended by Mike Johnson, County Administrator, along with Darrin Punchard and Mike Robinson of PBS&J.

Meeting discussions focused on the overall project approach to preparing the All-Hazards Mitigation Plan, in which emphasis was placed on priorities for the County as well as the steps necessary to meet the requirements of the Disaster Mitigation Act of 2000. A description of the proposed hazard mitigation planning process was presented by PBS&J, explaining each step and the type of data that would be required. Specific data collection tools were also shared and discussed, such as the Capability Assessment Survey and the Public Participation Survey. PBS&J initiated some preliminary data collection efforts at the meeting, learning more from Mr. Johnson about the history of hazards in Southampton County as well as information on the availability of other local data sources (incident reports, GIS data layers, etc.).

Further discussions included the creation of a Mitigation Advisory Committee and who should be invited to serve on the committee. Identified stakeholders included representatives from each of the participating towns (most likely the mayors or council members), a variety of County departments (such as Planning and Zoning, Economic Development, Public Works, Sheriff, Building and Inspections, Public Utilities, etc.), volunteer fire departments, as well as outside organizations such as the American Red Cross and the Virginia Department of Emergency Management. It was determined that a smaller, more focused group would be most appropriate for achieving purpose of the committee, but that

[1] Copies of the agendas, sign-in sheets, minutes and handout materials for all meetings and workshops are available through Southampton County upon request.
[2] A copy of PBS&J's contractual scope of work is available through Southampton County upon request.

broader involvement would be sought through public awareness and outreach efforts throughout the duration of the project. Ideas on how to promote the project were discussed, such as the creation of a dedicated Web page linked to the County's official Web site, as well as the use of public access television, newspaper articles and open public meetings.

Finally, critical "next steps" were discussed, including the need for ongoing coordination throughout the entire planning process. Specific issues included the need to gather, analyze and if necessary incorporate any existing information that may be helpful to the planning effort such as mitigation or hazard-related plans, policies, programs, studies, reports, and technical documentation. Future meetings were discussed, including the first official meeting of the Mitigation Advisory Committee (which was scheduled for the evening of May 19, 2005) and the Mitigation Strategy Workshop that would involve the presentation of the findings of the risk and capability assessments along with the preliminary development of the County's multi-jurisdictional hazard mitigation strategy.

Members of the Southampton County Mitigation Advisory Committee gathered early in the planning process to discuss necessary tasks and individual roles and responsibilities for preparing the All-Hazards Mitigation Plan.

(Photo credit: PBS&J Project Photo)

May 19, 2005
First Mitigation Advisory Committee Meeting

The first meeting of the Southampton County Mitigation Advisory Committee was held on the evening of May 19, 2005 during which the PBS&J project team provided an overview of the proposed project approach to all committee members. The intent of this meeting was to educate local officials on the mitigation planning process being sponsored by Southampton County, as well as to explain the individual roles and responsibilities being required and assigned to each of the committee members. The meeting also served to initiate the preliminary data collection efforts for the risk and capability assessment tasks associated with the development of the All-Hazards Mitigation Plan.

The meeting began immediately with an interactive "icebreaker" exercise for committee members to help determine the hazards of most critical concern to Southampton County. First, committee members identified a listing of ten hazards they felt were important for the Plan to address. Then, each attendee was given twenty dollars in mock currency and asked to "spend" their mitigation money as they personally deemed appropriate for reducing the effects of the listed hazards. The result of this exercise was as follows, with the hurricane, flood and wildfire hazards receiving the most attention:

1. Hurricane and Tropical Storm – $54
2. Flood – $46
3. Wildfire – $20
4. Hazardous Materials Incident – $16
   Thunderstorms and Hail – $16
   Ice – $16
7. Drought / Heat – $6
8. Terrorism – $4
9. Tornado – $2

The exercise followed with a detailed presentation on the mitigation planning process led by the project team from PBS&J.[3] During the presentation, the

[3] Copies of all PowerPoint presentation slides are available through Southampton County upon request.

concept of hazard mitigation was introduced along with some background on the Disaster Mitigation Act and the current FEMA mitigation planning requirements. This was followed by a more detailed discussion of the specific tasks to be completed by PBS&J and the committee established for Southampton County. Ideas on how to improve and/or expedite the process were solicited from committee members, along with potential strategies for overcoming any potential barriers to accomplishing project tasks in a timely fashion. Specific data collection needs were thoroughly explained, including the need for any unique local hazard risk data available for specific areas of concern. A proposed outline for the All-Hazards Mitigation Plan was also shared with the committee for review and comment.

Following the presentation, the project team from PBS&J addressed any questions and concerns raised by the committee. Deborah Mills, Hazard Mitigation Program Manager for the Virginia Department of Emergency Management (VDEM), further clarified the purpose for the development of the Plan and how it will assist each of the participating jurisdictions in remaining eligible for future grant funding administered by VDEM. Ms. Mills also reiterated the importance of all-hazards planning, and that the focus of the committee should not be limited to natural hazard occurrences but also manmade threats such as criminal and domestic disturbances as well as technological accidents.

Data collection efforts were launched through the distribution and explanation of the Capability Assessment Survey to each member of the committee. It was determined by PBS&J staff that the best way to begin collecting this data would be to work directly with the County Administrator's office rather than have each committee member separately complete the survey questionnaire, as most information is likely available at the County level. The committee members were also provided with a copy of a draft Public Participation Survey for review and comment before the County would make it available to the general public. Suggestions for advertising public meetings and distributing the survey were also discussed among the group before adjourning the meeting.

The next meeting of the Mitigation Advisory Committee was scheduled for the evening of July 28, 2005.

July 28, 2005
Second Mitigation Advisory Committee Meeting – Mitigation Strategy Workshop

The second Mitigation Advisory Committee meeting was held on the evening of July 28, 2005 in the form of a 2½ hour "Mitigation Strategy Workshop." The workshop began with a detailed presentation by PBS&J on the findings of the risk assessment and capability assessment. By providing committee members with a more thorough understanding of the hazard risks in their communities, along with the varied levels of local capabilities available to address them, the stage became set for the next step in the process: the creation of mitigation planning goals and specific mitigation actions designed to reduce future impacts of the identified hazards.

To summarize, the following general findings were presented and discussed during the workshop.[4]

[4] For more detailed information on the findings presented at the Mitigation Strategy Workshop, please refer to the PowerPoint slides available through Southampton County upon request.

Risk Assessment Findings:

- There have been four presidential disaster declarations in Southampton County since 1965, including the Blizzard of 1996, Hurricane Floyd (1999), a severe winter storm (2000) and Hurricane Isabel (2003).
- According to FEMA's HAZUS®MH loss estimation software, the current estimated building count in Southampton County is approximately 6,500 with a total estimated exposure value of $1.08 billion (building and contents).
- Thirteen critical facilities within Southampton County have been identified and mapped based on the HAZUSMH data, including three fire departments, the Sheriff's office, eight schools and one airstrip (later to be determined outside of the County). Each facility has been assessed in terms of its vulnerability to each of the identified hazards.
- Based on the qualitative and quantitative vulnerability assessments performed by PBS&J, the following hazards are identified and prioritized as "high risk" for Southampton County and its town jurisdictions: Flood, Hurricanes and Tropical Storm, Hazardous Materials Incident and Drought.

Most of the questions raised at this point of the meeting were related to the data sources for information used to generate the loss estimation results. In response to these questions, PBS&J further explained the methodologies used to conduct both the qualitative and quantitative risk assessments. It was strongly noted that much of the damage estimates provided through the National Climatic Data Center were very low as compared with local knowledge of historical events (in particular for a devastating hail event in 2003). It was agreed that additional information on these events, if available, would be forwarded to PBS&J and considered in future adjustment to the risk assessment completed for Southampton County.

After discussing the local perspective and impact of historical hazards, PBS&J presented the findings for Southampton County using the qualitative Priority Risk Index (PRI) and quantitative annualized loss estimates. The committee asked PBS&J to further assess wildfire as a potential high risk hazard, but other than that, it was determined by consensus of the committee members to maintain the rankings as presented.

Capability Assessment Findings:

- It was determined that all jurisdictions in Southampton County currently participate in the National Flood Insurance Program (NFIP) with the exception of two: the towns of Capron and Newsoms (according to FEMA data as of December 2004). However, the Mayor of Newsoms indicated that the Town joined the program as recently as 2004. The Flood Insurance Rate Maps were last updated in September 2002, and as of today, there are no special flood hazard areas identified for Capron.
- No jurisdictions in Southampton County actively participate in the Community Rating System (CRS).
- Southampton County received a grade of "4" under the Building Codes Effectiveness Grading Schedule (BCEGS) in 2002, according to Insurance Services Office, Inc. The County administers and enforces a uniform building code on behalf of all the incorporated towns.

- Based upon the scoring methodology applied by PBS&J and through discussions with the County Administrator, Southampton County and the Town of Courtland were determined to have a "moderate" level of overall capability. The remaining town jurisdictions were determined to have "limited" overall capability.

During the cardstorming exercise, members of the Southampton County Mitigation Advisory Committee worked to propose a variety of possible mitigation actions to consider as part of the All-Hazards Mitigation Plan.

(Photo credit: PBS& Project Photo)

Cardstorming Exercise

Upon completing the presentation and discussions on the findings of the risk and capability assessments, PBS&J staff facilitated a "cardstorming" exercise – an interactive brainstorming session for workshop attendees to begin building general consensus on the mitigation goals for the All-Hazards Mitigation Plan. Participants were asked to identify specific mitigation actions that their community could undertake to help Southampton County become less vulnerable to the high risk hazards identified through the risk assessment. Each participant was encouraged to keep their own jurisdiction's existing capabilities in mind, to not only ensure that the mitigation actions they recommend are achievable but to also capitalize on existing gaps, weaknesses or opportunities for program enhancement.

As part of the exercise, workshop participants were asked to discuss potential mitigation policies or projects with official representatives from their community and instructed to record their proposed mitigation actions on cards that would then be posted along the front wall of the meeting room. This exercise resulted in a variety of potential mitigation strategies, goals or actions being submitted and posted on the wall for further review, discussion and consideration by the committee as a whole. Committee members used this time to elaborate upon each of their proposed mitigation action items, and to share concerns and thoughts related to each one as a group.

The cardstorming technique required input from every workshop participant and resulted in both broad and very specific types of proposed mitigation actions for inclusion in the *Mitigation Strategy* portion of the Plan. Following the open discussion, the exercise continued with the categorization of each mitigation action according to the general consensus of the group. Using the cards placed along the wall, workshop participants began to arrange the mitigation actions into agreed upon columns that represented separate mitigation categories. The intended purpose of this categorization was the identification of common themes that could then translate logically into goal statements for the Mitigation Plan.

Upon completion of the exercise, six (6) different categories were identified and labeled with separate column headings generated by consensus of the group. Workshop participants were informed that these categories would later serve as the basis for initial goal statements for the draft All-Hazards Mitigation Plan. These categories included the following:

- Capability Development
- Emergency Services
- Planning and Policy
- Public Education and Awareness
- Stormwater Management
- Structural Projects

Another outcome of the cardstorming exercise was the preliminary identification of potential mitigation actions Southampton County and its incorporated towns to consider for incorporation into the All-Hazards Mitigation Plan. These actions are summarized in **Table 2.2**.

Table 2.2: Preliminary Mitigation Actions Identified for Southampton County

ACTION	JURISDICTION	ASSOCIATED GOAL
Use "volunteers" from Sheriff's Department Auxiliary Forces to check in on people during periods of extreme heat	Southampton County	Emergency Services
Develop an information alert center	Capron	Emergency Services
Citizen Alert	Boykins	Emergency Services
Secure additional resources to handle a hazardous materials incident	Ivor	Increasing Capability
Set aside disaster relief/recovery funds	Courtland	Increasing Capability
Identify ways to enhance or better enforce the flood damage prevention ordinance	Southampton County	Planning and Policy
Develop a notification and evacuation plan for hazardous materials incidents	Ivor	Planning and Policy
Designate a central site for evacuees of an area affected by a hazardous materials incident	Ivor	Planning and Policy
Develop a HazMat Plan	Boykins	Planning and Policy
Ensure multiple access routes from highways for emergency vehicles in new subdivisions	Southampton County	Planning and Policy
Increase public awareness for All Hazards	Courtland	Public Education and Awareness
Ask landowners to work with the Division of Forestry on control burns in high-risk wildfire areas	Ivor	Public Education and Awareness
Educate homeowners on storage and construction of materials near high-risk wildfire areas	Ivor	Public Education and Awareness
Educate the public on local debris burning laws	Ivor	Public Education and Awareness
Host community meetings to discuss flood risks and discuss interest in any buyouts or elevations	Southampton County	Public Education and Awareness
Provide outreach and education efforts for extreme heat, such as "adopt-a-neighbor"	Southampton County	Public Education and Awareness
Enhance public awareness for radiological risk	Southampton County	Public Education and Awareness
Provide education on winter driving (do's and don'ts)	Southampton County	Public Education and Awareness
Give residents information on an "in case of" incident	Branchville	Public Education and Awareness
Host informational meetings to discuss hazards and local emergencies	Newsoms	Public Education and Awareness
Improve large drainage ditches	Branchville	Stormwater Management
Complete drainage work in Courtland	Courtland	Stormwater Management
Develop a drainage study/plan	Boykins	Stormwater Management
Buried utilities underground	Courtland	Structural Projects

Before the meeting concluded, PBS&J distributed and explained several final handouts for workshop participants to use in identifying specific mitigation actions for incorporation into their own respective Mitigation Action Plans. This included Mitigation Action Worksheets (forms for proposing individual mitigation actions), along with a variety of planning tools and reference guides for considering and evaluating possible mitigation action alternatives[5]. Workshop participants were instructed to take these materials back to their respective jurisdictions to begin working with other relevant local officials on proposing and prioritizing[6] their mitigation actions for final submission to Southampton County. The committee determined that all Mitigation Action Worksheets should be completed and returned to the County by August 19, 2005.

October 25, 2005
Third Mitigation Advisory Committee Meeting

The third meeting of the Mitigation Advisory Committee meeting was held on October 25, 2005 during which the initial draft All-Hazards Mitigation Plan was reviewed, discussed and prepared for submission to VDEM. The plan had been made available for review in advance of the meeting through a dedicated FTP site which became active on October 20, 2005. At the meeting, the committee considered review comments from local officials of each participating jurisdiction in addition to comments received from the public or other relevant stakeholders. After going through each section of the draft Plan, a summary of the results and findings from the Public Participation Survey was also shared and discussed with the committee by PBS&J. The results of the survey are further discussed in the next section of the Plan, *Involving the Public* and a summary of the findings is provided in Appendix B.

Following the meeting, Southampton County distributed specific instructions to officials from each participating jurisdiction to provide final review comments on the draft Plan no later than November 15, 2005. They were strongly encouraged to meet with their appropriate agency, executive and elected officials to gain additional support for the Plan prior to its final submission for state and federal approval, particularly with regard to the proposed mitigation actions in their individual mitigation action plans. Feedback was also requested on how each jurisdiction planned to integrate the plan into their other local planning procedures and tracking mechanisms.

[5] Copies of all planning tools and reference guides distributed at the meeting are available through Southampton County upon request.

[6] It was agreed by the Mitigation Advisory Committee that prioritizing mitigation actions was to be based on the following five (5) factors: (1) effect on overall risk to life and property; (2); ease of implementation; (3) political and community support; (4) a general economic cost/benefit review; and (5) funding availability.

Involving the Public and Identified Stakeholders

Involving the Public

An important component of this planning process involved public participation. Individual citizen and community-based input provides the entire planning team with a greater understanding of local concerns and increased the likelihood of successfully implementing mitigation actions by developing community "buy-in" from those directly affected by the decisions of public officials. As citizens become more involved in decisions that affect their safety, they are more likely to gain a greater appreciation of the hazards present in their community and take the steps necessary to reduce their impact. Public awareness is a key component of any community's overall mitigation strategy aimed at making a home, neighborhood, school, business or town safer from the potential effects of hazards.

Public involvement in the development of the Southampton County All-Hazards Mitigation Plan was sought at two distinct periods of the planning process: (1) during the drafting stage of the Plan; and (2) upon completion of a final draft Plan but prior to official plan approval and adoption by Southampton County and its participating towns. Public input was sought using three methods: (1) open public meetings; (2) survey instruments; and (3) making copies of the draft All-Hazards Mitigation Plan available for review on the County's Web site and at government offices and public libraries.

Open public meetings were held at two stages of the planning process; one following the completion of the risk assessment and one following the completion of a final draft Plan. These public meetings were held to present the findings of the risk and capability assessments and to garner input regarding unique hazard concerns and possible mitigation actions that could be included in the County's All-Hazards Mitigation Plan, including ideas for both policies and projects.

The first public meeting was held on the evening of **August 25, 2005** in coordination with the City of Franklin at the Workforce Development Center. The meeting was advertised using the notice shown in **Figure 2.2**, which was posted on the County's Web site and at various County and municipal buildings in addition to being advertised and in the bi-weekly *Tidewater News* (Sunday, August 21st edition). This publication has widespread local and regional circulation which ensured local officials, residents, businesses, academia and other private interests in Southampton County and its neighboring communities became notified on how to be involved in the local mitigation planning process. The public meeting notice was also posted on slides that ran hourly on local Public Access television from August 12th through August 25th.

Immediately following the open public meeting, PBS&J sponsored a *Small Business Workshop* that specifically targeted the independent owners and operators of small business throughout Southampton County. The workshop was promoted and supported by the Franklin/Southampton Chamber of Commerce and the Downtown Franklin Association, and provided a forum for discussion and the two-way exchange of information relating to the unique hazard concerns of local small business. It was advertised using the same notice and procedures noted above for the open public meeting.

44 CFR Requirements

44 CFR Part 201.6(b)(1):

The planning process shall include an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

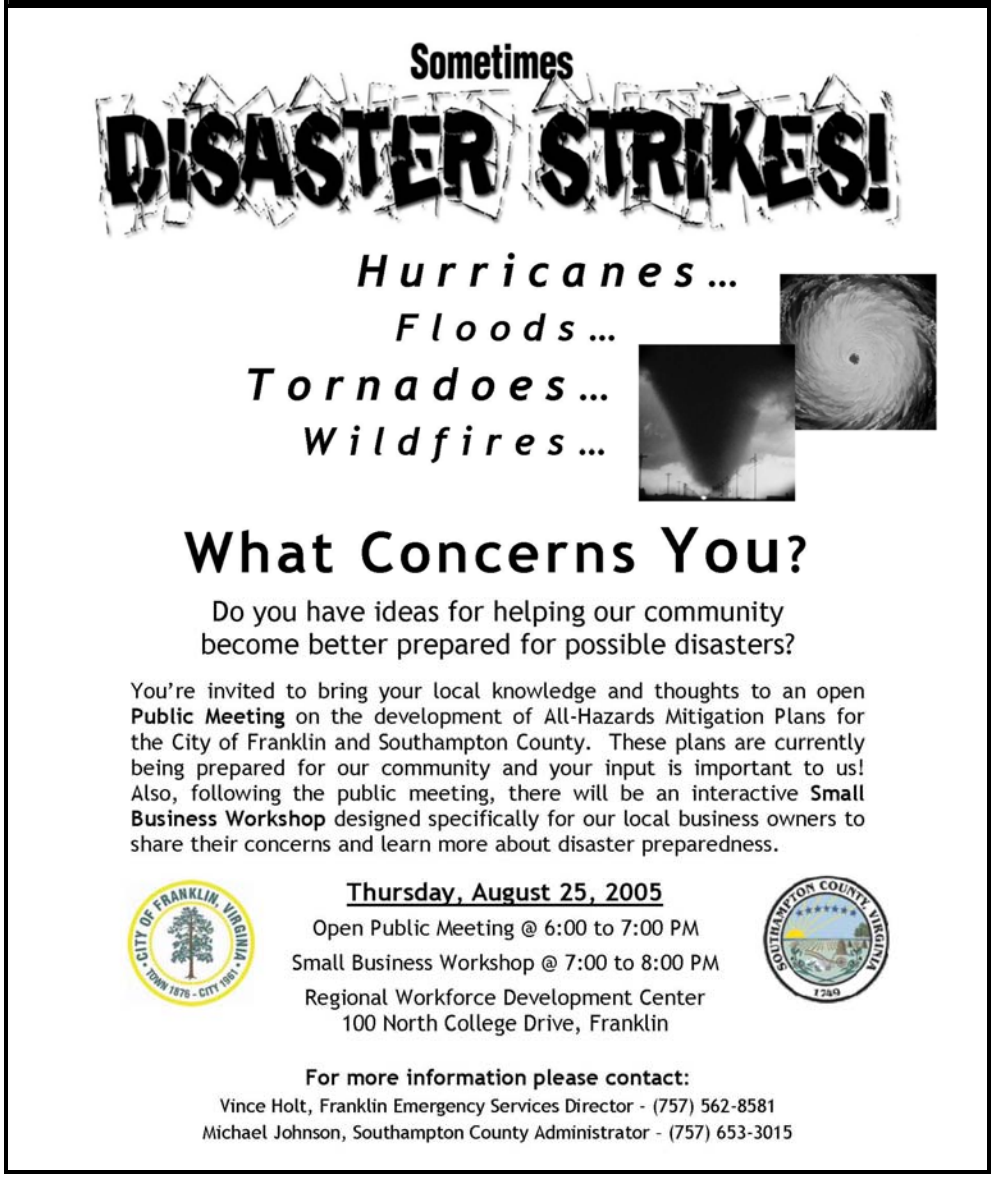
44 CFR Part 201.6(b)(2):

The planning process shall include an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process.

Local business owners learn more about how to minimize or eliminate disruption to their businesses due to potential disasters at the Small Business Workshop. (Photo credit: PBS&J Project Photo)

(Photo credit: PBS& Project Photo)

Figure 2.2: Public Meeting Advertisement



Upon completion of a final draft Plan, Southampton County and all participating towns held open public hearings on the All-Hazards Mitigation Plan. These meetings provided further opportunities for the public and identified stakeholders to review and comment on all sections of the Plan prior to local approval and adoption. Advertisements and general notifications on the posting and availability of the draft Plan for public review were disseminated by Southampton County and participating towns.

These opportunities provided the public and identified stakeholders with the chance to review and comment on all sections of the Plan during the drafting stage and prior to Plan approval.

Public Participation Survey

The Public Participation Survey was designed to capture data and information from residents and business owners that might not be able to attend public

meetings or participate through other means in the mitigation planning process. PBS&J designed a user-friendly, electronic survey that was posted on the County's Web site for easy online completion over the course of six weeks in September and October. For those persons without Internet access, hard copies of the survey were distributed by local officials and made available for citizens to complete at local government offices. The availability of the survey was also promoted through advertisements in the Tidewater News (Sunday, September 11th edition) and on local Public Access television.

A total of 90 responses to the Public Participation Survey were received by PBS&J, which provided valuable input for the Mitigation Advisory Committee to further consider in the development of the Mitigation Action Plan. A summary of the survey findings is provided in Appendix B along with a copy of the survey instrument.

Involving Stakeholders

A range of stakeholders were invited and encouraged to participate in the development of the All-Hazards Mitigation Plan. Stakeholder involvement was encouraged through the County's notifications and invitations to neighboring communities and select agencies or individuals to participate in Mitigation Advisory Committee meetings. These agencies included various County and town officials as well as representatives from the American Red Cross and the Virginia Department of Emergency Management.

In addition to the Mitigation Advisory Committee meetings, Southampton County encouraged more open and widespread participation in the mitigation planning process through the design and posting of public notices and persuasive newspaper advertisements that promoted the open public meetings (as described earlier in this Section). The County went above and beyond in its local outreach efforts through the design and posting of the Public Participation Survey on the County's Web site, which became advertised through e-mail notifications. These media advertisements and survey instruments provided local officials, residents, businesses, academia and other private interests in Southampton County and its neighboring communities to be involved and offer input throughout the local mitigation planning process.

Southampton County also ensured continuous stakeholder involvement by reminding all participating members of the Mitigation Advisory Committee to assist in making announcements and notifications consistent with their routine communication and outreach efforts.

Multi-jurisdictional Participation

44 CFR Requirement

44 CFR Part 201.6(a)(3):

Multi-jurisdictional plans may be accepted as long as each jurisdiction has participated in the planning process.

The Southampton County All-Hazards Mitigation Plan is multi-jurisdictional and includes the participation of Southampton County and all of its incorporated towns. This includes the following seven jurisdictions:

- Southampton County
- Town of Boykins
- Town of Branchville
- Town of Capron
- Town of Courtland
- Town of Ivor
- Town of Newsoms

To satisfy multi-jurisdictional participation requirements, each of the local jurisdictions was required to perform the following tasks:

1. Designate an appropriate official(s) to serve on the Mitigation Advisory Committee;
2. Participate in all mitigation planning meetings and workshops;
3. Provide best available data as required for the risk assessment portion of the Plan;
4. Help complete the local Capability Assessment Survey and provide copies of any mitigation or hazard-related documents for review and incorporation into the Plan;
5. Support the development of a countywide Mitigation Strategy, including the design and adoption of general goal statements for all jurisdictions to pursue;
6. Develop a local Mitigation Action Plan with specific mitigation actions for their jurisdiction;
7. Review and provide timely comments on all draft components of the Plan;
8. Adopt the Southampton County All-Hazards Mitigation Plan, including their own specific local Mitigation Action Plan.

Through the completion of these tasks each town fully participated in cooperation with Southampton County in the development of this Plan. Further, through the preparation of their own local Mitigation Action Plans, each town jurisdiction was responsible for addressing their most significant hazard concerns through actions of their own choosing. This separate component of the planning document provides the opportunity for jurisdictions to monitor and update their own specific Plan implementation responsibilities without necessarily having to meet with the countywide Mitigation Advisory Committee. It also enables each of the jurisdictions to be solely responsible and accountable for those actions that apply to their jurisdiction.

This section of the Plan provides a general overview of Southampton County[1]. It consists of the following five subsections:

- Geography and the Environment
- Population and Demographics
- Housing, Infrastructure and Land Use
- Employment and Industry
- Development Trends

Geography and the Environment

Southampton County is situated in the Mid-Coastal Plain in southeast Virginia, on the North Carolina border. It is bound by the Virginia counties of Sussex and Surry to the north; Isle of Wight County and the cities of Franklin and Suffolk to the east; Greensville County and the City of Emporia to the west; and, the North Carolina counties of Gates, Hertford and Northampton to the south. An orientation map illustrating these jurisdictions is provided as **Figure 3.1**.

The Town of Courtland, which serves as the County seat, is only nine miles from the independent City of Franklin and 45 miles east of the bustling Hampton Roads area. Other incorporated towns include Boykins, Branchville, Capron, Ivor and Newsoms. A community wide base map is provided as **Figure 3.2**. The County is connected to other Virginia localities and communities in other states by an excellent transportation network consisting of highway, rail, and air transportation systems.

Southampton County consists of 600 square miles of generally flat or level land with some sloping at the rivers. Elevations range from 8 to 130 feet above sea level, and drainage is provided by the Blackwater, Nottoway, and Meherrin Rivers and their tributaries. The rivers and main streams flow slowly toward the south and have broad floodplains, substantial portions of which are covered by wooded swamps and wetlands. The soils of the County are generally all unconsolidated beds of sand, silt, and clay; bedrock is hundreds of feet below the surface.

Of the 384,000 acres that make up Southampton County, 185,496 acres or 48 percent are devoted to agriculture. Peanuts, cotton, corn for grain or seed, and soybeans are the primary crops and are major contributors to the local economy and quality of life of County residents. These lands represent the rural and unspoiled heritage the County has sought to perpetuate.

Forestlands are reported to cover more than 60 percent of the County's total land area, however there is some overlap as some lands devoted to agriculture are counted in the forest inventory. Dominant forest types include a mixture of both hard and soft woods, particularly loblolly pine, oak and hickory. The lowland

[1] Unless otherwise cited, most information in this section was incorporated from the U.S. Census Bureau and the Southampton County 2000 Comprehensive Plan Update prepared by Landmark Design Group in cooperation with the Southampton County.

forests are generally confined to the swamps and swampy areas, with hardwoods such as oak, gum, and cypress predominating. Extensive upland areas have been harvested and reforested in pine.

A moderate climate prevails in Southampton County with an average annual temperature of 59 degrees. Summer temperatures average 78 degrees while winter temperatures average 41 degrees. The frost-free growing season extends from about April 15th to October 20th, providing a growing season of approximately 188 days. The annual rainfall averages 45.22 inches, and annual snowfall averages 8.2 inches. Winds prevail from a southwesterly direction and are typically of low velocity.

In September 1999, Southampton County was severely impacted by record flooding caused by Hurricane Floyd. The Nottoway and Blackwater rivers caused flood damages, as did Tarrara Creek in Boykins. As a result of the flood, new floodplain maps were created depicting significantly larger flood hazard areas along the river than had previously been established. These maps are used by the County to help protect people and property through the regulation of location and uses within identified flood hazard areas.

Population and Demographics

The 2004 population estimate for Southampton County was 17,585 persons, slightly more than the 17,482 counted in the 2000 Census. This amounts to an average population density of 29.2 persons per square mile, with much higher densities concentrated in and around the incorporated towns. **Table 3.1** lists population, land area and population density for each of Southampton County jurisdictional planning areas in 2000.

Table 3.1: Population, Land Area and Density by Jurisdiction, 2000

OCCUPANCY TYPE	POPULATION	LAND AREA (SQ. MILES)	DENSITY (PEOPLE / SQ. MILE)
Unincorporated Southampton County	14,688	596.2	24.6
Boykins	620	0.7	885.7
Branchville	123	0.4	307.5
Capron	173	0.2	865.0
Courtland	1,270	0.9	1411.1
Ivor	320	1.1	290.9
Newsoms	288	0.5	576.0
TOTAL	**17,482**	**600**	**29.2**

Source: U.S. Census Bureau

The County's overall population has remained remarkably steady for years, with slight declines beginning in 1980 and continuing through today. These declines are attributed to small annexations by the City of Franklin, as well as the continued population shift in Virginia from rural non-metropolitan areas to more urbanized areas. It is anticipated that future population growth within Southampton County over the next ten to twenty years will be slight, with the addition of only a few hundred people if current trends continue.

According to the 2000 Census, the median age for the County is 38.6 years. Median age has steadily increased since 1970 when the median age was only

25.7. The trend toward a higher median age in Southampton County is consistent with nationwide and statewide trends toward an older population. It is estimated that 14.2 percent of the population is made up of persons that are 65 years old and over, slightly higher than the statewide average of 11.2 percent.

White persons make up 56 percent of the County's population, followed by Black or African American persons making up 42.9 percent. All other races accounted for less than 1 percent each. For the 2000 census, Hispanics were asked to indicate their origin in the question on Hispanic origin, not in the question on race. The results indicate that Hispanics make up only 0.7 percent of Southampton County's population.

Since 1970, the percent of high school graduates in Southampton County has sharply increased. Of all persons more than 25 years of age, 63.2 percent are high school graduates and 11.7 percent have a Bachelor's degree or higher.

There are 6,279 households in Southampton County, with an average household size of 2.53 persons. The median household income in Southampton County is $33,995. Approximately 2,552 individuals (14.6 percent of total population) were identified as being below the poverty level in 1999.

Housing, Infrastructure and Land Use

Housing

Less than 5 percent of the County's lands are utilized for residential purposes. Most residential development is concentrated in towns, village centers, adjacent to the City of Franklin, and as strip development along the County's roads and highways.

According to the 2000 Census, there were 7,058 housing units in Southampton County (this number increased to 7,190 in 2002). Of these, 5,508 were one-unit detached structures (predominantly single-family homes), 47 were one-unit attached structures such as townhouses, 354 were two to nine-unit structures, and 1,184 were mobile homes. **Table 3.2** lists the number of housing units in Southampton County by jurisdiction.

Table 3.2: Housing Units by Jurisdiction, 2000

JURISDICTION	HOUSING UNITS
Unincorporated Southampton County	5,837
Boykins	287
Branchville	56
Capron	83
Courtland	498
Ivor	152
Newsoms	145
TOTAL	**7,058**

Source: U.S. Census Bureau

The median value of owner-occupied structures in Southampton County is estimated to be $82,500, significantly less than the statewide average of

$125,400. The majority of these housing units are at least 15 years old, with nearly 70 percent being built prior to 1980. The age distribution of the County's housing stock as reported in the 2000 Census is provided in **Table 3.3**.

Table 3.3: Age Distribution of Housing Stock

AGE	DISTRIBUTION
Pre-1939	15.5%
1940 to 1959	21.6%
1960 to 1969	11%
1970 to 1979	19.5%
1980 to 1989	15.9%
1990 to 1994	8.6%
1995 to 1998	5.1%
1999 to 2000	2.9%

Source: U.S. Census Bureau

Since 1996, Southampton County has seen a relatively constant level of building activity with typically less than 200 permits per year. The overwhelming majority of building permits that have been issued were for residential structures, with mobile homes being the dominant choice of housing type. Now accounting for over 20% of all housing units in Southampton County, the mobile home cannot be ignored as a low-cost, affordable housing type that will continue to grow in popularity for the area's housing stock. The cost of single-family detached structures is often too high for elderly, lower income residents and newly formed families to afford.

The County carefully considers new residential development so as to not cause development and future conflicts with farming. As described in the County's Comprehensive Plan, residential development will be concentrated in and around the towns and along the corridor between the villages of Hunterdale and Sedley.

Transportation

Transportation systems planning and management in Southampton County is a joint effort between the State and County. The main elements of the transportation system – roads and highways – are coordinated, located and designed to carry the bulk of the County traffic so that other roads can be designed to serve local traffic. The major thoroughfares connect all of the planned development areas and form the transportation framework which supports the land use development pattern. Rail, air and water transportation facilities also form part of the local transportation system.

Southampton County has a combination of heavily used highways and lightly traveled roads serving the rural communities. The existing highway system includes two primary arterial routes (U.S. 58 and U.S. 460), one U.S. primary route (Route 258) south of Franklin, one State primary route (Route 35) north-south through Courtland in the central part of the County, and a system of secondary roads serving the remainder of the County. Certain secondary roads, such as State Route (SR) 671, SR 616, and SR 641, serve practically the same purposes as primary routes. State Route 186 serves as a major thoroughfare for the Boykin/Branchville area.

U.S. 58 and U.S. 460 connect the Franklin/Southampton County area with the greater Hampton Roads region to the east and Interstate 95 to the west. U.S.

258 connects the area with U.S. 17 to the north and the North Carolina line to the south. State Route 35 is a scenic road connecting U. S. 58 with I-95 south of Petersburg. In total, there are about 95 miles of primary roads in the County and about 670 miles of secondary roads. All of the primary roads are hard surfaced. About 573 miles of secondary roadways (85.5%) are hard surfaced, while about 97 miles of secondary roadways (14.5%) are all-weather surfaced.

The John Beverly Rose Field in Isle of Wight County provides general aviation service for the area. Recent improvements to the facility include 8 additional hangars, relocation of fuel storage aboveground, and road improvements to the facility entrance. Norfolk International Airport is 52 miles from the County and offers seven major airlines, eight commuter lines, and air freight service.

Railroads continue to play an important role in the County's transportation network, particularly for local industry. Over 200,000 tons of coal are being shipped annually via rail to the 60 megawatt cogeneration facility constructed adjacent to Hercules, Incorporated on Route 671. CSX and Norfolk Southern both offer freight and piggyback services.

The U.S. Army Corps of Engineers maintains a barge channel from Franklin to the Albemarle Sound in North Carolina via the Blackwater and Chowan Rivers. This waterway, with a seven-foot channel at mean low water, is currently used for pulpwood shipments. The Port of Hampton Roads (45 miles away) is located on a 45-foot channel.

There is no public transportation system in the County, though bus services are provided by commercial carriers such as Greyhound.

Utilities

Dominion Virginia Power serves the majority of Southampton County with electric power, though some more rural areas in the County are served by Community Electric Cooperative or Mecklenburg County Electric Cooperative. Most utility lines are above ground, but the County and the Town of Courtland and are beginning to require lines be placed below ground for new developments.

Southampton County owns and operates water and sewer systems, providing residential, commercial and industrial service throughout the County. Water is supplied to users from wells and ground pressure tanks, and sewage systems lead to treatment facilities in Boykins, Courtland, Edgehill and the City of Franklin.

Colombia Gas serves the County with transmission lines bisecting the County near Courtland, and a new gas line serves the Southampton Business Park on U.S. Highway 58.

Land Use

Existing land use and development patterns in Southampton County continue to reflect the land development process that has been occurring since before any county-wide planning was undertaken. Vast portions of the County have remained devoted to agriculture[2] while more concentrated development has occurred closer to the City of Franklin and the County's towns, villages, and

[2] Major crops include peanuts, cotton, corn and soybeans. Intensive agricultural uses include large hog farms, chicken houses, and other areas of confinement of large numbers of agricultural animals.

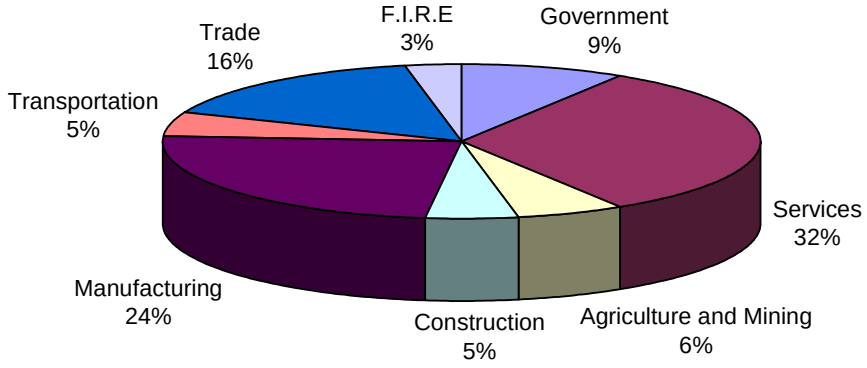
established residential areas. Of the 384,000 acres that make up the County, over 90% are used for agriculture and forestry. Residential uses account for less than 5% of the land area, as do commercial and industrial uses. Public and semi-public uses and incorporated uses account for about 1%.

Employment and Industry

Southampton County is fortunate to be a part of the Hampton Roads Local Workforce Area, one of the largest and most productive labor markets in Virginia, as well as the United States. In addition, the County draws from Northampton, Hertford and Gates counties in North Carolina. In 1990.

According to the 2000 Census, the labor force of Southampton County consisted of 7,500 persons with 7,149 employed and 351 unemployed (2.5%). Many of these persons live in the County, though several thousand commute into the are from outlying areas. As seen in **Figure 3.1**, the majority of County employment is in services, followed by manufacturing and trade.

Figure 3.1: Employment by Sector



Source: Southampton County Department of Economic Development

Although long considered a foundation for the local economy, there has been a decline in agriculture employment over the past several decades. During that same period, there has been a rise in the manufacturing industry (many of which are agriculture related industries) as well as government and transportation. Southampton County's major employers are listed in **Table 3.4**.

Table 3.4: Major Employers

NAME	PRODUCT / SERVICE	NUMBER OF EMPLOYEES
Manufacturing		
Atlantic Wood Industries	Pressure treated wood products	30
Chapman Lumber Co., Inc.	Lumber & wood products	88
Commonwealth Gin	Cotton	34
R.M. Felts Packing Co.	Country cured hams & pork products	16
Hercules, Inc.	Paper chemicals & resins	100
Holt Metal Products	Conveying equip., steel fabricators, elevators	25
Hubbard Peanut Co., Inc	Cocktail peanuts & related products	55
IP Converting Innovation Ctr.	Paper processing	35
Meherrin	Chemical Agricultural chemicals	20
Mid Atlantic Cotton Gin	Cotton	40
Narricot Industries, Inc.	Automotive seatbelt webbing & other webbing	298
Peanut Patch	Peanut processing & packing & retail	20
Porter's Wood Products, Inc.	Wood pallet & skid production; custom cut wood	20
Southampton Cutting Industries	Cutlery manufacturing & sharpening service	36
Southampton Power Station	Electricity & steam 3	0
Thorpe Peanut, Inc.	Peanut processing	21
Valley Proteins, Inc.	Prepared foods	60
Non-manufacturing		
Deerfield Correctional Center	Correctional facility	200
Southampton Correctional Complex	Correctional facility	390
Southampton County Public Schools	Education	500

Source: Southampton County Department of Economic Development

According to the County's Comprehensive Plan, the ability of Southampton County to be a major agricultural player in the state and the national market remains strong. However, the County also identifies the need to diversify its economic base to enable the local economy to endure and severe downturns in one particular economic sector. It concluded that it needs to expand its non-residential tax base as demand for additional and improved public services and facilities continue to rise, and should actively pursue new business and industry which builds upon the natural resources base and intrinsic natural qualities of Southampton County. It also stresses the importance of creating local jobs with competitive wages for existing County residents so that young people entering the work force will not have to leave the County to seek employment.

Development Trends

General development patterns have not changed in the County in the past 15 to 20 years, with the preservation of agricultural land being of major importance and an objective of land use planning in Southampton County. According to the County's Comprehensive Plan, future land use patterns will contribute to maintaining the rural and agricultural character of the County while providing for managed residential, industrial and commercial growth. In areas where growth is targeted, services to support such development are or will be provided.

Recent residential development in Southampton County has been consistent with the land use projections found in previous comprehensive plans, with most

occurring in the eastern portion of the County. The Route 641 corridor from the City of Franklin to Sedley has experienced the bulk of residential development, while some industrial development has been occurring along Route 671.

Southampton County's vision is to concentrate new residential development adjacent to towns and the City of Franklin where public water and sewer utilities are either available or can be easily extended from the incorporated towns. Due to the shortage of vacant land available within the incorporated towns, residential growth beyond their limits is assured. Any residential development within agricultural areas will either be concentrated in planned communities (subdivisions) or located as strip development (frontage lots) along roads and highways in order to preserve the agricultural and timber economy of the County.

Future commercial development will be clustered around highway interchanges and commercial strip development, including those areas currently zoned as commercial districts. Projected industrial uses are likely to be located on the fringe of existing towns and along the corridors of major highways, as well as expanded areas near existing plants.

Hazard Identification and Analysis

This section of the Plan describes the natural and manmade hazards prevalent in Southampton County, including general background information from a national perspective as well as pertinent local data such as the location and spatial extent of hazard areas (if applicable) and historical occurrences. These hazards include (and this section is presented based on) the following:[1]

44 CFR Requirement

44 CFR Part 201.6(c)(2)(i):

The risk assessment shall include a description of the type, 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.

Natural Hazards

- Flood
- Hurricane and Tropical Storm
- Severe Thunderstorm
- Tornado
- Winter Storm
- Wildfire
- Drought
- Erosion
- Earthquake
- Sinkhole
- Landslide
- Extreme Temperature

Manmade Hazards

- Hazardous Material (HAZMAT) Incident
- Urban Fire
- Terrorism
- Biological Threat
- Radiological Threat
- Dam Failure

Some of these hazards are interrelated (i.e., hurricanes can cause flooding and tornadoes), and some consist of hazardous elements that are not listed separately (i.e., severe thunderstorms can cause lightning and hail). It should also be noted that some hazards, such as severe winter storms, may impact a large area yet cause little damage, while other hazards, such as a tornado, may impact a small area yet cause extensive damage. This section provides a general description for each of the hazards listed above including any individual hazardous elements (written largely from a national perspective), along with the location and/or spatial extent of each hazard, a locally-specific history of past hazard occurrences based on best available data, and a statement addressing the probability of future hazard occurrences in the planning area. All information regarding vulnerability is presented in Section 5.

[1] As fully documented in Section 2: *Planning Process*, the Southampton County Mitigation Advisory Committee evaluated all primary natural and manmade hazards of concern and determined which of those hazards would be addressed in the *Hazard Identification and Analysis* and *Vulnerability Assessment* sections.

Major Disaster Declarations

In 1988, the Robert T. Stafford Disaster Relief and Emergency Assistance Act was enacted to support state and local governments when disasters overwhelm local resources. This law, as amended, establishes a process for requesting and obtaining a Presidential Disaster Declaration, defines the type and scope of assistance available from the federal government, and sets the conditions for obtaining that assistance. The Federal Emergency Management Agency (FEMA), now part of the Emergency Preparedness and Response Directorate of the Department of Homeland Security, is tasked with coordinating the response. Since 1965, Southampton County has received four presidential disaster declarations including hurricane, flood and severe winter weather events (**Table 4.1**).

Table 4.1: Presidential Disaster Declarations

EVENT	DECLARATION DATE	DECLARATION NUMBER
Hurricane Isabel	09/18/2003	1491
Severe Winter Storm	02/28/2000	1318
Hurricane Floyd	09/18/1999	1293
Blizzard of '96	02/06/1996	1086

Source: Federal Emergency Management Agency

Flood

Background

Flooding is the most frequent and costly natural hazard in the United States, a hazard that has caused more than 10,000 deaths since 1900. Nearly 90 percent of presidential disaster declarations result from natural events where flooding was a major component.

Hurricane Floyd, a Category 2 hurricane when it impacted the East Coast in September 1999, caused widespread damage and presented numerous challenges to Southampton County.

(Photo credit: Southampton County)

Floods are generally the result of excessive precipitation, and can be classified under two categories: general floods, precipitation over a given river basin for a long period of time; and flash floods, the product of heavy localized precipitation in a short time period over a given location. The severity of a flooding event is determined by the following: a combination of stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and the degree of vegetative clearing.

General floods are usually long-term events that may last for several days. The primary types of general flooding include riverine, coastal and urban flooding. Riverine flooding is a function of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Coastal flooding is typically a result of storm surge, wind-driven waves and heavy rainfall produced by hurricanes, tropical storms, nor'easters and other large coastal storms. Urban flooding occurs where manmade development has obstructed the natural flow of water and decreased the ability of natural groundcover to absorb and retain surface water runoff.

Most flash flooding is caused by slow-moving thunderstorms in a local area or by heavy rains associated with hurricanes and tropical storms. However, flash flooding events may also occur from accelerated snow melt due to heavy rains, a dam or levee failure within minutes or hours of heavy amounts of rainfall, or from a sudden release of water held by an ice jam. Although flash flooding occurs most often along mountain streams, it is also common in urbanized areas where much of the ground is covered by impervious surfaces. Flash flood waters move at very high speeds—"walls" of water can reach heights of 10 to 20 feet. Flash flood waters and the accompanying debris can uproot trees, roll boulders, destroy buildings, and obliterate bridges and roads.

The periodic flooding of lands adjacent to rivers, streams and shorelines (land known as floodplain) is a natural and inevitable occurrence that can be expected to take place based upon established recurrence intervals. The recurrence interval of a flood is defined as the average time interval, in years, expected between a flood event of a particular magnitude and an equal or larger flood. Flood magnitude increases with increasing recurrence interval.

Floodplains are designated by the frequency of the flood that is large enough to cover them. For example, the 10-year floodplain will be covered by the 10-year flood and the 100-year floodplain by the 100-year flood. Flood frequencies such as the 100-year flood are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur. Another way of expressing the flood frequency is the chance of occurrence in a given year, which is the percentage of the probability of flooding each year. For example, the 100-year flood has a 1 percent chance of occurring in any given year.

Location and Spatial Extent

All of Southampton County rests within the Chowan River Basin, a vast system that drains approximately 4,800 square miles of land in Virginia and North Carolina. The primary rivers within and nearby the county include the Blackwater River and the Nottoway River. **Figure 4.1** shows the flood hazard boundary of the 100-year floodplain (Zone A and Zone AE; unnumbered and numbered flood zones respectively) within Southampton County, along with municipal boundaries, hydrologic information, major roads and railroad corridors. **Figure 4.2** through **Figure 4.4** show flood zones within and immediately around the towns of Courtland, Boykins and Newsoms.[2]

Flood Zone Definitions

Zone A *is defined as an area inundated by 100-year flooding, for which BFEs (Base Flood Elevations) have not been established.*

Zone AE *is defined as an area inundated by 100-year flooding, for which BFEs (Base Flood Elevations) have been established.*

Historical Occurrences

According to the National Climatic Data Center, 10 significant flood events have occurred in the county since 1995 (**Table 4.2**). Details of each event, as available, are provided following the table.

Table 4.2: Significant Flood Events in Southampton County (1995 to 2005)

LOCATION	DATE OF EVENT	TYPE OF FLOODING	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Capron, Boykins, Branchville	07/04/1995	Flash Flood	0	0	None Reported (NR)	None Reported (NR)
Sebrell	06/11/1996	Flash Flood	0	0	NR	NR
Countywide	09/15/1999	Flood	0	0	NR	NR
Countywide	10/17/1999	Flash Flood	0	0	NR	NR
Countywide	07/24/2000	Flash Flood	0	0	NR	NR
Drewryville	08/03/2000	Flash Flood	0	0	$2,000	NR
Boykins, Branchville	09/01/2000	Flash Flood	0	0	NR	NR
Capron	09/01/2000	Flash Flood	0	0	NR	NR
Countywide	09/05/2000	Flood	0	0	$3,000	NR
Courtland	08/18/2001	Flash Flood	0	0	NR	NR
TOTALS			**0**	**0**	**$5,000**	**NR**

Source: National Climatic Data Center

Capron, Boykins, Branchville: 07/04/1995

Torrential rainfall of five to seven inches caused significant flooding in many portions of the county, including Capron, Boykins and Branchville. Numerous secondary roads were closed, some for as long as 24 hours due to high water. No major property damage was reported.

Sebrell: 06/11/1996

Four to five inches of rain occurred within three hours throughout northern and western portions of the county. Due to this rainfall, several roads were closed because of high water in the Sebrell area.

Countywide: 09/15/1999

Very heavy rain from Hurricane Floyd produced widespread flooding and flash flooding across much of central and eastern Virginia. Rainfall amounts generally ranged from near seven inches from eastern Caroline County to Richmond City to Brunswick, Lunenburg and Mecklenburg counties, to 12 to 18 inches in much

[2] The towns of Ivor, Capron and Branchville are not shown on individual map figures because these communities have no identified or significant flood hazard areas.

of the Virginia Tidewater. Numerous roads were washed out due to flooding. Many areas normally prone only to flooding due to poor drainage and low lying areas experienced significant flash flooding. Primary routes out-of-service included U.S. 460 near Wakefield, U.S. 58 near Emporia and Franklin, and Interstate 95 south of Petersburg to Emporia. Riverine flooding was extensive and prolonged in the Chowan River Basin. The Blackwater, Meherrin and Nottoway Rivers exceeded flood stage. The flooding was considered to be a 500-year flood of record. Also, there were enormous agricultural/crop losses due to the flooding.

One problem caused by the flooding associated with Hurricane Floyd involved the disturbance of caskets in cemeteries located throughout the county. These dislocated caskets had to be found, identified and re-buried.

(Photo credit: Southampton County)

Countywide: 10/17/1999
Very heavy rainfall associated with Hurricane Irene—locally up to five to nine inches—resulted in numerous flooded roads and roads closed due to high water.

Countywide: 07/24/2000
Most secondary roads flooded in spots. Several roads washed out.

Drewryville: 08/03/2000
Heavy rain caused flooding on Route 58 near Drewryville with all four lanes under at least two feet of water. Two minor accidents occurred on Route 308 and were attributed to high standing water.

Boykins, Branchville: 09/01/2000
Several roads flooded during this flash flood event.

Capron: 09/01/2000
Several roads flooded in Capron and Sunbeam.

Countywide: 09/05/2000
Swollen by two weeks of heavy rain, the Nottoway and Blackwater Rivers overflowed their banks. A small boathouse next to the Blackwater River on Burdette Road was flooded and inaccessible. Several county roads were closed due to high water including: Route 653 from Route 719 to Cary's Bridge, Route 619 at the intersection of Route 629, Route 614 from Route 622 to the Isle of Wight county line, and Route 651 (Indian Town Road) from Route 35 at Hancock Peanut to Route 652.

Courtland: 08/18/2001
Numerous back roads were closed or impassable between 4:30 p.m. and 7:45 p.m. Route 35 was closed due to high water.

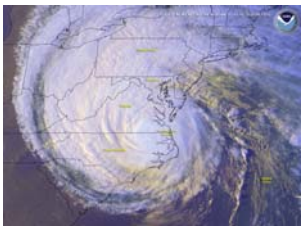
Probability of Future Occurrences

Flooding remains a likely occurrence throughout the identified flood hazard areas of Southampton County. Smaller floods caused by heavy rains and inadequate drainage capacity will be more frequent, but not as costly as the large-scale floods which may occur at less frequent intervals. While the potential for flood is always present, Southampton County does have policies for development that should help lessen potential property damage due to future floods.

Hurricane and Tropical Storm

Background

Hurricanes and tropical storms, as well as nor'easters and typhoons, are classified as cyclones and defined as any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and whose diameter averages 10 to 30 miles across. A tropical cyclone refers to any such circulation that develops over tropical waters. Tropical cyclones act as a "safety-valve," limiting the continued build-up of heat and energy in tropical regions by maintaining the atmospheric heat and moisture balance between the tropics and the pole-ward latitudes. The primary damaging forces associated with these storms are high-level sustained winds, heavy precipitation and tornadoes. Coastal areas are also vulnerable to the additional forces of storm surge, wind-driven waves and tidal flooding which can be more destructive than cyclone wind.



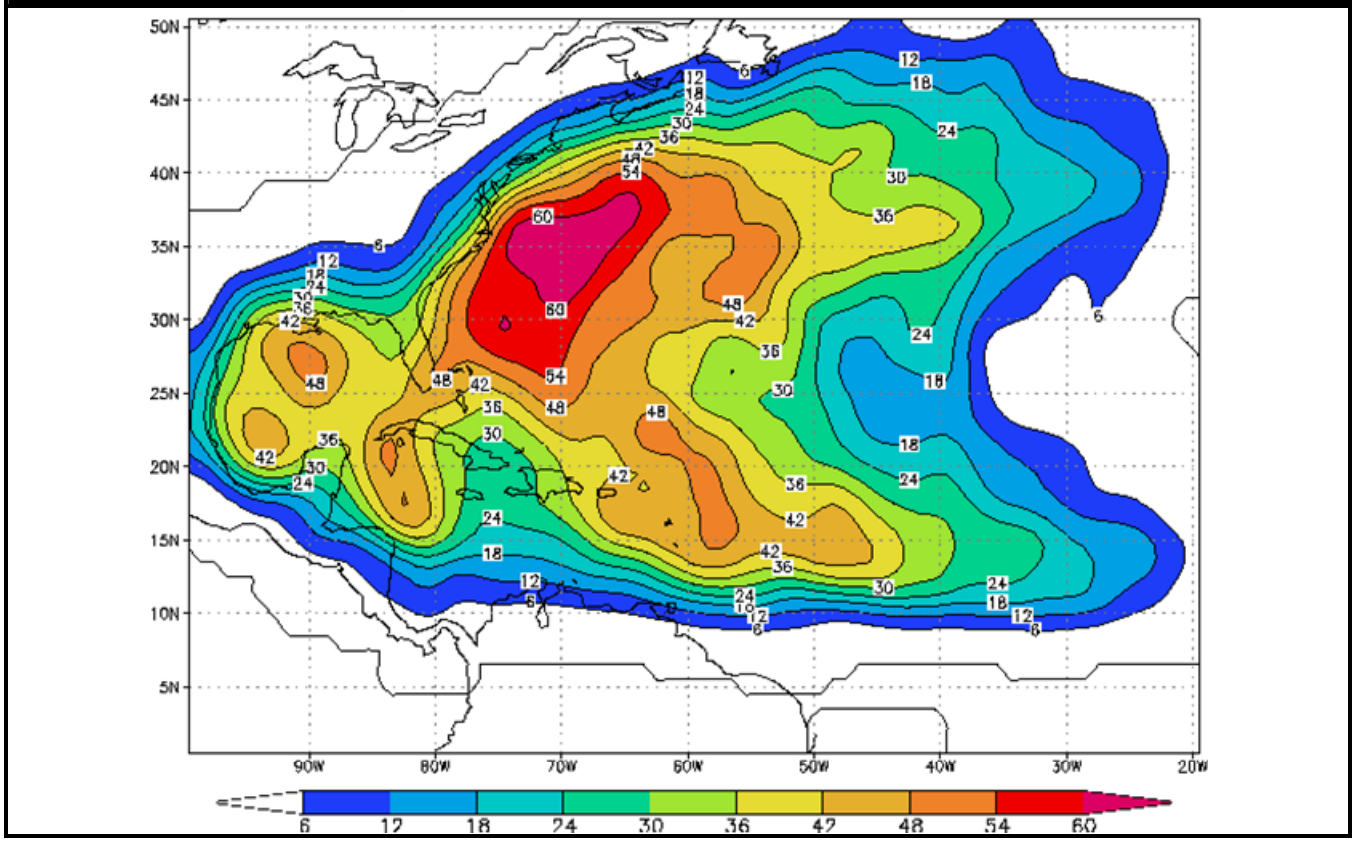
Hurricane Isabel left widespread wind damage along the East Coast in 2003, resulting in a Presidential Disaster Declaration for many Virginia communities including Southampton County.

(Photo credit: National Oceanic and Atmospheric Administration)

The key energy source for a tropical cyclone is the release of latent heat from the condensation of warm water. Their formation requires a low-pressure disturbance, warm sea surface temperature, rotational force from the spinning of the earth and the absence of wind shear in the lowest 50,000 feet of the atmosphere. The majority of hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea and Gulf of Mexico during the official Atlantic hurricane season, which encompasses the months of June through November. The peak of the Atlantic hurricane season is in early to mid-September and the average number of storms that reach hurricane intensity per year in this basin is about six.

Figure 4.5 shows for any particular location what the chance is that a tropical storm or hurricane will affect the area sometime during the Atlantic hurricane season. The figure was created by the National Oceanic and Atmospheric Administration's Hurricane Research Division using data from 1944 to 1999 and counting hits when a storm or hurricane was within approximately 100 miles (165 km) of each location.

Figure 4.5: Empirical Probability of a Named Hurricane or Tropical Storm



Source: National Oceanic and Atmospheric Administration, Hurricane Research Division

As an incipient hurricane develops, barometric pressure (measured in millibars or inches) at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. Hurricane intensity is further classified by the Saffir-Simpson Scale, which rates hurricane intensity on a scale of 1 to 5, with 5 being the most intense. The Saffir-Simpson Scale is shown in **Table 4.3**.

The Saffir-Simpson Scale categorizes hurricane intensity linearly based upon maximum sustained winds, barometric pressure and storm surge potential, which are combined to estimate potential damage. Categories 3, 4, and 5 are classified as “major” hurricanes, and while hurricanes within this range comprise only 20 percent of total tropical cyclone landfalls, they account for over 70 percent of the damage in the United States. **Table 4.4** describes the damage that could be expected for each category of hurricane.

Damage during hurricanes may also result from spawned tornadoes and inland flooding associated with heavy rainfall that usually accompanies these storms.

Table 4.3: Saffir-Simpson Scale

CATEGORY	MAXIMUM SUSTAINED WIND SPEED (MPH)	MINIMUM SURFACE PRESSURE (MILLIBARS)	STORM SURGE (FEET)
1	74–95	Greater than 980	3–5
2	96–110	979–965	6–8
3	111–130	964–945	9–12
4	131–155	944–920	13–18
5	155 +	Less than 920	19+

Source: National Hurricane Center

Table 4.4: Hurricane Damage Classifications

STORM CATEGORY	DAMAGE LEVEL	DESCRIPTION OF DAMAGES	PHOTO EXAMPLE
1	MINIMAL	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal flooding and minor pier damage.	
2	MODERATE	Some roofing material, door, and window damage. Considerable damage to vegetation, mobile homes, etc. Flooding damages piers and small craft in unprotected moorings may break their moorings.	
3	EXTENSIVE	Some structural damage to small residences and utility buildings, with a minor amount of curtainwall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures, with larger structures damaged by floating debris. Terrain may be flooded well inland.	
4	EXTREME	More extensive curtainwall failures with some complete roof structure failure on small residences. Major erosion of beach areas. Terrain may be flooded well inland.	
5	CATASTROPHIC	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Flooding causes major damage to lower floors of all structures near the shoreline. Massive evacuation of residential areas may be required.	

Sources: National Hurricane Center and the Federal Emergency Management Agency

Location and Spatial Extent

According to the Virginia Department of Emergency Management, the Commonwealth of Virginia averages one tropical cyclone event a year—some years experiencing no activity and some years with multiple storm events occurring in rapid succession. Since the mid-1800s, numerous tropical cyclones have affected Virginia on a statewide basis, causing the deaths of an estimated 228 people and costing the commonwealth more than a billion dollars in damages. The eyes of over 70 storms have tracked directly across Virginia with 11 having made landfall on or within 60 miles of the Virginia Coast. Overall, Southampton County as a whole, by virtue of its geographic location, is highly susceptible to hurricanes and tropical storm-force winds and related flooding.

Historical Occurrences

According to the National Hurricane Center, 71 tropical cyclone storm tracks have passed within 75 miles of Southampton County since 1850. This includes two Category 3 hurricanes, five Category 2 hurricanes, four Category 1 hurricanes, 39 tropical storms, seven tropical depressions and 14 extratropical cyclones (a cyclone that has lost its tropical characteristics). Eight of these storm tracks have passed directly through Southampton County and all 71 storms passing within 75 miles of the county could potentially have impacted the county and its communities to varying degrees in terms of wind and rain. **Figure 4.6** shows the track of each storm in relation to Southampton County and the surrounding area. **Table 4.5** provides for each event the date of occurrence, name (if applicable), maximum recorded wind speed and category of the storm based on the Saffir-Simpson Scale. Details of select significant events are provided following the table.

Table 4.5: Historical Storm Tracks Within 75 Miles of Southampton County (Since 1850)

DATE OF OCCURRENCE	STORM NAME	WIND SPEED (MPH)	STORM CATEGORY
08/25/1851	Unnamed	45	Tropical Storm
09/10/1854	Unnamed	45	Tropical Storm
08/19/1856	Unnamed	60	Tropical Storm
09/17/1859	Unnamed	60	Tropical Storm
09/27/1861	Unnamed	70	Tropical Storm
09/18/1863	Unnamed	70	Tropical Storm
10/25/1872	Unnamed	60	Tropical Storm
09/29/1874	Unnamed	70	Tropical Storm
09/17/1876	Unnamed	90	Category 1 Hurricane
10/04/1877	Unnamed	60	Extratropical Storm
10/23/1878	Unnamed	105	Category 2 Hurricane
08/18/1879	Unnamed	115	Category 3 Hurricane
09/10/1881	Unnamed	70	Tropical Storm
09/11/1882	Unnamed	45	Tropical Storm
09/23/1882	Unnamed	45	Tropical Storm
09/12/1883	Unnamed	45	Tropical Storm
06/22/1886	Unnamed	40	Tropical Storm
07/02/1886	Unnamed	45	Tropical Storm
10/21/1887	Unnamed	40	Extratropical Storm
09/11/1888	Unnamed	40	Tropical Storm
10/11/1888	Unnamed	65	Tropical Storm
09/24/1889	Unnamed	45	Tropical Storm
06/17/1893	Unnamed	65	Tropical Storm
10/10/1894	Unnamed	70	Tropical Storm

Table 4.5: Historical Storm Tracks Within 75 Miles of Southampton County (Since 1850)

DATE OF OCCURRENCE	STORM NAME	WIND SPEED (MPH)	STORM CATEGORY
08/18/1899	Unnamed	105	Category 2 Hurricane
10/31/1899	Unnamed	65	Tropical Storm
06/16/1902	Unnamed	40	Tropical Storm
09/14/1904	Unnamed	70	Tropical Storm
06/29/1907	Unnamed	60	Extratropical Storm
06/15/1912	Unnamed	40	Tropical Storm
08/25/1918	Unnamed	60	Tropical Storm
09/30/1924	Unnamed	40	Extratropical Storm
08/11/1928	Unnamed	35	Extratropical Storm
09/19/1928	Unnamed	50	Tropical Storm
10/02/1929	Unnamed	40	Extratropical Storm
08/23/1933	Unnamed (The Chesapeake-Potomac Hurricane)	70	Tropical Storm
09/06/1935	Unnamed	70	Tropical Storm
10/12/1942	Unnamed	30	Tropical Depression
08/02/1944	Unnamed	65	Tropical Storm
10/20/1944	Unnamed	40	Tropical Storm
10/09/1946	Unnamed	30	Extratropical Storm
09/25/1947	Unnamed	30	Extratropical Storm
10/15/1954	Hazel	125	Category 3 Hurricane
08/12/1955	Connie	75	Category 1 Hurricane
09/19/1955	Ione	70	Tropical Storm
09/27/1956	Flossy	40	Extratropical Storm
07/10/1959	Cindy	40	Tropical Storm
09/12/1960	Donna	105	Category 2 Hurricane
07/30/1960	Brenda	60	Tropical Storm
09/14/1961	Unnamed	40	Tropical Storm
09/01/1964	Cleo	40	Tropical Storm
10/16/1964	Isbell	45	Extratropical Storm
06/16/1965	Unnamed	35	Extratropical Storm
09/16/1967	Doria	65	Tropical Storm
06/13/1968	Abby	30	Tropical Depression
08/20/1969	Camille	30	Tropical Depression
05/26/1970	Alma	30	Tropical Depression
10/02/1971	Ginger	35	Tropical Depression
08/27/1971	Doria	65	Tropical Storm
07/14/1979	Bob	25	Tropical Depression
07/01/1981	Bret	60	Tropical Storm
08/18/1985	Danny	30	Tropical Depression
08/18/1986	Charley	80	Category 1 Hurricane
10/08/1996	Josephine	50	Extratropical Storm
07/13/1996	Bertha	75	Category 1 Hurricane
07/24/1997	Danny	45	Tropical Storm
09/04/1998	Earl	60	Extratropical Storm
09/16/1999	Floyd	105	Category 2 Hurricane
09/19/2000	Gordon	25	Extratropical Storm
09/24/2000	Helene	45	Tropical Storm
09/18/2003	Isabel	100	Category 2 Hurricane

Source: National Hurricane Center

Hurricane Floyd: 09/15/1999

Very heavy rain from Hurricane Floyd produced widespread flooding and flash flooding across much of central and eastern Virginia. Rainfall amounts generally ranged from near seven inches from eastern Caroline County to Richmond City to Brunswick, Lunenburg and Mecklenburg counties, to 12 to 18 inches in much of the Virginia Tidewater. Numerous roads were washed out due to flooding. Many areas normally prone only to flooding due to poor drainage and low lying areas experienced significant flash flooding. Primary routes out-of-service included U.S. 460 near Wakefield, U.S. 58 near Emporia and Franklin, and Interstate 95 south of Petersburg to Emporia. Riverine flooding was extensive and prolonged in the Chowan River Basin. The Blackwater, Meherrin and Nottoway Rivers exceeded flood stage. The flooding was considered to be a 500-year flood of record. Also, there were enormous agricultural/crop losses due to the flooding.

Hurricane Floyd heavily impacted the economy of Southampton County. According to the Economic Development Administration, the effects on agriculture within the county were significant: projected crop losses included $3.2 million in peanuts, $1.9 million in cotton, $358,000 in corn and $387,000 in soybeans.

Hurricane Isabel: 09/18/2003

Hurricane Isabel was a Category 1 hurricane as it crossed the Wakefield WFO county warning area. (Wakefield is approximately two miles north of Southampton County in neighboring Sussex County.) Sustained tropical storm force winds with frequent gusts to hurricane force occurred over interior southeast Virginia. Isabel made landfall near Ocracoke Inlet in North Carolina, tracked northwest into central Virginia just west of Richmond, and then continued northward into western Pennsylvania. Approximately several thousand persons were evacuated and housed in numerous shelters across interior southeast Virginia.

Many trees were downed by the strong hurricane-force winds associated with Isabel in 2003, resulting in significant damage to residential properties.

The unusually large wind field uprooted many thousands of trees, downed many power lines, damaged hundreds of residential structures, and snapped thousands of telephone poles and cross arms. Hundreds of roads, including major highways, were blocked by fallen trees. Over two million customers of Dominion Virginia Power were without electricity. Local electrical cooperatives also reported thousands of customers without power. The lowest sea level pressure recorded was 987mb at Portsmouth, Virginia. Isabel will be remembered for the greatest wind and storm surge in the region since Hazel in 1954 and before that the 1933 Chesapeake-Potomac Hurricane. Isabel will also be remembered for the most extensive power outages in Virginia history and the permanent change to the landscape from the fallen trees and storm surge.

Rainfall amounts ranged from three to seven inches across interior southeast Virginia. Inland flooding due to heavy rainfall occurred over parts of interior southeast Virginia. High water was reported on Route 460 in nearby Prince George County and Route 40 in neighboring Sussex County. Seven deaths in Virginia can be directly attributed to Isabel in the Wakefield area of responsibility.

Probability of Future Occurrences

As stated previously, according to the Virginia Department of Emergency Management the Commonwealth of Virginia averages one tropical cyclone event a year—some years experiencing no activity and some years with multiple storm events occurring in rapid succession. Therefore, the probability of future occurrences of this hazard is considered to be high.

Severe Thunderstorm

The following information on the severe thunderstorm hazard includes discussion of lightning, hail and straight-line wind, common hazardous elements of severe thunderstorm activity.

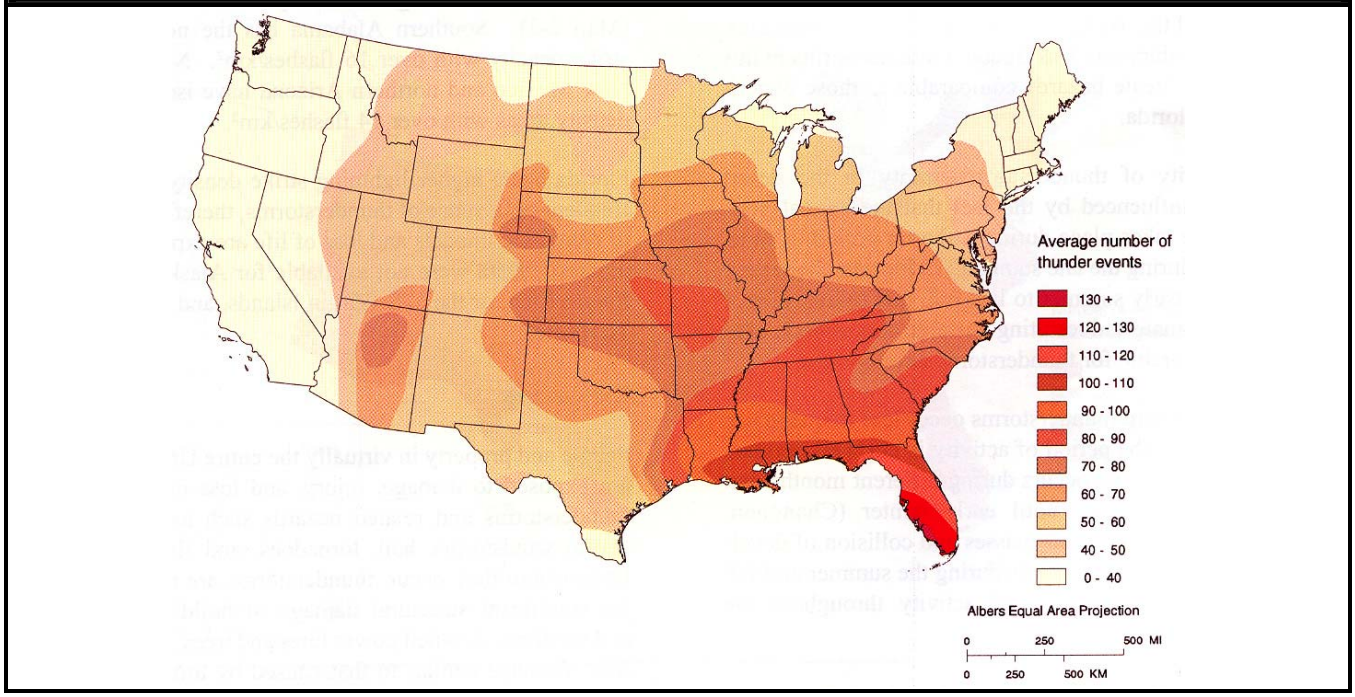
Background

According to the National Weather Service, more than 100,000 thunderstorms occur each year, though only about 10 percent of these storms are classified as "severe." Although thunderstorms generally affect a small area when they occur, they are very dangerous because of their ability to generate tornadoes, hailstorms, strong winds, flash flooding and damaging lightning. While thunderstorms can occur in all regions of the United States, they are most common in the central and southern states because atmospheric conditions in those regions are most ideal for generating these powerful storms.

Thunderstorms are caused when air masses of varying temperatures meet. Rapidly rising warm moist air serves as the "engine" for thunderstorms. These storms can occur singularly, in lines or in clusters. They can move through an area very quickly or linger for several hours.

The National Weather Service collected data for thunder days, number and duration of thunder events and lightning strike density for the 30-year period from 1948 to 1977. A series of maps was generated showing the annual average thunder event duration, the annual average number of thunder events and the mean annual density of lightning strikes. **Figure 4.7** illustrates thunderstorm hazard severity based on the annual average number of thunder events from 1948 to 1977.

Figure 4.7: Average Annual Number of Thunder Events



Source: Federal Emergency Management Agency

Lightning

Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder. On average, 89 people are killed each year by lightning strikes in the United States.

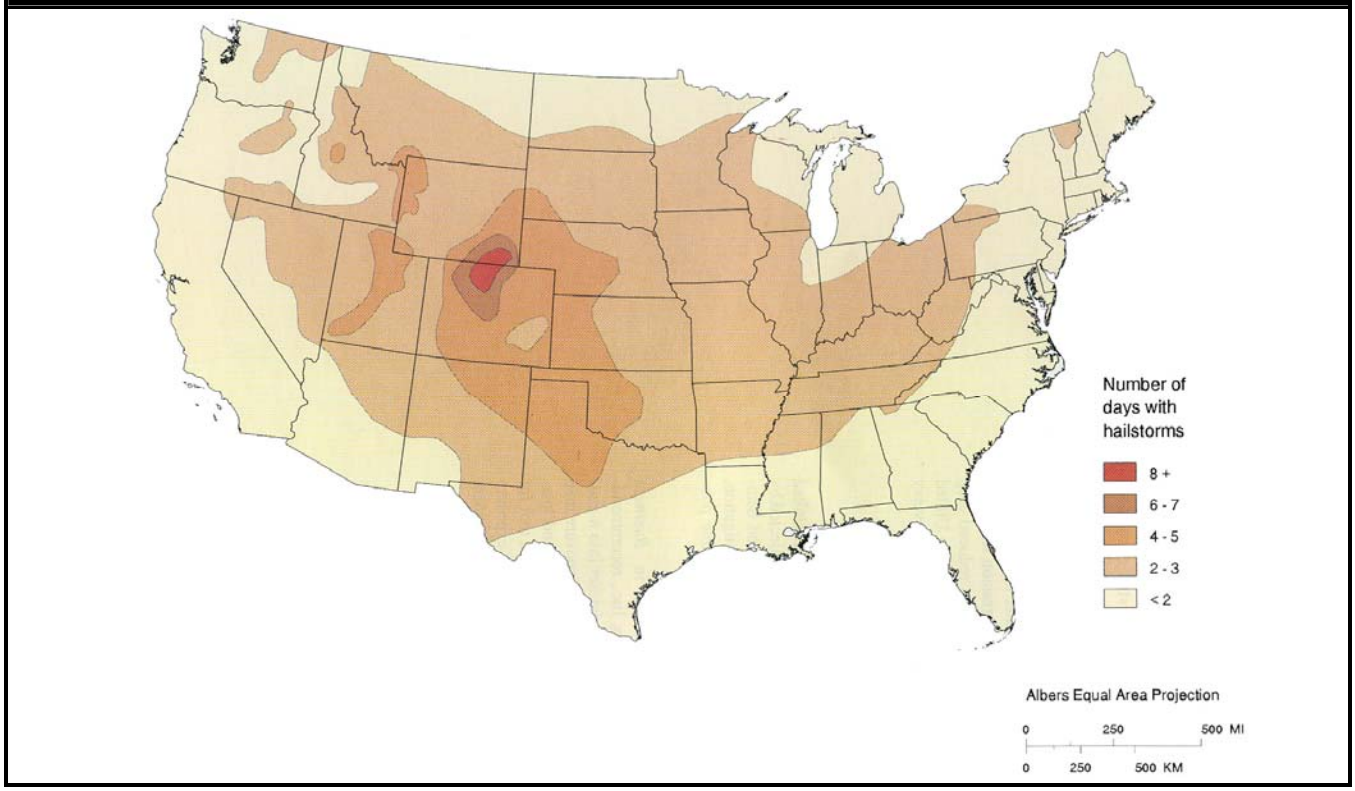
Time-lapse photography captures cloud-to-ground lightning during a night-time thunderstorm.

(Photo credit: National Oceanic and Atmospheric Administration)

Hail

Hailstorms are another potential damaging outgrowth 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 they 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. **Figure 4.8** shows the annual frequency of hailstorms in the United States.

Figure 4.8: Annual Frequency of Hailstorms in the United States

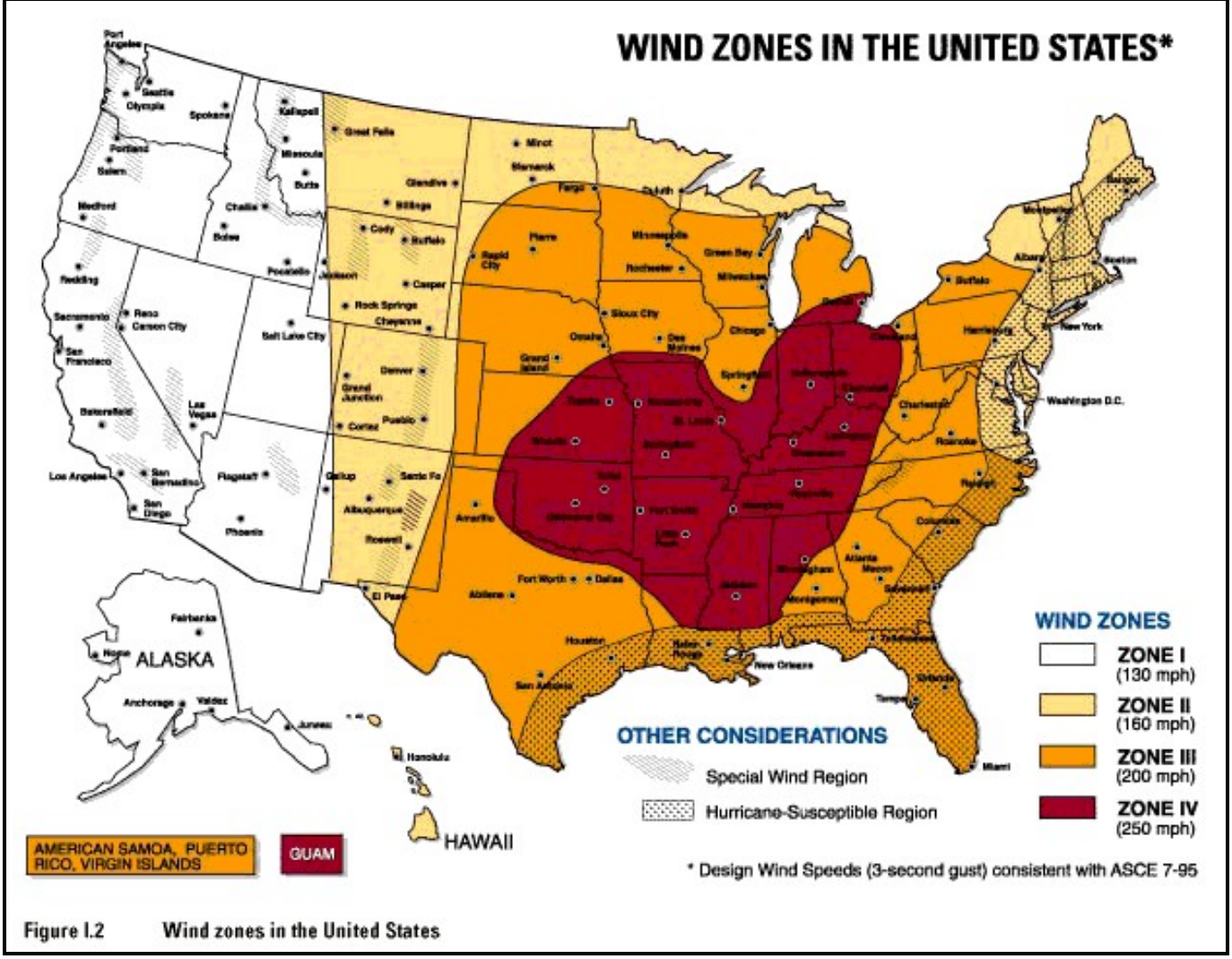


Source: Federal Emergency Management Agency

Straight-line Wind

Straight-line winds, which in extreme cases have the potential to cause wind gusts that exceed 100 miles per hour, are responsible for most thunderstorm wind damage. One type of straight-line wind, the downburst, can cause damage equivalent to a strong tornado and can be extremely dangerous to aviation. **Figure 4.9** shows how the frequency and strength of extreme windstorms vary across the United States. The map was produced by the Federal Emergency Management Agency (FEMA) and is based on 40 years of tornado history and over 100 years of hurricane history. Zone IV, the darkest area on the map, has experienced both the greatest number of tornadoes and the strongest tornadoes. As shown by the map key, wind speeds in Zone IV can be as high as 250 MPH.

Figure 4.9: Wind Zones in the United States



Source: Federal Emergency Management Agency

Location and Spatial Extent

Severe thunderstorms and their related hazardous elements (including lightning, hail and straight-line winds) are not confined to any geographical boundaries and typically are widespread events. Therefore, it is assumed that Southampton County would be uniformly exposed to these hazards and that the spatial extent of that impact would potentially be large.

Historical Occurrences

According to the National Climatic Data Center, 50 severe thunderstorm events have been recorded in the county since 1950 (**Table 4.6**). These events were responsible for a reported $126,000 in property damage and four injuries throughout the county and its towns. No crop damages were reported. Details of thunderstorm events resulting in property damages of $5,000 or greater are provided following the table.

Table 4.6: Severe Thunderstorm Events in Southampton County (1950 to 2005)

LOCATION	DATE OF EVENT	TYPE OF STORM	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Southampton County	02/11/1955	Thunderstorm Wind	0	0	None Reported (NR)	None Reported (NR)
Southampton County	06/23/1974	Thunderstorm Wind	0	0	NR	NR
Southampton County	05/08/1984	Thunderstorm Wind	0	0	NR	NR
Southampton County	06/03/1987	Thunderstorm Wind	0	4	NR	NR
Southampton County	06/26/1988	Thunderstorm Wind	0	0	NR	NR
Southampton County	06/05/1989	Thunderstorm Wind	0	0	NR	NR
Southampton County	06/16/1989	Thunderstorm Wind	0	0	NR	NR
Southampton County	07/11/1990	Thunderstorm Wind	0	0	NR	NR
Southampton County	06/16/1991	Thunderstorm Wind	0	0	NR	NR
Southampton County	07/02/1991	Thunderstorm Wind	0	0	NR	NR
Southampton County	07/02/1991	Thunderstorm Wind	0	0	NR	NR
Southampton County	08/04/1991	Thunderstorm Wind	0	0	NR	NR
Southampton County	02/15/1992	Thunderstorm Wind	0	0	NR	NR
Southampton County	05/26/1994	Thunderstorm Wind	0	0	$5,000	NR
Southampton County	09/22/1994	High Winds	0	0	$5,000	NR
Ivor	05/19/1995	Thunderstorm Wind	0	0	NR	NR
Western Portion of County	07/04/1995	Thunderstorm Wind	0	0	NR	NR
Capron	07/04/1995	Thunderstorm Wind	0	0	NR	NR
Boykins, Branchville, Newsoms	07/04/1995	Thunderstorm Wind	0	0	NR	NR
Near Drewryville	11/11/1995	Thunderstorm Wind	0	0	NR	NR
Emporia	03/15/1996	Thunderstorm Wind	0	0	NR	NR
Capron	05/11/1996	Thunderstorm Wind	0	0	$2,000	NR
Courtland	05/11/1996	Thunderstorm Wind	0	0	NR	NR
Sebrell	06/11/1996	Thunderstorm Wind	0	0	$3,000	NR
Courtland	06/12/1996	Thunderstorm Wind	0	0	$10,000	NR
Ivor	06/15/1996	Thunderstorm Wind	0	0	$4,000	NR
Capron	06/20/1996	Thunderstorm Wind	0	0	$2,000	NR
Johnson Corner	05/01/1997	Thunderstorm Wind	0	0	$2,000	NR
Hunterdale	07/16/1997	Thunderstorm Wind	0	0	$2,000	NR
Courtland	06/13/1998	Thunderstorm Wind	0	0	$3,000	NR
Courtland	06/16/1998	Thunderstorm Wind	0	0	$3,000	NR

Table 4.6: Severe Thunderstorm Events in Southampton County (1950 to 2005)

LOCATION	DATE OF EVENT	TYPE OF STORM	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Sebrell	09/28/1998	Thunderstorm Wind	0	0	$2,000	NR
Capron	07/07/1999	Thunderstorm Wind	0	0	$2,000	NR
Boykins, Branchville	07/24/1999	Thunderstorm Wind	0	0	$1,000	NR
Joyner	07/28/1999	Thunderstorm Wind	0	0	$1,000	NR
Branchville, Boykins	08/14/1999	Thunderstorm Wind	0	0	$2,000	NR
Southampton County	09/16/1999	High Wind	0	0	$53,000	NR
Ivor	05/27/2000	Thunderstorm Wind	0	0	$1,000	NR
Boykins, Branchville	04/28/2002	Thunderstorm Wind	0	0	$2,000	NR
Boykins, Branchville	05/02/2002	Thunderstorm Wind	0	0	$3,000	NR
Boykins, Branchville	05/02/2002	Thunderstorm Wind	0	0	$2,000	NR
Boykins, Branchville	05/02/2002	Thunderstorm Wind	0	0	$2,000	NR
Capron	05/13/2002	Thunderstorm Wind	0	0	$2,000	NR
Courtland	05/13/2002	Thunderstorm Wind	0	0	NR	NR
Courtland	02/22/2003	Thunderstorm Wind	0	0	$2,000	NR
Sunbeam	07/11/2003	Thunderstorm Wind	0	0	$2,000	NR
Capron	06/11/2004	Thunderstorm Wind	0	0	$2,000	NR
Courtland	06/25/2004	Thunderstorm Wind	0	0	$2,000	NR
Ivor	07/07/2004	Thunderstorm Wind	0	0	$2,000	NR
Branchville, Boykins	08/18/2004	Thunderstorm Wind	0	0	$2,000	NR
TOTALS			**0**	**4**	**$126,000**	**NR**

Source: National Climatic Data Center

Southampton County: 05/26/1994

Thunderstorm winds blew down a large tree at the corner of Peach Tree Avenue and Johnsons Mill Road. Storage sheds were blown over a chain link fence into a neighbor's yard. This storm caused a reported $5,000 in property damage.

Southampton County: 09/22/1994

No details are currently available other than the fact that the storm caused $5,000 in reported property damage.

Courtland: 06/12/1996

An equipment shed roof approximately 16 feet by 40 feet in size was blown down into a substation. A lightning rod was bent 45 degrees in the air. This storm caused a reported $10,000 in property damage.

Southampton County: 09/16/1999

Numerous trees and power lines were blown down across central and interior southeast Virginia, resulting in widespread power outages. This storm caused a reported $53,000 in property damage across a 14-county forecast zone that includes Southampton County.

Lightning
No damaging or otherwise significant lightning strikes have been officially reported since 1950.

Hail
According to the National Climatic Data Center, 27 hail events have been reported since 1950 (**Table 4.7**). Details of significant hail events are provided following the table.

Table 4.7: Hail Events in Southampton County (1950 to 2005)

LOCATION	DATE OF EVENT	TIME OF EVENT	SIZE OF HAIL (INCHES)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Southampton County	06/13/1959	4:00 PM	1.75	0	0	None Reported (NR)	None Reported (NR)
Southampton County	03/15/1989	5:30 PM	1.00	0	0	NR	NR
Southampton County	07/12/1990	4:55 PM	1.00	0	0	NR	NR
Southampton County	09/07/1990	4:50 PM	1.00	0	0	NR	NR
Courtland	06/12/1996	6:30 PM	0.75	0	0	NR	NR
Courtland	06/20/1996	7:43 PM	0.75	0	0	NR	NR
Vicksville	05/01/1997	4:04 PM	1.25	0	0	NR	NR
Sedley	05/04/1998	3:20 PM	0.75	0	0	NR	NR
Sedley	05/08/1998	1:20 PM	2.00	0	0	NR	NR
Courtland	06/13/1998	3:10 PM	0.75	0	0	NR	NR
Branchville, Boykins	09/01/1998	4:00 PM	0.75	0	0	NR	NR
Capron	09/08/1998	8:02 AM	1.00	0	0	NR	NR
Courtland	09/08/1998	8:14 AM	0.75	0	0	NR	NR
Capron	08/14/1999	1:40 PM	1.75	0	0	NR	NR
Courtland	04/17/2000	5:25 PM	0.88	0	0	NR	NR
Capron	05/22/2000	3:50 PM	1.75	0	0	$10,000	NR
Courtland	05/22/2000	7:30 PM	1.00	0	0	NR	NR
Boykins, Branchville	07/16/2000	8:25 PM	0.75	0	0	NR	NR
Boykins, Branchville	07/16/2000	8:42 PM	1.00	0	0	NR	NR
Sunbeam	08/16/2000	6:15 PM	1.25	0	0	NR	NR
Courtland	08/16/2000	6:25 PM	0.75	0	0	NR	NR
Courtland	02/22/2003	2:20 PM	0.75	0	0	NR	NR
Countywide	05/09/2003	3:53 PM	1.75	0	0	$4,500,000	NR
Boykins	05/09/2003	4:12 PM	1.75	0	0	$1,500,000	NR
Branchville	05/09/2003	4:12 PM	1.75	0	0	$500,000	NR
Drewryville	08/18/2003	4:55 PM	1.00	0	0	NR	NR
Newsoms	05/22/2004	6:50 PM	0.75	0	0	NR	NR
Courtland	07/14/2004	7:22 PM	0.75	0	0	NR	NR
TOTALS				**0**	**0**	**$6,510,000**	**NR**

Source: National Climatic Data Center

Southampton County: 05/09 and 05/10/2003
According to the Virginia Department of Emergency Management, areas from Southampton County to Amelia and Powhatan counties were heavily impacted by hailstones ranging from golf ball size (1.75 inches) to softball size (4.5 inches). Golf ball sized hail is known to have covered the ground in Drewryville. According to the Virginia Department of Forestry (VDOF), the storm was extremely powerful with straight-line winds of nearly 100 MPH, at least one

confirmed tornado and phenomenal hail that caused extensive and severe damage to forests and structures. Large areas of pine were killed by loss of growing tips as well as foliage in combination with heavy bark damage. Scattered wind and hail damage occurred along the full path of the storm, affecting parts of eight or more counties including Southampton. At least one commercial tree nursery was also heavily damaged. According to VDOF, trees are still dying due to the severe wind and hail that occurred May 9. This impact to trees was greatest in Southampton and Amelia counties. Trees in the path of this storm were completely defoliated, bruised and root-wrenched or blown down. Many trees that survived until winter could not rebuild enough crown to survive through 2004. According to State Farm Insurance, at least $4.5 million in damage was reported countywide through insurance claims just to State Farm to roofs, siding, automobiles, farm equipment, residential and commercial windows, etc.

Probability of Future Occurrences

Severe thunderstorms will remain a highly likely occurrence for Southampton County. Lightning and hail may also be experienced in the area due to such storms.

Tornado

Background

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornadoes are most often generated by thunderstorm activity (but sometimes result from hurricanes and other tropical storms) when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The damage caused by a tornado is a result of the high wind velocity and wind-blown debris, also accompanied by lightning or large hail. According to the National Weather Service, tornado wind speeds normally range from 40 to more than 300 miles per hour. The most violent tornadoes have rotating winds of 250 miles per hour or more and are capable of causing extreme destruction and turning normally harmless objects into deadly missiles.

From 1950 through 2001, 376 tornadoes were documented in Virginia, averaging seven tornadoes per year.

(Photo credit: National Oceanic and Atmospheric Administration)

Each year, an average of over 800 tornadoes is reported nationwide, resulting in an average of 80 deaths and 1,500 injuries (NOAA, 2002). They are more likely to occur during the months of March through June and can occur at any time of day, but are likely to form in the late afternoon and early evening. Most tornadoes are a few dozen yards wide and touch down briefly, but even small short-lived tornadoes can inflict tremendous damage. Highly destructive tornadoes may carve out a path over a mile wide and several miles long.

The destruction caused by tornadoes ranges from light to inconceivable depending on the intensity, size and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction such as residential homes (particularly mobile homes). The Fujita-Pearson Scale for Tornadoes was developed to measure tornado strength and associated damages (**Table 4.8**).

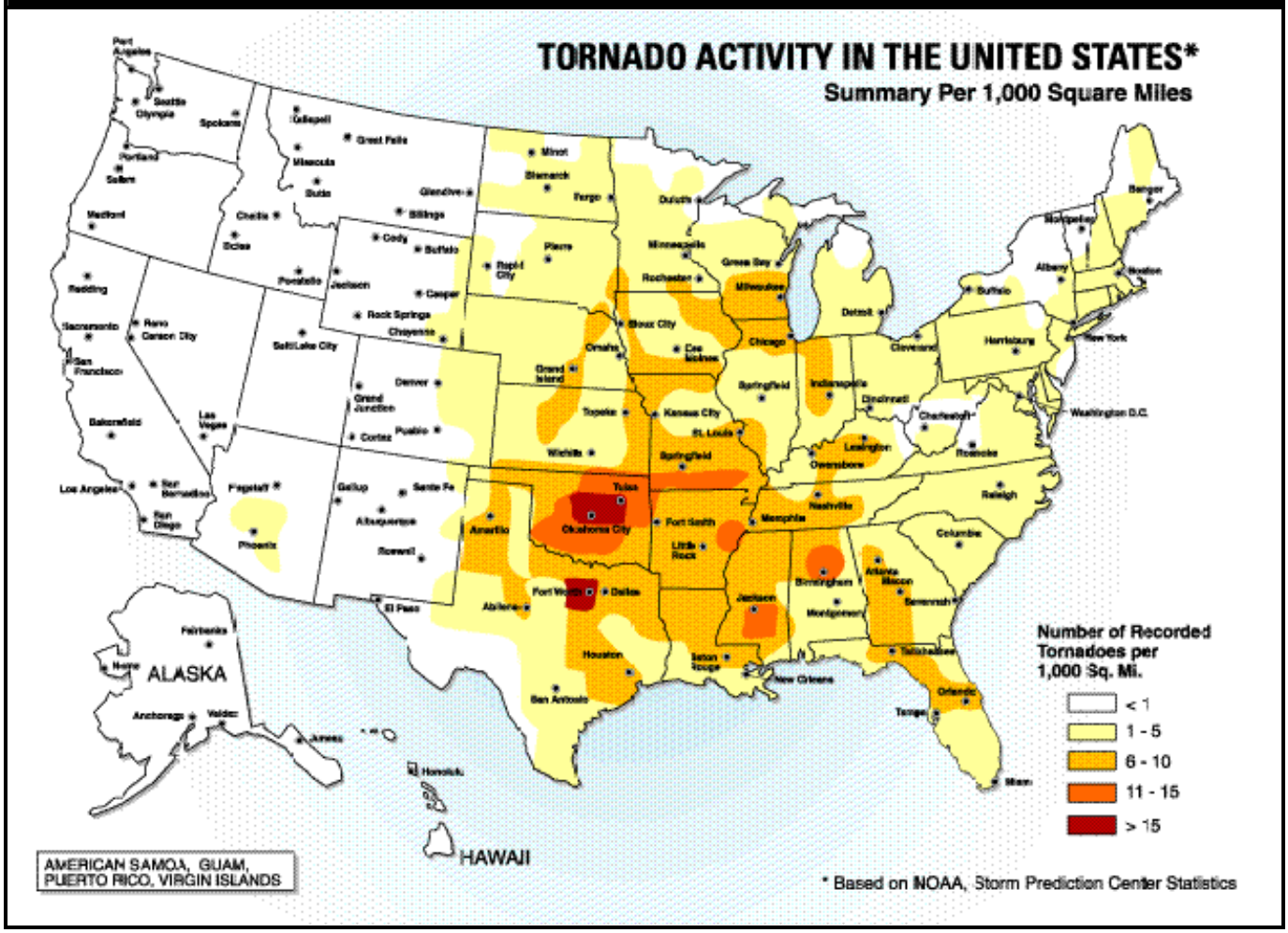
Table 4.8: Fujita-Pearson Scale for Tornadoes

F-SCALE NUMBER	INTENSITY PHRASE	WIND SPEED (MPH)	TYPE OF DAMAGE DONE
F0	GALE	40–72	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
F1	MODERATE	73–112	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	SIGNIFICANT	113–157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
F3	SEVERE	158–206 MPH	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
F4	DEVASTATING	207–260	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
F5	INCREDIBLE	261–318	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.
F6	INCONCEIVABLE	319–379	These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 wind that would surround the F6 winds. Missiles, such as cars and refrigerators would do serious secondary damage that could not be directly identified as F6 damage. If this level is ever achieved, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies.

Source: The Tornado Project, 2002

According to the NOAA Storm Prediction Center (SPC), the highest concentration of tornadoes in the United States has been in Oklahoma, Texas, Kansas and Florida respectively. Although the Great Plains region of the Central United States does favor the development of the largest and most dangerous tornadoes (earning the designation of "tornado alley"), Florida experiences the greatest number of tornadoes per square mile of all U.S. states (SPC, 2002). **Figure 4.10** shows tornado activity in the United States based on the number of recorded tornadoes per 1,000 square miles.

Figure 4.10: Tornado Activity in the United States



Source: Federal Emergency Management Agency

The tornadoes associated with tropical cyclones are most frequent in September and October when the incidence of tropical storm systems is greatest. This type of tornado usually occurs around the perimeter of the storm, and most often to the right and ahead of the storm path or the storm center as it comes ashore. These tornadoes commonly occur as part of large outbreaks and generally move in an easterly direction.

Waterspouts

Waterspouts are weak tornadoes that form over warm water and are most common along the Gulf Coast and southeastern states. Waterspouts occasionally move inland, becoming tornadoes that can cause damage and injury. However, most waterspouts dissipate over the open water threatening only marine and boating interests. Typically a waterspout is weak and short-lived, and because they are so common, most go unreported unless they cause damage.

Location and Spatial Extent

Figure 4.11 shows the locations where four historical tornado strikes have occurred based on National Climatic Data Center records. Beyond this historical information, tornadoes are known to typically impact relatively small areas that are impossible to predict. Therefore, it is assumed that the overall geographic area of Southampton County would be uniformly exposed to this hazard.

Historical Occurrences

According to the National Climatic Data Center, five tornadoes have touched down in the county since 1950 (**Table 4.9**). These five events are responsible for a reported total of $337,000 in property damage. No deaths or injuries have been reported as being caused by a tornado strike. Details of each event follow the table.

Table 4.9: Historical Tornado Strikes in Southampton County (1950 to 2005)

LOCATION	DATE OF EVENT	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Southampton County	06/26/1961	F0	0	0	$25,000	None Reported (NR)
Southampton County	11/28/1988	F2	0	0	$250,000	NR
Courtland	08/06/1993	F1	0	0	$50,000	NR
Drewryville	05/09/2003	F0	0	0	$10,000	NR
Courtland	06/25/2004	F1	0	0	$2,000	NR
TOTALS			**0**	**0**	**$337,000**	**NR**

Source: National Climatic Data Center

Southampton County: 06/26/1961

The damage path of this F0 tornado was one mile in length and 33 yards in width. The tornado struck at 12:49 p.m. and caused $25,000 in reported property damage.

Southampton County: 11/28/1988

The damage path of this F2 tornado was two miles in length and 200 yards in width. The tornado struck at 2:20 a.m. and caused $250,000 in reported property damage.

Courtland: 08/06/1993

The damage path of this F1 tornado was one mile in length and 75 yards in width. The tornado struck at 2:20 p.m. approximately four miles west of Courtland uprooting trees, damaging a barn and destroying a shed. The event caused $50,000 in reported property damage.

Drewryville: 05/09/2003
The damage path of this F0 tornado was two miles in length and 100 yards in width. The tornado struck at 3:55 p.m. and damaged trees, outbuildings and caused minor damage to a home. The event caused $10,000 in reported property damage.

Courtland: 06/25/2004
The damage path of this F1 tornado was less than one mile in length and 30 yards in width. The tornado struck at 1:30 p.m. downing numerous large trees in a swamp area. The event caused $2,000 in reported property damage.

Probability of Future Occurrences

According to the Virginia Department of Emergency Management, the Commonwealth of Virginia averages seven reported tornadoes per year. It is possible that Southampton County may experience weak to moderately intense tornadoes in the future with very strong tornadoes (F3, F4 or F5) being a more remote possibility.[3]

[3] Since 1950, only 25 of 376 reported tornadoes in Virginia were F3, F4 or F5 events. (VDEM)

Winter Storm

Background

A winter storm can range from a moderate snow over a period of a few hours to blizzard conditions with blinding wind-driven snow that lasts for several days. Some winter storms may be large enough to affect several states, while others may affect only a single community. Many winter storms are accompanied by low temperatures and heavy and/or blowing snow, which can severely impair visibility.

Power workers remove ice-covered branches from power cables after a severe winter storm.

(Photo credit: FEMA News Photo)

Winter storms may include snow, sleet, freezing rain or a mix of these wintry forms of precipitation. Sleet—raindrops that freeze into ice pellets before reaching the ground—usually bounce when hitting a surface and do not stick to objects; however, sleet can accumulate like snow and cause a hazard to motorists. Freezing rain is rain that falls onto a surface with a temperature below freezing, forming a glaze of ice. Even small accumulations of ice can cause a significant hazard, especially on power lines and trees. An ice storm occurs when freezing rain falls and freezes immediately upon impact. Communications and power can be disrupted for days, and even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

A freeze is weather marked by low temperatures, especially when below the freezing point (zero degrees Celsius or 32 degrees Fahrenheit). Agricultural production is seriously affected when temperatures remain below the freezing point.

Location and Spatial Extent

Winter storms typically impact a large area that cannot be confined to any geographic boundaries. Therefore, it is assumed that Southampton County would be uniformly exposed to this hazard and that the spatial extent of that impact would potentially be large.

Historical Occurrences

According to the National Climatic Data Center, 24 severe winter storm events have occurred in the county since 1993 (**Table 4.10**). These events are responsible for a reported total of $20,185,000 for a multiple-county forecast zone including Southampton County. Assuming a reasonable division of this damage across the total number of counties involved in each event, an estimate of $539,532 for Southampton County can be derived from this total. One death and six injuries in the area including and immediately surrounding Southampton County have been attributed to these winter storms.

Table 4.10: Severe Winter Storms in Southampton County (1993 to 2005)

LOCATION	DATE OF EVENT	TYPE OF EVENT	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Southampton County	12/28/1993	Winter Weather	0	0	None Reported (NR)	None Reported (NR)
Southampton County	01/06/1996	Winter Storm	0	0	$115,000	NR
Southampton County	02/02/1996	Winter Storm	0	0	NR	NR
Southampton County	02/03/1996	Winter Storm	0	0	NR	NR
Southampton County	02/16/1996	Winter Storm	0	0	NR	NR
Southampton County	03/07/1996	Winter Storm	0	0	NR	NR
Southampton County	12/23/1998	Ice Storm	0	0	$20,000,000	NR
Southampton County	01/19/2000	Winter Storm	0	0	NR	NR
Southampton County	01/25/2000	Winter Storm	1	0	$20,000	NR
Southampton County	12/03/2000	Winter Storm	0	6	$50,000	NR
Southampton County	02/22/2001	Winter Storm	0	0	NR	NR
Southampton County	01/02/2002	Winter Storm	0	0	NR	NR
Southampton County	12/04/2002	Winter Storm	0	0	NR	NR
Southampton County	01/06/2003	Winter Weather/Mix	0	0	NR	NR
Southampton County	01/16/2003	Winter Storm	0	0	NR	NR
Southampton County	01/23/2003	Winter Weather/Mix	0	0	NR	NR
Southampton County	01/09/2004	Winter Storm	0	0	NR	NR
Southampton County	01/25/2004	Winter Storm	0	0	NR	NR
Southampton County	02/15/2004	Winter Storm	0	0	NR	NR
Southampton County	12/19/2004	Winter Weather/Mix	0	0	NR	NR
Southampton County	12/26/2004	Winter Storm	0	0	NR	NR
Southampton County	01/19/2005	Winter Weather/Mix	0	0	NR	NR
Southampton County	01/20/2005	Winter Weather/Mix	0	0	NR	NR
Southampton County	02/03/2005	Winter Weather/Mix	0	0	NR	NR
TOTALS			**1**	**6**	**$20,185,000**	**NR**

Source: National Climatic Data Center

Probability of Future Occurrences

According to the National Climatic Data Center's Snow Climatology division, the probability of receiving measurable snowfall in Southampton County on an annual basis is 92 percent, with a 46 percent probability of occurrence in the month of December, 65 percent in January, 65 percent in February and 46 percent in March. Overall, winter storms will remain a likely occurrence for Southampton County. While severe winter storms will be more likely to produce small amounts of snow, sleet or freezing rain, larger storms, though less frequent in occurrence, could also impact the county causing greater damage.

Wildfire

Background

A wildfire is any fire occurring in a wildland area (i.e., grassland, forest, brush land) except for fire under prescription.[4] Wildfires are part of the natural management of the Earth's ecosystems, but may also be caused by natural or human factors. Over 80 percent of forest fires are started by negligent human behavior such as smoking in wooded areas or improperly extinguishing campfires. The second most common cause for wildfire is lightning.

Over the past century, America's population has nearly tripled, with much of the growth flowing into traditionally natural areas. This trend has created a complex landscape known as the wildland/urban interface. Encroaching development into forests, grasslands and farms has put lives, property and natural resources at greater risk from wildfire.

(Photo credit: Associated Press)

There are three classes of wildland fires: surface fire, ground fire and crown fire. A surface fire is the most common of these three classes and burns along the floor of a forest, moving slowly and killing or damaging trees. A ground fire (muck fire) is usually started by lightning or human carelessness and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. Wildland fires are usually signaled by dense smoke that fills the area for miles around.

State and local governments can impose fire safety regulations on home sites and developments to help curb wildfire. Land treatment measures such as fire access roads, water storage, helipads, safety zones, buffers, firebreaks, fuel breaks and fuel management can be designed as part of an overall fire defense system to aid in fire control. Fuel management, prescribed burning and cooperative land management planning can also be encouraged to reduce fire hazards.

Fire probability depends on local weather conditions, outdoor activities such as camping, debris burning, and construction, and the degree of public cooperation with fire prevention measures. Drought conditions and other natural hazards (such as tornadoes, hurricanes, etc.) increase the probability of wildfires by producing fuel in both urban and rural settings. Forest damage from hurricanes and tornadoes may also block interior access roads and fire breaks, pull down overhead power lines, or damage pavement and underground utilities.

Many individual homes and cabins, subdivisions, resorts, recreational areas, organizational camps, businesses and industries are located within high wildfire hazard areas. The increasing demand for outdoor recreation places more people in wildlands during holidays, weekends and vacation periods. Unfortunately, wildland residents and visitors are rarely educated or prepared for the inferno that can sweep through the brush and timber and destroy property within minutes.

Location and Spatial Extent

In July 2003, the Virginia Department of Forestry released a GIS-based wildfire risk assessment for the Commonwealth of Virginia. While this assessment is not recommended for site-specific determinations of wildfire vulnerability, the data was utilized in this Plan as an indicator of potential areas of wildland/urban interface concern within Southampton County, as shown in **Figure 4.12** through **Figure 4.18**. Potential wildfire risk areas are presented in three categories indicating the relative level of threat to the area: High, Moderate and Low. In addition to these three hazard levels, Figure 4.12 also shows the location of eight

[4] Prescription burning, or "controlled burn," undertaken by land management agencies is the process of igniting fires under selected conditions, in accordance with strict parameters.

woodland home communities as defined and identified by the Virginia Department of Forestry.[5] These eight communities are comprised of over 300 homes.

Historical Occurrences

Based on information pertaining to those fires in Southampton County that the Virginia Department of Forestry (VDOF) was requested to respond to (including dozer and/or fireplow support, investigation or law enforcement activities), 116 fires were reported from January 1991 to December 2004 totaling 419 acres burned (412 acres of which were woodland). This data was compiled from completed VDOF fire reports, and does not reflect every brush and woods fire occurrence in Southampton County for this time period. While it is understood that many more fires are likely to have occurred during this timeframe that local fire departments responded to and were able to contain quickly and efficiently, those 116 events that required state-level assistance from VDOF for additional support will for the purposes of this Plan meet the definition of a "major" or "significant" event.

Reported damages from these 116 events total $199,209, including $3,000 for a single building, most likely a shed. The largest fire was 90 acres in size occurring in June 1991. A total of nine fires were larger than 10 acres in size (eight were less than 40 acres). In 1991, 12 fires accounted for the burning of 147 acres. The next highest was 1999 with six fires accounting for 93 acres burned. The most common reported general cause of these events was debris burning (accounting for 43 fires). Figure 4.12 shows the locations of 64 historic wildfire occurrences within the county.

Probability of Future Occurrences

Wildfire events remain a possible occurrence within Southampton County, though most will likely tend to occur in less urban areas of the county, affecting relatively small percentages of the built environment, and will likely be small in size before being contained and suppressed.

[5] The Virginia Department of Forestry defines woodland home communities as clusters of homes located along forested areas at the wildland/urban interface that could possibly be damaged during a nearby wildfire incident.

Drought

Background

Drought is a natural climatic condition caused by an extended period of limited rainfall beyond that which occurs naturally in a broad geographic area. High temperatures, high winds and low humidity can worsen drought conditions, and can make areas more susceptible to wildfire. Human demands and actions can also hasten drought-related impacts.

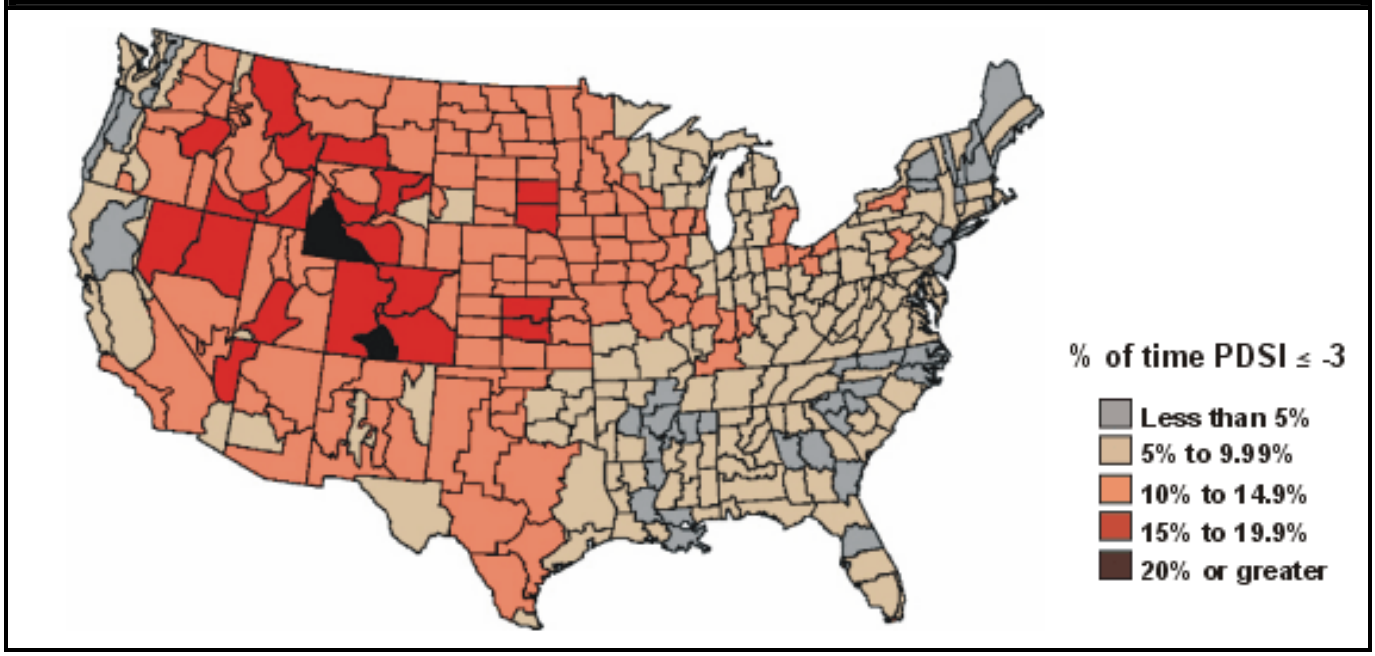
A USGS streamflow gaging station illustrates the drought conditions that can severely affect water supplies, agriculture, stream water quality, recreation, navigation and forest resources.

(Photo credit: United States Geological Survey)

Droughts are frequently classified as one of following four types: meteorological, agricultural, hydrological or socio-economic. *Meteorological* droughts are typically defined by the level of "dryness" when compared to an average, or normal amount of precipitation over a given period of time. *Agricultural* droughts relate common characteristics of drought to their specific agricultural-related impacts. *Hydrological* drought is directly related to the effect of precipitation shortfalls on surface and groundwater supplies. Human factors, particularly changes in land use, can alter the hydrologic characteristics of a basin. *Socio-economic* drought is the result of water shortages that limit the ability to supply water-dependent products in the marketplace.

Figure 4.19 shows the Palmer Drought Severity Index (PDSI) summary map for the United States from 1895 to 1995. PDSI drought classifications are based on observed drought conditions and range from -0.5 (incipient dry spell) to -4.0 (extreme drought). As can be seen, the Eastern United States has historically not seen as many significant long-term droughts as the Central and Western regions of the country.

Figure 4.19: Palmer Drought Severity Index Summary Map for the United States



Source: National Drought Mitigation Center

Location and Spatial Extent

Drought typically impacts a large area that cannot be confined to any geographic boundaries; however, some regions of the United States are more susceptible to drought conditions than others. According to the Palmer Drought Severity Index (PDSI) Summary Map for the United States, the Commonwealth of Virginia as a whole is in a zone of 5 percent to 9.99 percent PDSI less than or equal to -3 (-3 indicating severe drought conditions) meaning that drought conditions are a relatively low to moderate risk for Southampton County. Furthermore, it is assumed that Southampton County would be uniformly exposed to this hazard and that the spatial extent of that impact would potentially be large. It is important to note however, that drought conditions typically do not cause significant damage to the built environment.

Historical Occurrences

October 31, 1993: Drought

According to the National Climatic Data Center (NCDC), one drought event has impacted Southampton County since 1950, causing no reported property or crop damage, no deaths and no injuries in a forecast zone covering 12 counties and five independent cities including Southampton County.

Unusually dry weather during the summer and early fall lead to many communities in the southeast part of the state, including Southampton County, to place water conservation measures into effect during the month of October.

Recent Drought Events, 2002–2005

In addition to this official drought record, periods of drought-like conditions are also known to have impacted the area in 2002, 2003 and 2005. Water restrictions have been put into place as far back as three years and shallow wells are known to have lost water in and around Southampton County.

According to State of Virginia records, a declaration of a State of Emergency Due to Extreme Drought Conditions was executed by the Governor of Virginia on August 30, 2005. The Executive Order was to be effective from August 30, 2002 through June 30, 2003. More recently, in 2005, the Governor of Virginia began the process to seek a federal drought disaster designation for Southampton County due to reductions in agricultural production caused by drought-like conditions.

Probability of Future Occurrences

Based on current and seasonal outlook drought maps available through the National Weather Service's Climate Prediction Center and the National Drought Mitigation Center[6], there is no concern for imminent or forecasted drought occurrences. However, based on the County's past drought event, it remains possible over the long-term that Southampton County may experience recurring drought conditions when precipitation falls below normal for extended periods of time.

[6] Current and seasonal drought outlook maps are made available by the National Drought Mitigation Center at www.drought.unl.edu/dm/index.html.

Erosion

Background

Erosion is the gradual breakdown and movement of land due to both physical and chemical processes of water, wind and general meteorological conditions. Natural, or geologic, erosion has occurred since the Earth's formation and continues at a very slow and uniform rate each year.

Coastal erosion in North Carolina necessitated the relocation of this lighthouse.

(Photo credit: North Carolina Division of Emergency Management)

There are two types of soil erosion: water erosion and wind erosion. Water erosion that takes place over land may result from raindrops, shallow sheets of water flowing off the land or shallow surface flow, which is concentrated in low spots. Stream channel erosion may occur as the volume and velocity of water flow increases enough to cause movement of the streambed and bank soils. Water erosion can occur over land or in streams and channels. Wind erosion can cause significant soil loss. Winds blowing across sparsely vegetated or disturbed land can pick up soil particles and carry them through the air, thus displacing them. Major storms such as hurricanes may cause significant erosion by combining heavy surf and storm surge with high winds to significantly impact the shoreline.

An area's potential for erosion is determined by four factors: soil characteristics, vegetative cover, topography climate or rainfall, and topography. Soils composed of a large percentage of silt and fine sand are most susceptible to erosion. As the content of these soils increases in the level of clay and organic material, the potential for erosion decreases. Well-drained and well-graded gravels and gravel/sand mixtures are the least likely to erode. Coarse gravel soils are highly permeable and have a good capacity for absorption, which can prevent or delay the amount of surface runoff. Vegetative cover can be very helpful in controlling erosion by shielding the soil surface from falling rain, absorbing water from the soil, and slowing the velocity of runoff. Runoff is also affected by the topography of the area including size, shape and slope. The greater the slope length and gradient, the more potential an area has for erosion. Climate can affect the amount of runoff, especially the frequency, intensity and duration of rainfall and storms. When rainstorms are frequent, intense, or of long duration, erosion risks are high. Seasonal changes in temperature and rainfall amounts define the period of highest erosion risk of the year.

During the past 20 years, the importance of erosion control has gained the increased attention of the public. Implementation of erosion control measures consistent with sound agricultural and construction operations is needed to minimize the adverse effects associated with increasing settling out of the soil particles due to water or wind. The increase in government regulatory programs and public concern has resulted in a wide range of erosion control products, techniques, and analytical methodologies in the United States. The preferred method of erosion control in recent years has been the restoration of vegetation.

Location and Spatial Extent

There are no widespread riverine erosion hazard areas currently identified within Southampton County. Any riverine erosion concerns would likely be localized in nature and would need to be addressed on a site-specific basis in a future Plan update.

Historical Occurrences

Due to its geographical location, there is no historical evidence of coastal erosion events in Southampton County and the county has not been mapped to show erosion risk. Erosion could take place along riverbank slopes in the area, especially during hurricanes or large rain events, however no specific areas of concern have been identified by the Mitigation Advisory Committee.

Probability of Future Occurrences

Given the nature and proximity of the major rivers within Southampton County, riverine erosion within the county is possible; however with no erosion hazard mapping or historical records currently available, it is difficult to estimate the probability of future occurrences.

Earthquake

Background

An earthquake is the motion or trembling of the ground produced by sudden displacement of rock in the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides or the collapse of caverns. Earthquakes can affect hundreds of thousands of square miles; cause damage to property measured in the tens of billions of dollars; result in loss of life and injury to hundreds of thousands of persons; and disrupt the social and economic functioning of the affected area.

Many roads, including bridges and elevated highways, were damaged by the 6.7 magnitude Northridge Earthquake in California January 17, 1994.

(Photo credit: FEMA News Photo)

Most property damage and earthquake-related deaths are caused by the failure and collapse of structures due to ground shaking. The level of damage depends upon the amplitude and duration of the shaking, which are directly related to the earthquake size, distance from the fault, site and regional geology. Other damaging earthquake effects include landslides, the down-slope movement of soil and rock (mountain regions and along hillsides), and liquefaction, in which ground soil loses the ability to resist shear and flows much like quick sand. In the case of liquefaction, anything relying on the substrata for support can shift, tilt, rupture, or collapse.

Most earthquakes are caused by the release of stresses accumulated as a result of the rupture of rocks along opposing fault planes in the Earth's outer crust. These fault planes are typically found along borders of the Earth's 10 tectonic plates. These plate borders generally follow the outlines of the continents, with the North American plate following the continental border with the Pacific Ocean in the west, but following the mid-Atlantic trench in the east. As earthquakes occurring in the mid-Atlantic trench usually pose little danger to humans, the greatest earthquake threat in North America is along the Pacific Coast.

The areas of greatest tectonic instability occur at the perimeters of the slowly moving plates, as these locations are subjected to the greatest strains from plates traveling in opposite directions and at different speeds. Deformation along plate boundaries causes strain in the rock and the consequent buildup of stored energy. When the built-up stress exceeds the rocks' strength, a rupture occurs. The rock on both sides of the fracture is snapped, releasing the stored energy and producing seismic waves, generating an earthquake.

Earthquakes are measured in terms of their magnitude and intensity. Magnitude is measured using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake through a measure of shock wave amplitude (**Table 4.11**). Each unit increase in magnitude on the Richter Scale corresponds to a 10-fold increase in wave amplitude, or a 32-fold increase in energy. Intensity is most commonly measured using the Modified Mercalli Intensity (MMI) Scale based on direct and indirect measurements of seismic effects. The scale levels are typically described using roman numerals, with a I corresponding to imperceptible (instrumental) events, IV corresponding to moderate (felt by people awake), to XII for catastrophic (total destruction). A detailed description of the Modified Mercalli Intensity Scale of earthquake intensity and its correspondence to the Richter Scale is given in **Table 4.12**.

Table 4.11: Richter Scale

RICHTER MAGNITUDES	EARTHQUAKE EFFECTS
Less than 3.5	Generally not felt, but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across where people live.
7.0-7.9	Major earthquake. Can cause serious damage over larger areas.
8 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Source: Federal Emergency Management Agency

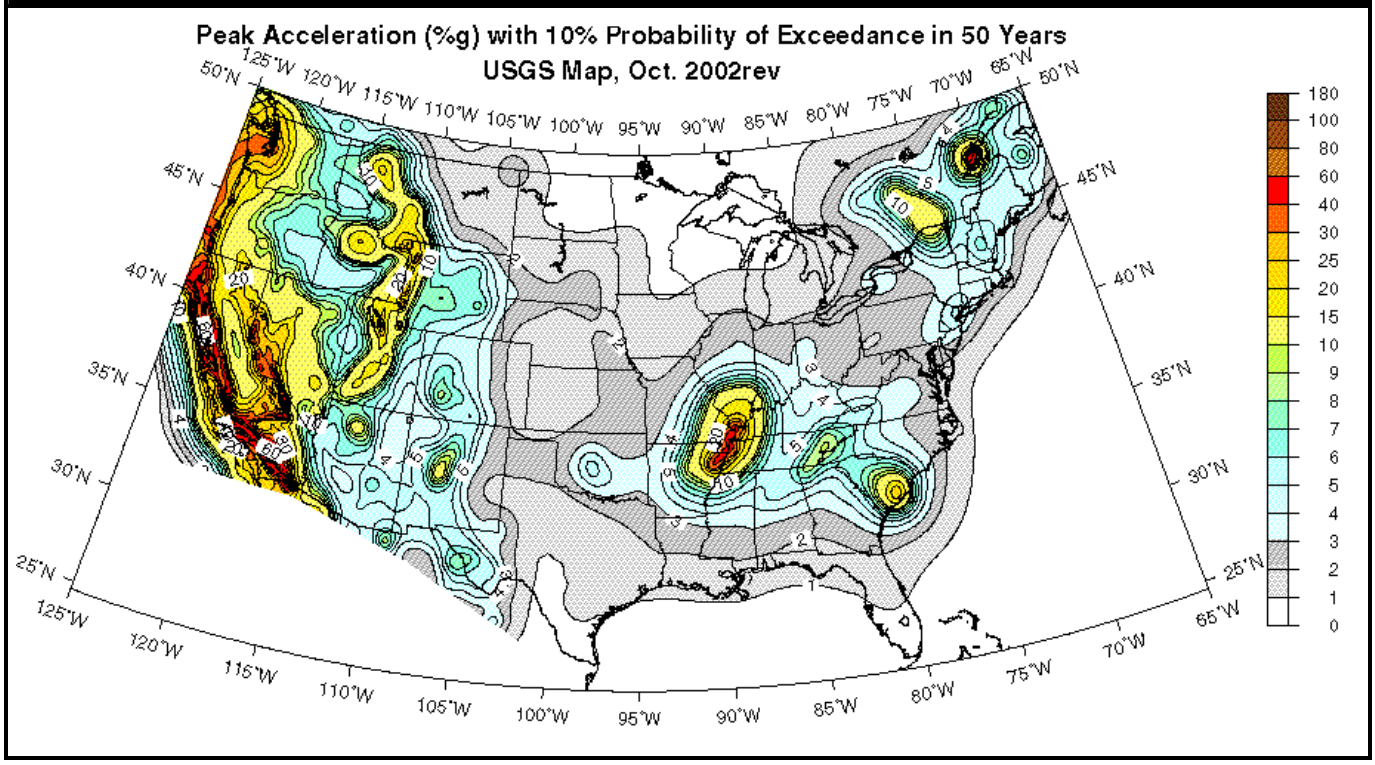
Table 4.12: Modified Mercalli Intensity Scale for Earthquakes

SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER SCALE MAGNITUDE
I	INSTRUMENTAL	Detected only on seismographs.	
II	FEEBLE	Some people feel it.	<4.2
III	SLIGHT	Felt by people resting; like a truck rumbling by.	
IV	MODERATE	Felt by people walking.	
V	SLIGHTLY STRONG	Sleepers awake; church bells ring.	<4.8
VI	STRONG	Trees sway; suspended objects swing, objects fall off shelves.	<5.4
VII	VERY STRONG	Mild Alarm; walls crack; plaster falls.	<6.1
VIII	DESTRUCTIVE	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged.	
IX	RUINOUS	Some houses collapse; ground cracks; pipes break open.	<6.9
X	DISASTROUS	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread.	<7.3
XI	VERY DISASTROUS	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards.	<8.1
XII	CATASTROPHIC	Total destruction; trees fall; ground rises and falls in waves.	>8.1

Source: Federal Emergency Management Agency

Figure 4.20 shows the probability that ground motion will reach a certain level during an earthquake. The data shows peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards.

Figure 4.20: Peak Acceleration with 10 Percent Probability of Exceedance in 50 Years



Source: United States Geological Survey

Location and Spatial Extent

Southampton County and surrounding counties are located in a zone of 2 percent peak ground acceleration according to the United States Geological Survey (**Figure 4.21**). This indicates that Southampton County is uniformly at relatively low risk of seismic activity.

Historical Occurrences

According to the National Geophysical Data Center, there are no reports of seismic activity for Southampton County based on data for over 22,000 U.S. earthquakes from 1638 to 1985.

Probability of Future Occurrences

According to the Virginia Department of Emergency Management, the Commonwealth of Virginia averages two felt earthquakes each year; however, based on all available data, including information from the United States Geological Survey and the National Geophysical Data Center, Southampton County rests outside the more seismically active areas of the state and therefore the probability of future occurrences is much lower.

Sinkhole

Background

Sinkholes are a natural and common geologic feature in areas with underlying limestone and other rock types that are soluble in natural water. Most limestone is porous, allowing the acidic water of rain to percolate through their strata, dissolving some limestone and carrying it away in solution. Over time, this persistent erosional process can create extensive underground voids and drainage systems in much of the carbonate rocks. Collapse of overlying sediments into the underground cavities produces sinkholes.

The flooding caused by Hurricane Floyd led to the formation of sinkholes in the county that resulted in some traffic-related accidents.

(Photo credit: Southampton County)

The three general types of sinkholes are: subsidence, solution and collapse. Subsidence sinkholes form gradually where the overburden is thin and only a veneer of sediments is overlying the limestone. Solution sinkholes form where no overburden is present and the limestone is exposed at land surface. Collapse sinkholes are most common in areas where the overburden (the sediments and water contained in the unsaturated zone, surficial aquifer system and the confining layer above an aquifer) is thick, but the confining layer is breached or absent. Collapse sinkholes can form with little warning and leave behind a deep, steep sided hole.

Sinkholes occur in many shapes, from steep-walled holes to bowl or cone shaped depressions. Sinkholes are dramatic because the land generally stays intact for a while until the underground spaces get too big. If there is not enough support for the land above the spaces, then a sudden collapse of the land surface can occur. Under natural conditions, sinkholes form slowly and expand gradually. However, human activities such as dredging, constructing reservoirs, diverting surface water and pumping groundwater can accelerate the rate of sinkhole expansions, resulting in the abrupt formation of collapse sinkholes.

Although a sinkhole can form without warning, specific signs can signal potential development:

- Slumping or falling fenceposts, trees or foundations;
- Sudden formation of small ponds;
- Wilting vegetation;
- Discolored well water; and/or
- Structural cracks in walls, floors.

Sinkhole formation is aggravated and accelerated by urbanization. Development increases water usage, alters drainage pathways, overloads the ground surface and redistributes soil. According to FEMA, the number of human-induced sinkholes has doubled since 1930 and insurance claims for damages as a result of sinkholes has increased 1,200 percent from 1987 to 1991, costing nearly $100 million.

According to the Virginia Division of Mineral Resources, sinkhole formation in the eastern part of the state which includes Southampton County is generally related to the dissolution of shell concentrations in sand or soil piping.

Location and Spatial Extent

In general, sinkholes are typically relatively small, localized occurrences that cannot be mapped to any specific geographic boundaries within Southampton County or its individual communities.

Historical Occurrences

In terms of possibly significant statewide sinkhole activity, in November 1992 a collapse sinkhole developed in northern Clarke County in northern Virginia that caused extensive property damage and completely engulfed a home in less than two months. In Southampton County specifically, a series of small sinkholes formed in locations within the county as a result of the flooding caused by Hurricane Floyd. These occurrences resulted in some traffic-related accidents.

Probability of Future Occurrences

Sinkholes remain a possible occurrence within Southampton County.

Landslide

Background

A landslide is the downward and outward movement of slope-forming soil, rock and vegetation, which is driven by gravity. Landslides may be triggered by both natural and human-caused changes in the environment, including heavy rain, rapid snow melt, steepening of slopes due to construction or erosion, earthquakes, volcanic eruptions and changes in groundwater levels.

Landslides can damage or destroy roads, railroads, pipelines, electrical and telephone lines, mines, oil wells, buildings, canals, sewers, bridges, dams, seaports, airports, forests, parks, and farms.

(Photo credit: Lynn Forman)

There are several types of landslides: rock falls, rock topple, slides and flows. Rock falls are rapid movements of bedrock, which result in bouncing or rolling. A topple is a section or block of rock that rotates or tilts before falling to the slope below. Slides are movements of soil or rock along a distinct surface of rupture, which separates the slide material from the more stable underlying material. Mudflows, sometimes referred to as mudslides, mudflows, lahars or debris avalanches, are fast-moving rivers of rock, earth and other debris saturated with water. They develop when water rapidly accumulates in the ground, such as heavy rainfall or rapid snowmelt, changing the soil into a flowing river of mud or "slurry." Slurry can flow rapidly down slopes or through channels, and can strike with little or no warning at avalanche speeds. Slurry can travel several miles from its source, growing in size as it picks up trees, cars and other materials along the way. As the flows reach flatter ground, the mudflow spreads over a broad area where it can accumulate in thick deposits.

Landslides are typically associated with periods of heavy rainfall or rapid snow melt and tend to worsen the effects of flooding that often accompanies these events. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides. Some landslides move slowly and cause damage gradually, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly.

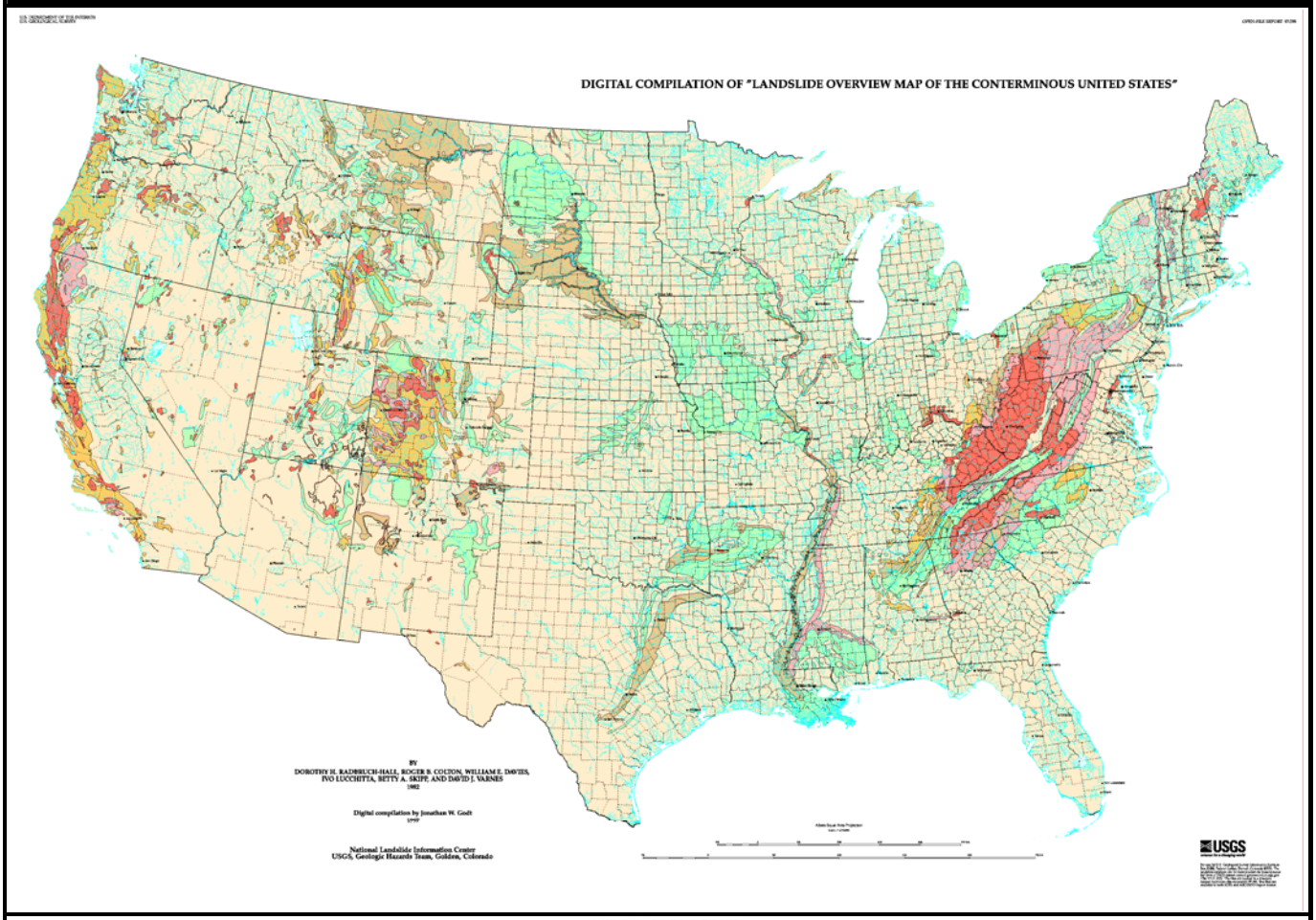
Among the most destructive types of debris flows are those that accompany volcanic eruptions. A spectacular example in the United States was a massive debris flow resulting from the 1980 eruptions of Mount St. Helens, Washington. Areas near the bases of many volcanoes in the Cascade Mountain Range of California, Oregon and Washington are at risk from the same types of flows during future volcanic eruptions.

Areas that are generally prone to landslide hazards include previous landslide areas; the bases of steep slopes; the bases of drainage channels; and developed hillsides where leach-field septic systems are used. Areas that are typically considered safe from landslides include areas that have not moved in the past; relatively flat-lying areas away from sudden changes in slope; and areas at the top or along ridges, set back from the tops of slopes.

In the United States, it is estimated that landslides cause up to $2 billion in damages and from 25 to 50 deaths annually. Globally, landslides cause billions of dollars in damage and thousands of deaths and injuries each year.

Figure 4.22 delineates areas where large numbers of landslides have occurred and areas which are susceptible to landsliding in the conterminous United States. This map layer is provided in the U.S. Geological Survey Professional Paper 1183, Landslide Overview Map of the Conterminous United States, available online at: http://landslides.usgs.gov/html_files/landslides/nationalmap/national.html.

Figure 4.22: Landslide Overview Map of the Conterminous United States



EXPLANATION

LANDSLIDE INCIDENCE

- Low (less than 1.5% of area involved)
- Moderate (1.5%-15% of area involved)
- High (greater than 15% of area involved)

LANDSLIDE SUSCEPTIBILITY/INCIDENCE

- Moderate susceptibility/low incidence
- High susceptibility/low incidence
- High susceptibility/moderate incidence

Susceptibility not indicated where same or lower than incidence. Susceptibility to landsliding was defined as the probable degree of response of [the areal] rocks and soils to natural or artificial cutting or loading of slopes, or to anomalously high precipitation. High, moderate, and low susceptibility are delimited by the same percentages used in classifying the incidence of landsliding. Some generalization was necessary at this scale, and several small areas of high incidence and susceptibility were slightly exaggerated.

Source: United States Geological Survey

Location and Spatial Extent

Southampton County is located in a zone of low landslide incidence according to the United States Geological Survey (**Figure 4.23**). This indicates that the geographic area of the county is uniformly at relatively low risk of landslide activity, and any landslide event that should occur would affect no more than 1.5 percent of the planning area.

Historical Occurrences

No historical records or databases of landslide concerns currently exist for Southampton County. Additional research may be conducted for a future Plan update to identify highly localized areas of concern.

Probability of Future Occurrences

Based on the available data from the United States Geological Survey which states that Southampton County is located in a zone of low landslide incidence, the county is far less likely to experience any significant landslide activity as compared with other areas of the state. Therefore the probability of future occurrences is considered to be unlikely.

Extreme Temperature

Background

Extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and that last for an extended period of time. Humid conditions may also add to the discomfort of high temperatures. Health risks from extreme heat include heat cramps, heat fainting, heat exhaustion and heat stroke. According to the National Weather Service, heat is the leading weather-related killer in the United States and has killed more people than lightning, tornadoes, floods and hurricanes combined in the last 10 years. However, most deaths are attributed to prolonged heat waves in large cities that rarely experience hot weather. The elderly and the ill are most at-risk, along with those who exercise outdoors in hot, humid weather.

Conditions that can induce heat-related illnesses include stagnant atmospheric conditions and poor air quality. Consequently, people living in urban areas may be at greater risk from the effects of a prolonged heat wave than those living in rural areas. Also, asphalt and concrete store heat longer and gradually release heat at night, which can produce higher nighttime temperatures known as the "urban heat island effect."

(Photo credit: Environmental Protection Agency)

Location and Spatial Extent

Extreme temperatures typically impact a large area that cannot be confined to any geographic boundaries. Therefore, it is assumed that Southampton County would be uniformly exposed to this hazard and that the spatial extent of that impact would potentially be large. It is important to note however, that extreme temperatures typically do not cause significant damage to the built environment.

Historical Occurrences

According to the National Climatic Data Center (NCDC), one extreme heat event has impacted Southampton County since 1950, causing no reported property or crop damage, no deaths and no injuries in a forecast zone covering 37 counties including Southampton.

Probability of Future Occurrences

Southampton County may experience other rare periods of extreme temperatures, but not nearly as severe as in other regions of the country.

Hazardous Material Incident

Background

Hazardous material (HAZMAT) incidents can apply to fixed facilities as well as mobile, transportation-related accidents in the air, by rail, on the Nation's highways and on the water. Approximately 6,774 HAZMAT events occur each year, 5,517 of which are highway incidents, 991 are railroad incidents and 266 are due to other causes (FEMA, 1997). In essence, HAZMAT incidents consist of solid, liquid and/or gaseous contaminants that are released from fixed or mobile containers, whether by accident or by design as with an intentional terrorist attack. A HAZMAT incident can last hours to days, while some chemicals can be corrosive or otherwise damaging over longer periods of time. In addition to the primary release, explosions and/or fires can result from a release, and contaminants can be extended beyond the initial area by persons, vehicles, water, wind and possibly wildlife as well.

HAZMAT incidents can also occur as a result of or in tandem with natural hazard events, such as floods, hurricanes, tornadoes and earthquakes, which in addition to causing incidents can also hinder response efforts. In the case of Hurricane Floyd in September 1999, communities along the Eastern United States were faced with flooded junkyards, disturbed cemeteries, deceased livestock, floating propane tanks, uncontrolled fertilizer spills and a variety of other environmental pollutants that caused widespread toxological concern.

Hazardous material incidents can include the spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment of a hazardous material, but exclude: (1) any release which results in exposure to poisons solely within the workplace with respect to claims which such persons may assert against the employer of such persons; (2) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel or pipeline pumping station engine; (3) release of source, byproduct, or special nuclear material from a nuclear incident; and (4) the normal application of fertilizer.

Chemical Threats

Chemical agents are compounds with unique chemical properties that can produce lethal or damaging effects in humans, animals and plants. Chemical agents can exist as solids, liquids or gases depending on temperature and pressure. Most chemical agents are liquid and can be introduced into an unprotected population relatively easily using aerosol generators, explosive devices, breaking containers or other forms of covert dissemination. Dispersed as an aerosol, chemical agents have their greatest potential for inflicting mass casualties.

There are two categories of chemical agents: lethal and incapacitating. The lethal chemicals are subdivided into industrial and warfare.

Chemical agents can have an immediate effect (a few seconds to a few minutes) or a delayed effect (several hours to several days). While potentially lethal, chemical agents are difficult to deliver in lethal concentrations. Outdoors, the agents often dissipate rapidly. Chemical agents are also difficult to produce.

At approximately 2:40 a.m. on January 6, 2005 in Graniteville, South Carolina, a freight train with three chlorine tanker cars and one sodium hydroxide tanker car collided with a train parked on an industrial rail spur. The collision caused a breach in one chlorine car, which resulted in the immediate release of an estimated 11,500 gallons of chlorine gas. As a result, nine persons died, and at least 529 persons sought medical care. Because exposure to high levels of chlorine can result in corrosive damage to the eyes, skin and respiratory tissues and lead to pulmonary edema and, in extreme cases, death, local emergency management officials initially issued a shelter-in-place order for a 1-mile radius around the site. At noon, South Carolina declared a state of emergency, giving local authorities responsibility for issuing a mandatory evacuation for the 5,453 residents within the 1-mile radius. Area schools and businesses were closed. Four days later, an operation to patch the leaking chlorine tank car succeeded by applying a temporary repair.

(Photo credit: Environmental Protection Agency)

There are six types of chemical agents:

- lung-damaging (pulmonary) agents such as phosgene;
- cyanide;
- vesicants or blister agents such as mustard;
- nerve agents such as GA (tabun), GB (sarin), GD (soman), GF, and VX;
- incapacitating agents such as BZ; and
- riot-control agents (similar to MACE).

Shippers are relying more heavily on other types of transportation to move hazardous materials. The Department of Transportation reported that the use of trucks and water carriers had climbed sharply between 1997 and 2002. The volume of hazardous materials shipped by trucks increased 21 percent to 1.16 billion tons by 2002, while the amount carried by rail rose 7 percent to 109 million tons. During that period, the volume of hazardous material moving by water climbed 36 percent to 228 million tons, according to the department's Bureau of Transportation Statistics.

Location and Spatial Extent

Figure 4.24 shows linear distance from the railroad at 0.10-mile, 0.25-mile, 0.50-mile and 1-mile increments, as well as radial distance from fixed HAZMAT sites as identified by the Federal Emergency Management Agency at 1-mile increments.

Historical Occurrences

Of accident reports that railroads have filed with the Federal Railroad Administration during the past decade the indication is that the number of accidents in Hampton Roads involving hazardous materials has been negligible. Of the 70 accidents that have occurred in the Hampton Roads region since 1995, two included rail cars carrying hazardous materials. Both incidents occurred in Southampton County. Only one, in 2003, involved damage to cars carrying hazardous material.

Probability of Future Occurrences

Future occurrences of HAZMAT incidents, accidents or issues within Southampton County are considered to be likely (between 10 and 100 percent annual probability).

Urban Fire

Background

The urban fire hazard is characterized by fire that impacts urbanized areas with large populations with higher densities of people and buildings than in rural areas. According to urban fire research conducted by TriData Corporation in 1999 for the Federal Emergency Management Agency, the most common type of urban fire reported in the study case year were fires that occurred outdoors (approximately 42 percent). Just under one-third of reported fires were structural or vehicular fires. The leading cause of outdoor fires, according to this report, is arson or incendiary origin. The vast majority of deaths, related injuries and property damage is associated with structural urban fires, with the leading cause of the fire being cooking. Other primary causes of structural urban fires are arson and incendiary origin, heating, and electrical distribution.

Firefighters at an urban-wildfire event work to protect homes, an increasing concern as people develop more in and near forested land.

(Photo credit: National Oceanic and Atmospheric Administration)

Arson/Incendiary Device

Arson refers to the initiation of fire, which can be of an explosive nature, on or near a target. Incendiary devices are either mechanical, electrical or chemical methods used to intentionally initiate combustion and start fires with the purpose of setting fire to other materials or structures. These devices may be used singularly or in combination. Incendiary devices used as “firebombs” can range from the simple Molotov cocktail (bottle, gasoline, rag, match), to much larger and sophisticated bombs. They may include napalm or any large container filled with flammable fluids and ignited by some sort of fuse. Incendiary attacks can last for minutes or hours, and possibly longer depending on the type and quantity of device or accelerant used and the materials (fuels) present at the threatened location. This type of incident can also result in cascading failures of structures or systems.

Explosion

An explosion is the sudden loud release of energy and a rapidly expanding volume of gas that occurs when a gas explodes or a bomb detonates. Explosions result from the ignition of volatile products such as petroleum products, natural and other flammable gases, hazardous materials or chemicals, dust and bombs. While an explosion in itself may cause death, injury and property damage, a fire routinely follows which may cause further damage and inhibit emergency response.

Location and Spatial Extent

As stated in the preceding background information, the urban fire hazard manifests itself in those more densely developed and populated areas of a community. In Southampton County, this type of occurrence may be most expected in the residential areas of the incorporated towns and villages (refer to demographic and residential exposure subsections of Section 5: *Vulnerability Assessment*.)

Historical Occurrences

There are currently no historical records on past urban fire events in Southampton County available.

Probability of Future Occurrences

The probability of future occurrences of the urban fire hazard is considered to possible, meaning that there is an estimated 1 to 10 percent annual probability that an urban fire will occur.

Terrorism

Background

Information in this subsection borrows heavily from the FEMA State and Local Mitigation Planning How-to Guide: Integrating Manmade Hazards*. For the sake of brevity and consistency with other subsections of this risk assessment, each individual element of terrorism is introduced in relatively abbreviated format. For additional information, refer to* Jane's Chem-Bio Handbook *and FEMA's* Radiological Emergency Management *Independent Study Course.*

Debris removal from Ground Zero to the Staten Island landfill was a 24 hour-a-day operation.

(Photo credit: Andrea Booher/ FEMA News Photo)

Armed Attack

This element of terrorism refers primarily to tactical assault or sniping from a remote location.

Arson/Incendiary Attack

Arson/incendiary attack refers to the initiation of fire or explosion on or near a target either by direct contact or remotely via projectile.

Agriterrorism

Agriterrorism is the direct, typically covert contamination of food supplies or the introduction of pests and/or disease agents to crops and livestock.

Biological Agent

Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point or line sources such as munitions, covert deposits and moving sprayers.

Chemical Agent

Liquid/aerosol contaminants can be dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles or containers; or munitions.

Conventional Bomb/Improvised Explosive Device

This refers to the intentional detonation of an explosive device on or near a target with the mode of delivery being via person, vehicle or projectile.

Cyber-terrorism

Cyber-terrorism refers to electronic attack using one computer system against another.

Intentional Hazardous Material Release

Solid, liquid and/or gaseous contaminants may be intentionally released from either fixed or mobile containers.

Nuclear Bomb

A nuclear device may be detonated underground, at the surface, in the air or at high altitude.

Radiological Agent

Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point or line sources such as munitions, covert deposits and moving sprayers.

Location and Spatial Extent

Armed Attack
This will vary based upon the perpetrators' intent and capabilities.

Arson/Incendiary Attack
The extent of damage is determined by the type and quantity of the device or accelerant used and the materials present at or near the target. Cascading consequences may also occur, such as incremental structural failure, etc.

Agriterrorism
Generally there are no direct effects on the built environment. Food contamination may be limited to discrete distribution sites. Pests and diseases may be spread widely.

Biological Agent
Depending on the agent used and the effectiveness with which it is deployed, contamination can be spread via wind and water. In the case of infection, infection can be spread via both human and animal vectors.

Chemical Agent
Chemicals may be corrosive or otherwise damaging over time if not remediated. Contamination can be carried outside of the initial target area by persons, vehicles, water and wind.

Conventional Bomb/Improvised Explosive Device
The extent of damage is determined by the type and quantity of explosive. Effects are generally static with other cascading consequences, such as incremental structural failure, etc.

Cyber-terrorism
Generally there are no direct effects on the built environment.

Intentional Hazardous Material Release
Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. Contamination can be carried outside of the initial target area by persons, vehicles, water and wind.

Nuclear Bomb
Initial light, heat and blast effects of a subsurface, ground or air burst are static and are determined by the device's characteristics and employment. Fallout or radioactive contaminants may be dynamic, depending upon meteorological conditions.

Radiological Agent
Initial effects will be localized to the site of attack. Depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic.

The Homeland Security Advisory System is designed to provide a comprehensive and effective means of disseminating information regarding the risk of terrorist acts to federal, state and local authorities and to the American people.

(Photo credit: Department of Homeland Security)

Historical Occurrences
There are no known occurrences of terrorist attack within Southampton County.

Probability of Future Occurrences
Refer to Current Threat Level and related information on the Homeland Security public Web site at: http://www.whitehouse.gov/homeland/.

Biological Threat

Background

A biological hazard may be caused by the presence of any micro-organism, virus, infectious substance or biological product that may be engineered as a result of biotechnology or any naturally occurring microorganism, virus, infectious substance or biological product capable of causing death, disease or other biological malfunction. Biological agents pose a serious threat because of their accessible nature and the rapid manner in which they spread. These agents are disseminated by the use of aerosols, contaminated food or water supplies, direct skin contact, or injection. Several biological agents can be adapted for use as weapons by terrorists. Such agents include anthrax (sometimes found in sheep and cattle), tularemia (rabbit fever), cholera, the plague (sometimes found in prairie dog colonies), and botulism (found in improperly canned food). A biological incident will most likely be first recognized in the hospital emergency room, medical examiners office or within the public health community long after the initial release of the agent. The consequences of such an release, as in the case of a terrorist attack, would present a community with an unprecedented requirement to provide mass protective treatment to exposed populations, mass patient care, mass fatality management, and environmental health clean-up procedures and plans. The three basic groups of biological agents that would likely be used as a weapon are:

- Bacteria—small free-living organisms that reproduce by simple division and that are easy to grow. The diseases they produce often respond to treatment with antibiotics.
- Viruses—organisms that require living cells in which to reproduce and are intimately dependent upon the body they infect. Viruses produce diseases that generally do not respond to antibiotics. However, antiviral drugs are sometimes effective.
- Toxins—poisonous substances found in, and extracted from, living plants, animals or microorganisms. Some toxins can be produced or altered by chemical means. Some toxins can be treated with specific antitoxins and selected drugs.

The biological hazard warning is used to signify the actual or potential presence of a biohazard and to identify equipment, containers, rooms, materials, experimental animals or combinations thereof, which contain, or are contaminated with, viable hazardous agents.

(Photo credit: Occupational Safety and Health Administration)

Location and Spatial Extent

Depending on the agent used and the effectiveness with which it is deployed, contamination from a biological agent can be spread via wind and water. In the case of infection, infection can be spread via both human and animal vectors.

Historical Occurrences

There are no known instances of a biological incident in or in the area immediately surrounding Southampton County. From a national perspective, in the United States for the past 100 years there has been only one incident of a biological agent being used by a terrorist entity that actually resulted in injuries. From a state perspective, in March 2005 a detection alarm alert at the Pentagon Remote Delivery Facility in Arlington County was activated on a machine that tests for anthrax bacteria. The alarm was determined to be false.

Probability of Future Occurrences

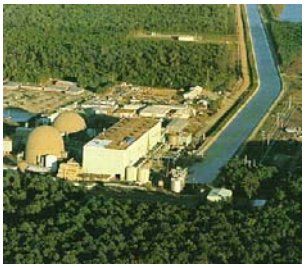
The probability of a biological disaster in Southampton County is considered to be unlikely.

Radiological Threat

Background

Some information in this subsection borrows heavily from Federal Emergency Management Agency Response and Recovery public information material.

A radiological accident is an event that involves the release of potentially dangerous radioactive materials into the environment. This release is usually in the form of a cloud or "plume" and could affect the health and safety of anyone in its path. Radiological accidents can occur anywhere that radioactive materials are used, stored or transported. Nuclear power plants, transport of radiological materials, and disposal of radioactive waste all pose risks. However, operations of facilities and the transport and disposal of radioactive waste are closely regulated by a variety of federal and local organizations, so the likelihood of an incident is remote.



The Surry Nuclear Power Plant, located approximately 14 miles north of Southampton County.

(Photo credit: Nuclear Tourist)

A radiological incident may occur where radioactive materials are used, stored or transported. Fixed nuclear facilities, hazardous waste sites, hospitals, universities, research laboratories, industries, major highways, railroads or shipping yards could be the site of a potential radiological accident. Radiological incidents or emergencies may also occur as the result of an intentional act that involves the release of radioactive materials through a radiological dispersion device (such as a "dirty bomb.")

Location and Spatial Extent

Some information in this subsection borrows heavily from Federal Emergency Management Agency Response and Recovery public information material.

As stated above, fixed nuclear facilities are one of the primary sources for potential radiological concerns. The Surry Nuclear Power Plant, named for the county in which it is located, is situated on an 840-acre site near historic Williamsburg, Virginia, on the south bank of the James River across from historic Jamestown, approximately 14 miles from the northernmost tip of Southampton County (**Figure 4.25**). The Surry power station is operated by Dominion Generation and owned by Dominion Resources, Inc.

The Surry power station generates 1,625 megawatts of electric power from its two nuclear reactors—enough electricity to power 400,000 homes. Unit 1 began commercial operation in December 1972 and Unit 2 began operating in May 1973. Surry was Dominion's first nuclear station.

The need for specification of areas for the major exposure pathways is evident. The location of the population for whom protective measures may be needed, responsible authorities who would carry out protective actions and the means of communication to these authorities and to the population are all dependent on the characteristics of the planning areas. Emergency preparedness should be related to two predominant exposure pathways. They are:

- Plume Exposure Pathway—The principal exposure sources from this pathway are: (a) whole body external exposure to gamma radiation from the plume and from deposited material; and (b) inhalation exposure from the passing radioactive plume. The duration of the release leading to potential exposure could range from one-half hour to days. For the plume exposure pathway, shelter and/or evacuation would likely be the principal immediate protective actions to be recommended for the

general public. When evacuation is chosen as the preferred protective measure, initial evacuation of a 360 degree area around the facility is desirable out to a distance of about two to five miles although initial efforts would, of course, be in the general downwind direction.

- Ingestion Exposure Pathway—The principal exposure from this pathway would be from ingestion of contaminated water or foods such as milk, fresh vegetables or aquatic foodstuffs.

With regard to warning time, the range of times between the onset of accident conditions and the start of a major release is of the order of one-half hour to several hours. The subsequent time period over which radioactive material may be expected to be released is of the order of one-half hour (short-term release) to a few days (continuous release). (Other reasons for requiring prompt notification capabilities include faster moderate releases for which protective actions are desirable and the need for substantial lead times to carry out certain protective measures, such as evacuation, when this is indicated by plant conditions.)

With regard to duration, the duration of potential exposure could range in length from hours to months. For the ingestion exposure pathway, the planning effort involves the identification of major exposure pathways from contaminated food and water and the associated control and interdiction points and methods. The ingestion pathway exposures in general would represent a longer term problem, although some early protective actions to minimize subsequent contamination of milk or other supplies should be initiated (i.e., remove cows from pasture and put them on stored feed).

Other radiological incidents or emergencies may be associated with railroad segments intersecting Southampton County (refer to subsection on Hazardous Material Incident). With regard to radiological dispersion devices, refer to the subsection on Terrorism.

Historical Occurrences

There is no history of a radiological accident at the Surry Nuclear Power Plant.

Probability of Future Occurrences

According to a statement on the Department of Energy (DOE) public Web site, the DOE “is committed to safe operation of its nuclear facilities and activities. To ensure safe operation, the Office of Nuclear and Facility Safety Policy establishes nuclear safety requirements and associated guidance for DOE nuclear facilities and activities through a combination of public rules and DOE directives (policies, orders, manuals, guides, and technical standards).” Given the level of safety and security surrounding the Surry Nuclear Power Plant, the probability of a radiological disaster emanating from this facility is considered to be unlikely.

Dam Failure

Background

Dam failure can be caused by natural occurrences such as floods, rock slides, earthquakes or the deterioration of the foundation or the materials used in construction. Usually the changes are slow and not readily discovered by visual examination. Such a failure presents a significant potential for a disaster in that significant loss of life and property would be expected in addition to the possible loss of power and water resources. In recent years, dams have received considerably more attention in the emergency management community as potential targets for terrorist acts.

Location and Spatial Extent

Figure 4.26 shows the location of 12 dams within Southampton County, based on the National Inventory of Dams.

Historical Occurrences

Loss of life from dam failure in the Commonwealth of Virginia has been minimal. From a statewide perspective, in 1995 during heavy rains Timber Lake Dam near Lynchburg in western Virginia drained a 75-acre lake and killed two people following excessive rainfall. According to the National Performance of Dams Program data for 2001-2002, most dam failures nationwide in the United States have occurred in the spring and summer months (generally March through July). There are no known instances of a dam failure in Southampton County.

Probability of Future Occurrences

The probability of dam failure within the city limits of Franklin is considered to be unlikely.

Dam-related Definitions

What Is Considered a Dam?

According to the National Dam Safety Program administered by FEMA, a dam is any artificial barrier that impounds or diverts water and that (1) is 25 feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the barrier or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to the maximum water storage elevation or (2) has an impounding capacity at maximum water storage elevation of 50 acre-feet or more. Federal guidelines do not apply to barriers that are not in excess of six feet in height regardless of storage capacity, or which have a storage capacity at maximum water storage elevation not in excess of 15 acre-feet regardless of height. This lower size limitation is waived if there is a potentially significant downstream hazard.

Dam Failure

The catastrophic breakdown of a dam, characterized by the uncontrolled release of impounded water. There are varying degrees of failure.

Breach

An opening through a dam which drains the reservoir. A controlled breach is a constructed opening. An uncontrolled breach is an unintentional discharge from the reservoir.

Vulnerability Assessment

This section of the Plan builds upon the information provided in the *Hazard Identification and Analysis* by identifying assets, potentially at-risk populations and development trends in Southampton County, then assessing the potential impact and amount of damage (to property and/or loss of life) that could be caused by each hazard event addressed in this risk assessment.[1] The primary objective of this level of vulnerability assessment is to prioritize hazards of concern to Southampton County adding to the foundation for mitigation strategy and policy development. The following hazards were selected by the Mitigation Advisory Committee to be addressed in this section:

Natural Hazards

- Flood
- Hurricane and Tropical Storm
- Severe Thunderstorm
- Tornado
- Winter Storm
- Wildfire
- Drought
- Erosion
- Earthquake
- Sinkhole
- Landslide
- Extreme Temperature

Manmade Hazards

- Hazardous Material (HAZMAT) Incident
- Urban Fire
- Terrorism
- Biological Threat
- Radiological Threat
- Dam Failure

To complete the vulnerability assessment, best available data was collected from a variety of sources, including local, state and federal agencies, and multiple analyses were applied through qualitative and quantitative means (further described below). Additional work will be done on an ongoing basis to enhance, expand and further improve the accuracy of the baseline results established here, and it is expected that the vulnerability assessment will continue to be refined through future plan updates as new data and loss estimation methods become available.

44 CFR Requirement

44 CFR Part 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. The description shall include an overall summary of each hazard and its impact on the community. The plan should describe vulnerability in terms of: (A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; (B) An estimate of the potential 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; (C) 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.

[1] As explained in previous sections and as fully documented in Section 2: *Planning Process*, the Southampton County Mitigation Advisory Committee evaluated all primary natural and manmade hazards of concern and determined which of those hazards would be addressed in the *Hazard Identification and Analysis* and *Vulnerability Assessment* sections.

The findings presented in this section were developed using best available data, and the methods applied have resulted in an *approximation* of risk. These estimates should be used to understand relative hazard risk and the potential losses that may be incurred. However, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning specific hazards and their effects on the built environment and also from approximations that are necessary in order to provide a comprehensive analysis and overview of hazard risk.

Methodologies Used

Several risk assessment methodologies were used in the formation of this vulnerability assessment, depending on the nature of each hazard being addressed and the best data available for that particular hazard and the built environment. Essentially, these methodologies form the basis of two general approaches: a qualitative analysis that relies on local knowledge, consensus of the Mitigation Advisory Committee and rational decision making, while the second approach consists of a quantitative analysis that relies upon geographic information systems (GIS) analysis and other forms of available data including historical losses to life and property. Upon completion, these approaches are combined to create a "hybrid" summary of hazard vulnerability in Southampton County that allows for some degree of quality control and assurance. In other words, final determinations are not based on one factor alone. The methodologies are described in brief detail here and are further illustrated throughout this section.

Qualitative Methodology

The qualitative assessment relies less on technology and more on historical and anecdotal data, community input, and professional and experienced judgment regarding expected hazard impacts. The qualitative assessment completed for Southampton County is based on the Priority Risk Index (PRI), a tool used by project consultant PBS&J to measure the degree of risk for identified hazards in a particular planning area. The PRI is also used to assist community officials in ranking and prioritizing those hazards that pose the most significant threat to their area based on a variety of factors deemed important by the Mitigation Advisory Committee and other stakeholders in the hazard mitigation planning process.

While the quantitative assessment described later focuses on using best available data, computer models and GIS technology, the PRI system relies more on historical data, local knowledge and the general consensus of the Mitigation Advisory Committee. The PRI is used especially for hazards with no available GIS data or relevant information to perform quantitative analyses, and also provides an important opportunity to compare, crosscheck or validate the results of those that do have available data.

The PRI results in numerical values that allow identified hazards to be ranked against one another (the higher the PRI value, the greater the hazard risk). PRI values are obtained by assigning varying degrees of risk to five categories for each hazard (probability, impact, spatial extent, warning time and duration). Each degree of risk has been assigned a value (1 to 4) and an agreed upon weighting factor[2], as summarized in **Table 5.1**.

[2] The Mitigation Advisory Committee, based upon any unique concerns for the planning area, may also adjust the PRI weighting scheme.

To calculate the PRI value for a given hazard, the assigned risk value for each category is multiplied by the weighting factor. The sum of all five categories equals the final PRI value, as demonstrated in the example equation below:

PRI VALUE = [(PROBABILITY x .30) + (IMPACT x .30) + (SPATIAL EXTENT x .20) + (WARNING TIME x .10) + (DURATION x .10)]

According to the weighting scheme applied for Southampton County, the highest possible PRI value is 4.0. Prior to being finalized, PRI values for each hazard were reviewed and accepted by the Mitigation Advisory Committee.

Table 5.1: Summary of Priority Risk Index (PRI)

PRI CATEGORY	DEGREE OF RISK			ASSIGNED WEIGHTING FACTOR
	LEVEL	CRITERIA	INDEX VALUE	
Probability	Unlikely	Less than 1% annual probability	1	30%
	Possible	Between 1 and 10% annual probability	2	
	Likely	Between 10 and 100% annual probability	3	
	Highly Likely	100% annual probability	4	
Impact[3]	Minor	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.	1	30%
	Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	2	
	Critical	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one week.	3	
	Catastrophic	High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	4	
Spatial Extent	Negligible	Less than 1% of area affected	1	20%
	Small	Between 1 and 10% of area affected	2	
	Moderate	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area affected	4	
Warning Time	More than 24 hours	Self explanatory	1	10%
	12 to 24 hours	Self explanatory	2	
	6 to 12 hours	Self explanatory	3	
	Less than 6 hours	Self explanatory	4	
Duration	Less than 6 hours	Self explanatory	1	10%
	Less than 24 hours	Self explanatory	2	
	Less than one week	Self explanatory	3	
	More than one week	Self explanatory	4	

[3] In the case of the drought hazard, economic and/or agricultural factors are considered.

Quantitative Methodology

The quantitative assessment consists of utilizing Hazards U.S. Multi-Hazard (HAZUS®MH) software, a geographic information system (GIS)-based loss estimation tool available from the Federal Emergency Management Agency (FEMA), along with a statistical risk assessment methodology for hazards outside the scope of HAZUSMH. For some hazards, the quantitative assessment incorporates a detailed GIS-based approach using best available local, state and federal data. When combined, the results of these vulnerability studies are used to form an assessment of potential hazard losses (in dollars) along with the identification of specific community assets that are deemed potentially at-risk.

HAZUSMH is a nationally applicable standardized methodology and software program that contains models for estimating potential losses from earthquakes, floods and hurricane winds. HAZUSMH was developed by the Federal Emergency Management Agency under contract with the National Institute of Building Sciences.

(Image credit: Federal Emergency Management Agency)

Explanation of HAZUSMH and Statistical Risk Assessment Methodology

HAZUSMH is FEMA's nationwide standardized loss estimation software package, built on an integrated GIS platform with a national inventory of baseline geographic data (including information on Southampton County's general building stock and dollar exposure). Originally designed for the analysis of earthquake risks, FEMA has expanded the program to allow for the analysis of multiple hazards: namely the flood and wind (hurricane and tropical storm wind) hazards. By providing estimates on potential losses, HAZUSMH facilitates quantitative comparisons between hazards and may assist in the prioritization of hazard mitigation activities.

HAZUSMH uses a statistical approach and mathematical modeling of risk to predict a hazard's frequency of occurrence and estimated impacts based on recorded or historic damage information. The HAZUSMH risk assessment methodology is parametric, in that distinct hazard and inventory parameters—such as wind speed and building type, for example—were modeled using the HAZUSMH software to determine the impact (damages and losses) on the built environment. **Figure 5.1** shows a conceptual model of HAZUSMH methodology. More information on HAZUSMH loss estimation methodology is available through FEMA at www.fema.gov/hazus.

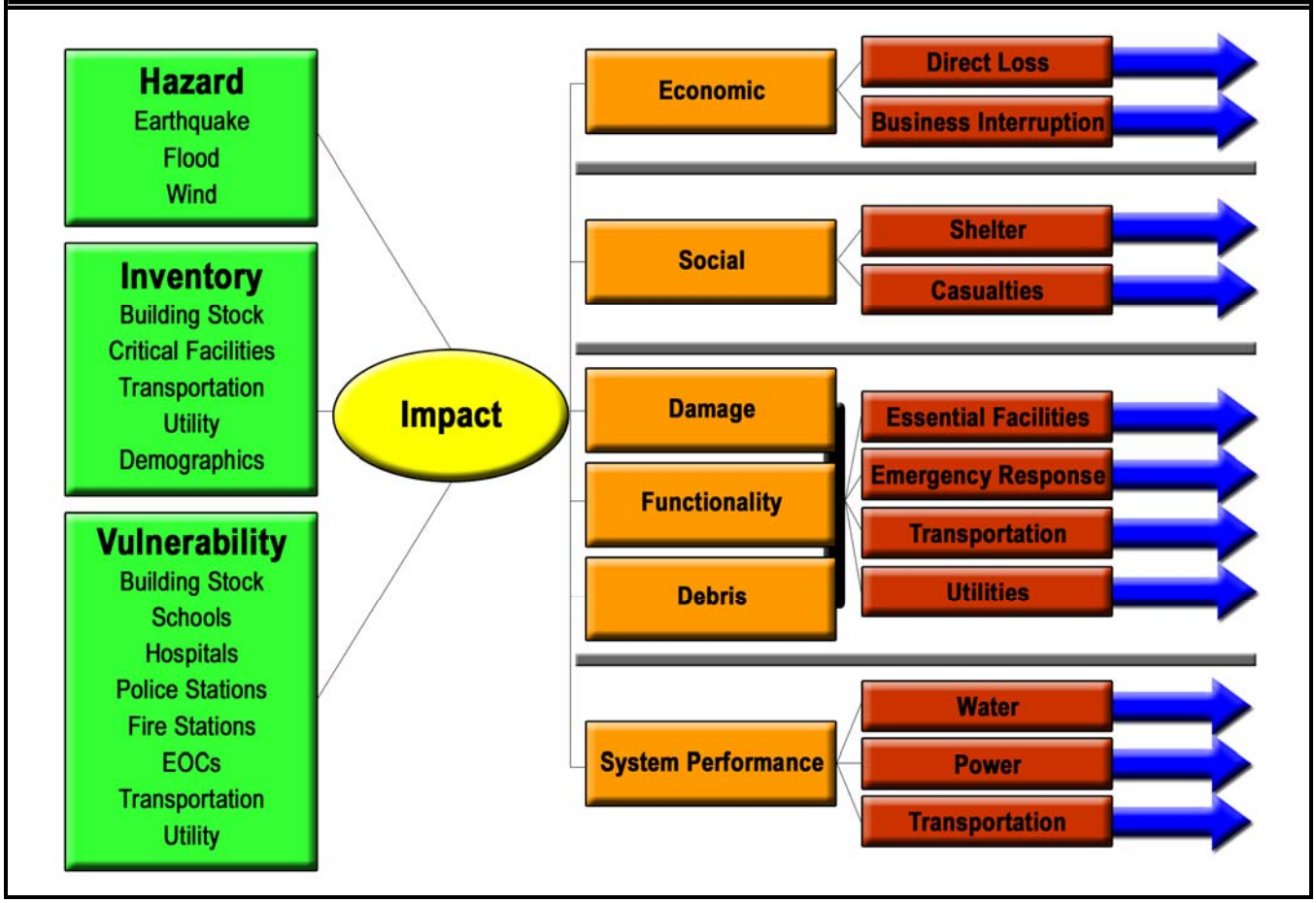
For hazards outside the scope of HAZUSMH, a specific statistical risk assessment methodology was designed and applied to generate potential loss estimates. The approach is based on some of the same principals as HAZUSMH, but does not rely on readily available automated software. First, historical data is compiled for each hazard to relate occurrence patterns (frequency, intensity, damage, etc.) with existing hazard models. Statistical evaluations are then applied in combination with engineering modeling to develop damage functions that can generate annualized losses.

The use of HAZUSMH software along with the statistical risk assessment methodology provides a determination of estimated annualized loss[4] for the following hazards:

- Flood
- Hurricane and Tropical Storm
- Severe Thunderstorm
- Tornado
- Winter Storm
- Wildfire
- Earthquake
- Drought

[4] By annualizing estimated losses, the historic patterns of frequent smaller events are coupled with infrequent but larger events to provide a balanced presentation of the overall, long-term risk.

Figure 5.1: Conceptual Model of HAZUS^{MH} Methodology



Source: Federal Emergency Management Agency

When possible, quantitative hazard loss estimates are compared with historical damage data as recorded through the National Weather Service/National Climatic Data Center and other reliable data sources. For those hazards for which HAZUS^{MH} was used, probabilistic "worst case scenario" results were produced to show the maximum potential extent of damages. It is understood that any smaller events that could occur would likely create lesser losses than those estimated here.

Explanation of GIS-based (Non-HAZUS^{MH}) Risk Assessment Methodology

In addition to generating annualized loss estimates for each hazard, GIS technology was further utilized (independent of the HAZUS^{MH} software) to quantify and analyze potentially at-risk populations and community assets such as public buildings, critical facilities and infrastructure. GIS analysis was completed for those hazards that can be spatially defined in a meaningful manner (i.e., hazards with an officially determined geographic extent) and for which digital GIS data layers are readily available. For Southampton County, this includes the following hazards:

- Flood
- Wildfire
- Dam Failure

The first step in conducting this analysis included the collection of relevant GIS data from local, state and national/federal sources. These sources include Southampton County, state agencies such as the Virginia Department of Emergency Management and the Virginia Department of Forestry and federal agencies such as FEMA, the United States Geological Survey (USGS), and the National Oceanic and Atmospheric Administration (NOAA). Once all data was acquired, ESRI® ArcGIS™ 9 was used to assess specific risks to people, public buildings and infrastructure utilizing digital hazard data in combination with the locally-available GIS data layers. Primary data layers include Census 2000 data, along with geo-referenced point locations for public buildings, building footprints, critical facilities, hazardous material sites and infrastructure elements such as major highways, county roads and railroad. Using these data layers, risk was assessed and described by determining the census blocks or point locations that intersected with delineated hazard areas.

Special Software Utilized

GIS (Geographic Information System)

ESRI® ArcMap™ 9.0 (Build 535)
License Type: ArcView.

ESRI® ArcGIS™ Spatial Analyst

HAZUS®MH (Hazards U.S. Multi-Hazard)

HAZUSMH MR1 (HAZUSMH Version 1.1) /
January 2005

Summary

Using both the qualitative and quantitative analyses to evaluate the hazards that may potentially impact Southampton County provides members of the Mitigation Advisory Committee with a dual-faceted review of the hazards. This allows officials to not only recognize those hazards that may potentially be the most costly, but also to plan and prepare for those hazards that, although they may not cause much monetary damage, could put a strain on the local resources needed to recover after their impact on the county.

All conclusions of the vulnerability assessment completed for Southampton County and its incorporated jurisdictions are presented in “Conclusions on Hazard Risk” at the end of this section. Findings for each hazard are detailed in the hazard-by-hazard vulnerability assessment that follows, beginning with an overview of general asset inventory, critical facilities, demographics, economic factors, zoning and land use, and development trends for Southampton County.

Overview of Vulnerability

General Asset Inventory

The total dollar exposure of buildings within Southampton County is estimated to be approximately $1,084,144,000. This figure is based on an estimated 6,486 residential, commercial, industrial and other buildings located throughout the county, derived from HAZUS^{MH} data[5] (**Table 5.2**). The total dollar exposure accounts for both building value ($702,876,000) and contents value ($381,268,000). (Contents value is based on a percentage of the building value.) Taken together, the building and contents values provide an estimate of the aggregated total replacement value for the county's assets.

Table 5.2: General Asset Inventory and Total Estimated Exposure

OCCUPANCY TYPE	BUILDING COUNT	BUILDING VALUE	CONTENTS VALUE	TOTAL EXPOSURE
Residential	6,465	$653,250,000	$327,355,000	$980,605,000
Commercial	16	$33,282,000	$33,745,000	$67,027,000
Industrial	3	$7,997,000	$11,490,000	$19,487,000
Agriculture	0	$1,088,000	$1,088,000	$2,176,000
Religious/Non-profit	1	$3,561,000	$3,561,000	$7,122,000
Government	1	$976,000	$1,307,000	$2,283,000
Education	0	$2,722,000	$2,722,000	$5,444,000
TOTAL	**6,486**	**$702,876,000**	**$381,268,000**	**$1,084,144,000**

Source: HAZUS^{MH}

Residential, Commercial and Industrial Exposure

Figure 5.2 through **Figure 5.4** illustrate graphically the concentration of residential, commercial and industrial dollar exposure in Southampton County based on the HAZUS^{MH} data used in the flood, hurricane and tropical storm, and earthquake subsections of this *Vulnerability Assessment*. Dollar exposure is aggregated by exposure values per square mile at the Census block level.

Development Trends

Future development in Southampton County will likely continue based on many of the same factors that have influenced the county's growth historically, including soil products, transportation facilities and water. Population growth is expected to increase only slightly over the next 20 years, perhaps in terms of only a few hundred people based on current employment trends.

Additional information on development trends in Southampton County is provided in Section 3: *Community Profile*.

Critical Facilities

Thirteen critical facilities within Southampton County have been identified and mapped based on the HAZUS^{MH} data used in the flood, wind and earthquake analyses conducted as part of this *Vulnerability Assessment* (**Table 5.3)**. These facilities include three fire departments, the Sheriff's office, eight schools and one airstrip. These facilities are illustrated in **Figure 5.5** in combination with

[5] HAZUS^{MH} uses Census 2000 and Dunn and Bradstreet (2002) data for its default inventories. Any values unavailable in the current version of the HAZUS^{MH} software are not reflected.

additional facilities identified by Mitigation Advisory Committee Members[6]. Vulnerability to specific hazards is discussed in detail in the hazard subsections that follow.

Table 5.3: Critical Facilities

FACILITY TYPE	FACILITY NAME
Fire	Sedley Volunteer Fire Department
	Courtland Volunteer Fire Department
	Boykins Fire Department
Police	Southampton Sheriff
Schools	Southampton Academy
	Boykins Elementary
	Capron Elementary
	Courtland Elementary
	Hunterdale Elementary
	Ivor Elementary
	Southampton High
	Southampton Middle
Airstrip	Airstrip

Demographics

According to the U.S. Census Bureau, the population of Southampton County in 2000 was 17,482. 2004 estimates show a slight increase in population to 17,585. Both figures show only a slight fluctuation from the 1990 population of 17,550. The social vulnerability factors presented in this vulnerability assessment from this point forward are based on U.S. Census 2000 data. **Figure 5.6** shows residential population density by census block.[7] In terms of population segments that may potentially be at higher risk, 5.1 percent of the total population of 17,482 are under the age of five (a total of 899 persons) and 14.2 percent are 65 years and over (a total of 2,491 persons). 23.3 percent (3,499 persons) holds disability status. According to U.S. Census 2000, there are a total of 7,058 housing units in the county, 74.3 percent of which (4,663 units) are owner-occupied and 25.3 percent (1,616 units) are renter-occupied. Eleven percent (779 units) are vacant. Additionally, there are 101 owner-occupied homes and 188 renter-occupied homes with no telephone service, which limits to some extent communication with these residents.

Zoning and Land Use

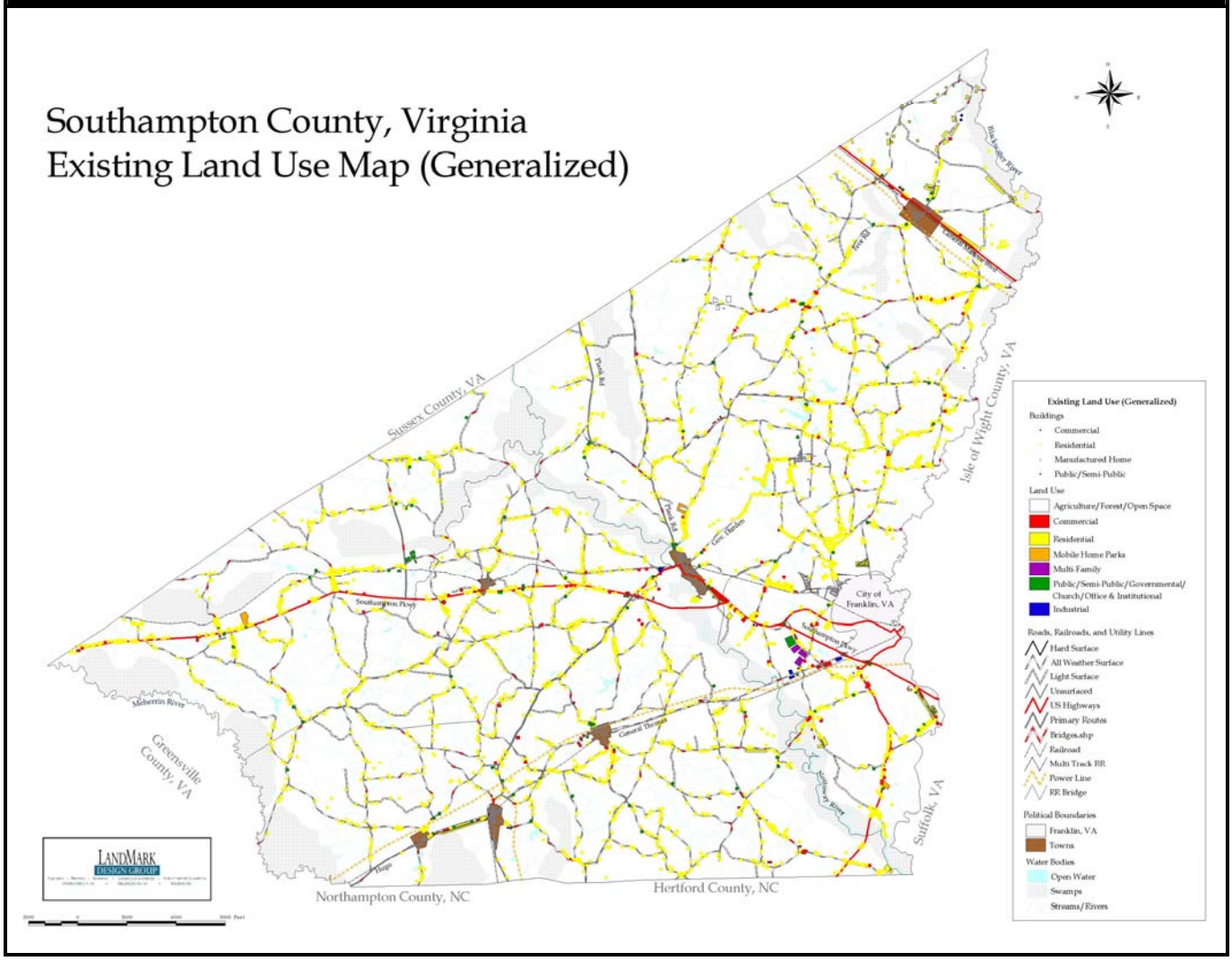
The *Southampton County 2000 Comprehensive Plan Update* provides a detailed summary of existing and future land use and development as it relates to growth management. The county has observed that land use and development patterns continue to reflect the same land development process of the past 15 to 20 years, as seen in the county since prior to the establishment of countywide planning. In general, large portions of the county remain devoted to agriculture (approximately 90 percent of the county's total area of 384,000 acres is used for agriculture and forestry), while more concentrated development has occurred

[6] Mitigation Advisory Committee members identified the location of additional fire stations not included in the default HAZUS^{MH} inventory.

[7] Population density was calculated utilizing GIS and U.S. Census Bureau GIS data. Density is based on a division of population by area and is presented in three class breaks: High, Moderate and Low population density.

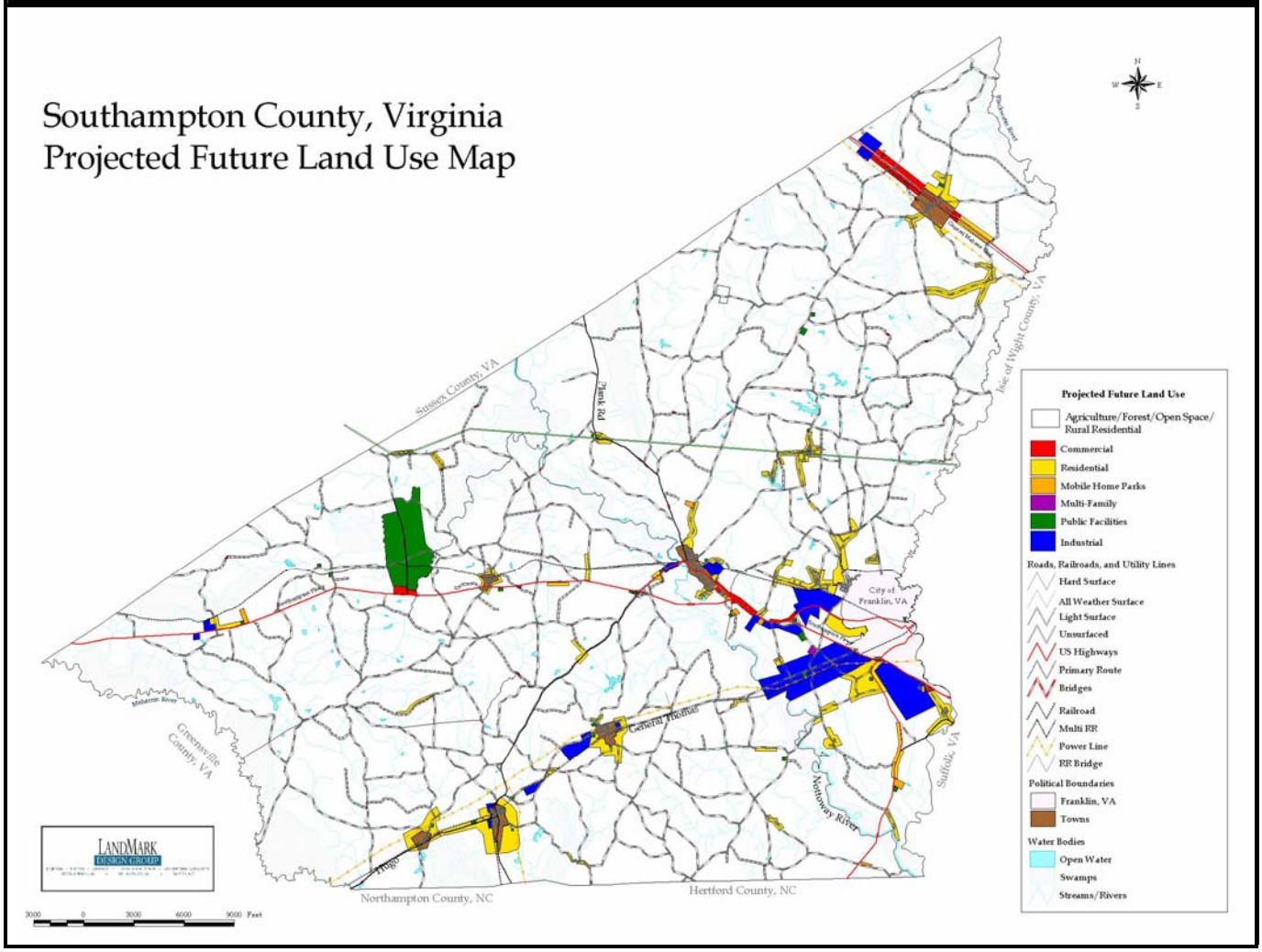
closer to the county's towns, villages and established residential areas, as well as the independent City of Franklin. Residential, commercial and industrial uses account for less than 5 percent of the land area each. All governmental services are centered in the county's towns. **Figure 5.7** and **Figure 5.8** show current land use and projected future land use for the county respectively.

Figure 5.7: Current Land Use



Source: Southampton County Comprehensive Plan Update 2000

Figure 5.8: Projected Future Land Use



Source: Southampton County Comprehensive Plan Update 2000

Flood

PRI Value: 2.90
Annualized Loss Estimate: $361,142

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the flood hazard scored a PRI value of 2.90 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.4** summarizes the risk levels assigned to each PRI category.

Table 5.4: Qualitative Assessment for Flood

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Likely	Critical	Moderate	More Than 24 Hours	More Than 1 Week

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

GIS Analysis

A GIS-based analysis was conducted utilizing building footprint data, parcel data, roads, railroad lines, hydrology, digital flood data (100-year floodplain—Zone A and Zone AE) and critical facility designations. GIS was used to select those structures, parcels and critical facilities that intersect with the digital flood data and that may therefore be potentially at-risk from the flood hazard (**Table 5.5** and **Figure 5.9** through **Figure 5.12**). This analysis is intended for use as a general planning tool in order to provide reasonable estimates of potential losses, and does not take into account certain site-specific factors that may mitigate future flood losses on a building-by-building basis (such as elevation, surrounding topography, floodproofing measures, drainage, etc.).

Table 5.5: Structures, Parcels and Critical Facilities Potentially At-risk From the Flood Hazard

JURISDICTION	STRUCTURES INTERSECTING 100-YEAR FLOODPLAIN (ZONES A AND AE)	PARCELS INTERSECTING 100-YEAR FLOODPLAIN (ZONES A AND AE)	CRITICAL FACILITIES INTERSECTING 100-YEAR FLOODPLAIN (ZONES A AND AE)
Unincorporated Southampton County	1,020 (out of 15,925)	2,088 (out of 13,164)	1 (out of 9)
Courtland	250 (out of 597)	400 (out of 742)	2 (out of 4)
Boykins	56 (out of 492)	181 (out of 763)	0 (out of 0)
TOTALS	**1,326 (out of 17,014)**	**2,669 (out of 14,669)**	**3 (out of 13)**

Sources: Southampton County; GIS Analysis

HAZUS^{MH} Analysis

The following tables summarize the results of the HAZUS^{MH} analysis performed for the 50, 100, 200 and 500-year return periods for residential, commercial, government, industrial, agriculture, religion/non-profit and education structures within Southampton County. This analysis is consistent with the overall methodology described for the HAZUS^{MH} software presented at the beginning of this section.

Table 5.6 through **Table 5.10** show annualized losses for the flood hazard, a detailed breakdown of estimated pre-FIRM residential building damage[8], and estimated losses by building occupancy. For the purposes of these tables, "other losses" include inventory losses, loss of income, wage losses, rental income losses and relocation costs. "Negligible" means less than $1,000 in losses.

Based on the findings of the HAZUS^{MH} analysis of the 50, 100 and 500-year return periods, an annualized loss estimate of $361,142 was derived for the flood hazard.

Table 5.6: Residential Building Damage to Pre-FIRM Structures

PRE-FIRM STRUCTURES	50-YEAR EVENT	100-YEAR EVENT	200-YEAR EVENT	500-YEAR EVENT
Total Buildings	6,486	6,486	6,486	6,486
Undamaged Buildings	6,390	6,374	6,357	6,331
Damaged Buildings	96	112	129	155
Damaged Buildings—Percent of Damage				
1 to 10% Damage	89	103	118	143
11 to 20% Damage	5	5	6	6
21 to 50% Damage	2	4	2	3
51 to 100% Damage	0	0	3	3

Source: HAZUS^{MH}

[8] For each return period, HAZUS^{MH} MR1 did not calculate any damage by building count for post-FIRM residential as well as all commercial, industrial, agriculture, religious/non-profit, government and education occupancies.

Table 5.7: HAZUS^{MH} Results for 50-Year Flood Event

BUILDING OCCUPANCY	TOTAL LOSSES	BUILDING LOSSES	CONTENTS LOSSES	OTHER LOSSES
Residential				
Pre-FIRM	$9,129,000	$5,795,000	$3,329,000	$5,000
Post-FIRM	$88,000	$57,000	$31,000	Negligible
TOTAL	**$9,217,000**	**$5,852,000**	**$3,360,000**	**$5,000**
Commercial				
Pre-FIRM	$809,000	$77,000	$238,000	$494,000
Post-FIRM	$5,000	Negligible	$2,000	$3,000
TOTAL	**$814,000**	**$77,000**	**$240,000**	**$497,000**
Industrial				
Pre-FIRM	$37,000	$11,000	$21,000	$5,000
Post-FIRM	Negligible	Negligible	Negligible	Negligible
TOTAL	**$37,000**	**$11,000**	**$21,000**	**$5,000**
Government				
Pre-FIRM	$483,000	$10,000	$74,000	$399,000
Post-FIRM	$7,000	Negligible	$1,000	$6,000
TOTAL	**$490,000**	**$10,000**	**$75,000**	**$405,000**
Education				
Pre-FIRM	$90,000	$1,000	$5,000	$84,000
Post-FIRM	$3,000	Negligible	Negligible	$3,000
TOTAL	**$93,000**	**$1,000**	**$5,000**	**$87,000**
Religion/Non-Profit	Negligible	Negligible	Negligible	Negligible
Agriculture	Negligible	Negligible	Negligible	Negligible
TOTAL ALL OCCUPANCIES				
Pre-FIRM	**$10,548,000**	**$5,894,000**	**$3,667,000**	**$987,000**
Post-FIRM	**$103,000**	**$57,000**	**$34,000**	**$12,000**
TOTAL	**$10,651,000**	**$5,951,000**	**$3,701,000**	**$999,000**

Source: HAZUS^{MH}

Table 5.8: HAZUS^{MH} Results for 100-Year Flood Event

BUILDING OCCUPANCY	TOTAL LOSSES	BUILDING LOSSES	CONTENTS LOSSES	OTHER LOSSES
Residential				
Pre-FIRM	$8,897,000	$5,653,000	$3,230,000	$14,000
Post-FIRM	$124,000	$80,000	$44,000	Negligible
TOTAL	**$9,021,000**	**$5,733,000**	**$3,274,000**	**$14,000**
Commercial				
Pre-FIRM	$1,141,000	$112,000	$299,000	$730,000
Post-FIRM	$13,000	$1,000	$4,000	$8,000
TOTAL	**$1,154,000**	**$113,000**	**$303,000**	**$738,000**
Industrial				
Pre-FIRM	$39,000	$9,000	$24,000	$6,000
Post-FIRM	Negligible	Negligible	Negligible	Negligible
TOTAL	**$39,000**	**$9,000**	**$24,000**	**$6,000**
Government				
Pre-FIRM	$625,000	$13,000	$85,000	$527,000
Post-FIRM	$9,000	Negligible	$1,000	$8,000
TOTAL	**$634,000**	**$13,000**	**$86,000**	**$535,000**
Education				
Pre-FIRM	$186,000	$3,000	$21,000	$162,000
Post-FIRM	$4,000	Negligible	Negligible	$4,000
TOTAL	**$190,000**	**$3,000**	**$21,000**	**$166,000**
Religion/Non-Profit	Negligible	Negligible	Negligible	Negligible
Agriculture	Negligible	Negligible	Negligible	Negligible
TOTAL ALL OCCUPANCIES				
Pre-FIRM	**$10,888,000**	**$5,790,000**	**$3,659,000**	**$1,439,000**
Post-FIRM	**$150,000**	**$81,000**	**$49,000**	**$20,000**
TOTAL	**$11,038,000**	**$5,871,000**	**$3,708,000**	**$1,459,000**

Source: HAZUS^{MH}

Table 5.9: HAZUS^{MH} Results for 200-Year Flood Event

BUILDING OCCUPANCY	TOTAL LOSSES	BUILDING LOSSES	CONTENTS LOSSES	OTHER LOSSES
Residential				
Pre-FIRM	$13,089,000	$8,275,000	$4,768,000	$46,000
Post-FIRM	$123,000	$80,000	$43,000	Negligible
TOTAL	**$13,212,000**	**$8,355,000**	**$4,811,000**	**$46,000**
Commercial				
Pre-FIRM	$1,482,000	$134,000	$358,000	$990,000
Post-FIRM	$9,000	$1,000	$2,000	$6,000
TOTAL	**$1,491,000**	**$135,000**	**$360,000**	**$996,000**
Industrial				
Pre-FIRM	$46,000	$11,000	$28,000	$7,000
Post-FIRM	Negligible	Negligible	Negligible	Negligible
TOTAL	**$46,000**	**$11,000**	**$28,000**	**$7,000**
Government				
Pre-FIRM	$681,000	$17,000	$94,000	$570,000
Post-FIRM	$10,000	Negligible	$1,000	$9,000
TOTAL	**$691,000**	**$17,000**	**$95,000**	**$579,000**
Education				
Pre-FIRM	$228,000	$4,000	$30,000	$194,000
Post-FIRM	$5,000	Negligible	Negligible	$5,000
TOTAL	**$233,000**	**$4,000**	**$30,000**	**$199,000**
Religion/Non-Profit	Negligible	Negligible	Negligible	Negligible
Agriculture	Negligible	Negligible	Negligible	Negligible
TOTAL ALL OCCUPANCIES				
Pre-FIRM	**$15,526,000**	**$8,441,000**	**$5,278,000**	**$1,807,000**
Post-FIRM	**$147,000**	**$81,000**	**$46,000**	**$20,000**
TOTAL	**$15,673,000**	**$8,522,000**	**$5,324,000**	**$1,827,000**

Source: HAZUS^{MH}

Table 5.10: HAZUS^{MH} Results for 500-Year Flood Event

BUILDING OCCUPANCY	TOTAL LOSSES	BUILDING LOSSES	CONTENTS LOSSES	OTHER LOSSES
Residential				
Pre-FIRM	$16,021,000	$10,097,000	$5,885,000	$39,000
Post-FIRM	$181,000	$119,000	$62,000	Negligible
TOTAL	**$16,202,000**	**$10,216,000**	**$5,947,000**	**$39,000**
Commercial				
Pre-FIRM	$1,444,000	$173,000	$470,000	$801,000
Post-FIRM	$18,000	$1,000	$6,000	$11,000
TOTAL	**$1,462,000**	**$174,000**	**$476,000**	**$812,000**
Industrial				
Pre-FIRM	$64,000	$16,000	$38,000	$10,000
Post-FIRM	Negligible	Negligible	Negligible	Negligible
TOTAL	**$64,000**	**$16,000**	**$38,000**	**$10,000**
Government				
Pre-FIRM	$791,000	$20,000	$114,000	$657,000
Post-FIRM	$12,000	Negligible	$2,000	$10,000
TOTAL	**$803,000**	**$20,000**	**$116,000**	**$667,000**
Education				
Pre-FIRM	$326,000	$6,000	$44,000	$276,000
Post-FIRM	$11,000	Negligible	$1,000	$10,000
TOTAL	**$337,000**	**$6,000**	**$45,000**	**$286,000**
Religion/Non-Profit				
Pre-FIRM	$3,000	Negligible	Negligible	$3,000
Post-FIRM	Negligible	Negligible	Negligible	Negligible
TOTAL	**$3,000**	**Negligible**	**Negligible**	**$3,000**
Agriculture	Negligible	Negligible	Negligible	Negligible
TOTAL ALL OCCUPANCIES				
Pre-FIRM	**$18,649,000**	**$10,312,000**	**$6,551,000**	**$1,786,000**
Post-FIRM	**$222,000**	**$120,000**	**$71,000**	**$31,000**
TOTAL	**$18,871,000**	**$10,432,000**	**$6,622,000**	**$1,817,000**

Source: HAZUS^{MH}

Repetitive Loss Properties

According to National Flood Insurance Program (NFIP) data provided by the Virginia Department of Emergency Management (VDEM)[9], there is one repetitive loss property located in Southampton County. Specifically, the structure is located in the Town of Courtland and has received two flood insurance payments totaling almost $92,000 resulting from damages incurred September 16, 1999 and September 18, 2003, coinciding with hurricanes Floyd and Isabel respectively. The structure is a single family residence located in the A Zone (A11), is currently insured and has not been mitigated (according to VDEM as of June 2005).

NFIP Flood Insurance Policy Data

According to NFIP records current as of December 31, 2004, the total number of policies in-force in Southampton County is 146. Total written premiums in-force is $52,565. The total number of losses is 56 with a total dollar amount of insurance claims paid of $2,555,257.

Social Vulnerability

As an indicator of overall social vulnerability, countywide base-level population data and digital flood hazard data were used to calculate the number of general persons, elderly persons (age 65 and older), and low income persons (income of less than $20,000 per year) living within census blocks in Southampton County that intersect with known flood hazard areas (**Table 5.11**).

Table 5.11: Potentially At-risk Population

FLOOD HAZARD AREA	GENERAL POPULATION	ELDERLY (65 AND OLDER)	LOW INCOME (< $20,000)
100-year Floodplain (Zones A and AE)	8,090	1,056	789

Source: GIS Analysis

Future Vulnerability and Land Use

Future Plan updates will include, as data becomes available, a general comparison of projected future land use and flood hazard areas.

[9] This NFIP data is current as of April 2005.

Hurricane and Tropical Storm

PRI Value: 2.90
Annualized Loss Estimate: $480,390

The following assessment of the hurricane and tropical storm hazard focuses primarily on wind. The flood element is addressed in the preceding subsection.

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the hurricane and tropical storm hazard scored a PRI value of 2.90 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.12** summarizes the risk levels assigned to each PRI category.

Table 5.12: Qualitative Assessment for Hurricane and Tropical Storm

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Likely	Critical	Large	More Than 24 Hours	Less Than 24 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Table 5.13 through **Table 5.21** show annualized losses for the hurricane and tropical storm (wind) hazard, a summary of the results of the wind analysis conducted using HAZUS®MH for the 50, 100, 200, 500 and 1,000-year return periods for residential, commercial, industrial, agriculture, religion/non-profit, government and education[10] structures, and a detailed breakdown of estimated building damage by census tract (**Figure 5.13** is provided as an index of census tracts within the county). This analysis is consistent with the overall methodology described for the HAZUS^MH software presented at the beginning of this section. For the purposes of these tables, "other" includes inventory losses, relocation costs, loss of income, rental losses and loss of wages due to the hurricane event.

Table 5.13: Annualized Losses for Hurricane and Tropical Storm (Wind)

BUILDING OCCUPANCY	TOTAL LOSSES	BUILDING LOSSES	CONTENTS LOSSES	OTHER LOSSES
Residential	$463,455	$316,476	$98,049	$48,930
Commercial	$9,732	$5,104	$2,125	$2,503
Industrial	$4,740	$2,134	$1,713	$893
Agriculture	$421	$221	$111	$89
Religion/Non-Profit	$894	$502	$178	$214
Government	$420	$135	$76	$209
Education	$728	$405	$162	$160
TOTAL ALL OCCUPANCIES	**$480,390**	**$324,978**	**$102,414**	**$52,998**

Source: HAZUS^MH

[10] HAZUS^MH does not count schools as education structures but rather as essential facilities. Education structures in this context may refer to administration buildings, etc.

Table 5.14: Probabilistic Loss Estimates for Hurricane and Tropical Storm (Wind)				
BUILDING OCCUPANCY	TOTAL LOSSES	BUILDING LOSSES	CONTENTS LOSSES	OTHER LOSSES
50-year Event				
Residential	$3,392,133	$2,697,879	$588,085	$106,168
Commercial	$13,241	$11,740	$602	$899
Industrial	$13,246	$8,165	$3,876	$1,206
Agriculture	$2,230	$1,462	$563	$206
Religion/Non-Profit	$1,910	$1,891	$0	$20
Government	$165	$164	$0	$1
Education	$30,793	$23,421	$5,041	$2,331
TOTAL ALL OCCUPANCIES	**$3,453,719**	**$2,744,720**	**$598,167**	**$110,831**
100-year Event				
Residential	$7,267,097	$5,664,746	$1,254,676	$347,675
Commercial	$66,921	$53,490	$7,800	$5,631
Industrial	$36,947	$20,436	$11,037	$5,475
Agriculture	$3,736	$2,182	$814	$740
Religion/Non-Profit	$6,535	$5,927	$484	$125
Government	$1,596	$1,304	$230	$62
Education	$4,988	$4,289	$478	$221
TOTAL ALL OCCUPANCIES	**$7,387,820**	**$5,752,373**	**$1,275,518**	**$359,928**
200-year Event				
Residential	$15,034,660	$10,907,090	$2,795,128	$1,332,442
Commercial	$282,265	$162,825	$45,540	$73,899
Industrial	$207,591	$96,361	$71,436	$39,794
Agriculture	$11,589	$6,324	$2,746	$2,519
Religion/Non-Profit	$33,677	$16,955	$3,017	$13,705
Government	$25,372	$3,778	$1,453	$20,141
Education	$22,566	$12,448	$3,222	$6,896
TOTAL ALL OCCUPANCIES	**$15,617,719**	**$11,205,781**	**$2,922,543**	**$1,489,395**
500-year Event				
Residential	$43,087,291	$27,485,096	$9,134,554	$6,467,642
Commercial	$1,188,906	$631,297	$260,859	$296,749
Industrial	$324,035	$149,176	$114,064	$60,795
Agriculture	$29,924	$15,711	$7,822	$6,391
Religion/Non-Profit	$90,425	$50,133	$16,261	$24,032
Government	$70,629	$21,404	$12,457	$36,767
Education	$118,175	$63,938	$26,396	$27,841
TOTAL ALL OCCUPANCIES	**$44,909,385**	**$28,416,756**	**$9,572,414**	**$6,920,217**
1,000-year Event				
Residential	$79,837,871	$49,515,799	$17,653,661	$12,668,407
Commercial	$1,825,150	$956,768	$424,840	$443,542
Industrial	$1,062,588	$464,663	$393,674	$204,250
Agriculture	$141,466	$72,339	$38,791	$30,337
Religion/Non-Profit	$184,636	$101,926	$38,553	$44,156
Government	$68,188	$21,368	$12,030	$34,791
Education	$115,293	$62,599	$25,660	$27,034
TOTAL ALL OCCUPANCIES	**$83,235,192**	**$51,195,462**	**$18,587,210**	**$13,452,517**

Table 5.15: Probability of Damage by Damage State for 50-year Wind Event

	CENSUS TRACT	NO DAMAGE	MINOR	AT LEAST MINOR	MODERATE	AT LEAST MODERATE	SEVERE	AT LEAST SEVERE	DESTROYED
Residential	51175200100	99.5%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200200	93.1%	6.5%	6.9%	0.4%	0.4%	0.0%	0.0%	0.0%
	51175200300	91.8%	7.5%	8.2%	0.7%	0.7%	0.0%	0.0%	0.0%
	51175200400	98.4%	1.5%	1.6%	0.1%	0.1%	0.0%	0.0%	0.0%
	51175200500	95.8%	4.0%	4.2%	0.2%	0.2%	0.0%	0.0%	0.0%
	County Average	**95.7%**	**4.0%**	**4.3%**	**0.3%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**
Commercial	51175200100	99.3%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200200	95.3%	4.1%	4.7%	0.6%	0.6%	0.1%	0.1%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	98.7%	1.3%	1.3%	0.1%	0.1%	0.0%	0.0%	0.0%
	51175200500	97.1%	2.5%	2.9%	0.4%	0.5%	0.0%	0.0%	0.0%
	County Average	**98.1%**	**1.7%**	**1.9%**	**0.2%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**
Industrial	51175200100	99.3%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200200	94.7%	4.4%	5.3%	0.6%	0.9%	0.2%	0.2%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	98.5%	1.4%	1.5%	0.1%	0.1%	0.0%	0.0%	0.0%
	51175200500	96.1%	3.2%	3.9%	0.5%	0.7%	0.2%	0.2%	0.0%
	County Average	**97.7%**	**2.0%**	**2.3%**	**0.2%**	**0.3%**	**0.1%**	**0.1%**	**0.0%**
Agriculture	51175200100	99.3%	0.6%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200200	93.7%	5.1%	6.3%	0.8%	1.2%	0.3%	0.4%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200500	96.3%	3.2%	3.8%	0.4%	0.6%	0.2%	0.2%	0.0%
	County Average	**97.9%**	**1.8%**	**2.1%**	**0.3%**	**0.4%**	**0.1%**	**0.1%**	**0.0%**
Religious/ Non-Profit	51175200100	99.4%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200200	95.6%	4.2%	4.4%	0.2%	0.2%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	98.9%	1.1%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200500	97.4%	2.6%	2.6%	0.1%	0.1%	0.0%	0.0%	0.0%
	County Average	**98.3%**	**1.7%**	**1.7%**	**0.1%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**
Government	51175200100	99.2%	0.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	98.7%	1.3%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**99.6%**	**0.4%**	**0.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Education	51175200100	99.3%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	98.7%	1.3%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**99.6%**	**0.4%**	**0.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Source: HAZUS[MH]

Table 5.16: Probability of Damage by Damage State for 100-year Wind Event

	CENSUS TRACT	NO DAMAGE	MINOR	AT LEAST MINOR	MODERATE	AT LEAST MODERATE	SEVERE	AT LEAST SEVERE	DESTROYED
Residential	51175200100	88.0%	11.1%	12.0%	0.9%	0.9%	0.0%	0.0%	0.0%
	51175200200	96.2%	3.7%	3.8%	0.1%	0.1%	0.0%	0.0%	0.0%
	51175200300	91.8%	7.5%	8.2%	0.7%	0.7%	0.0%	0.0%	0.0%
	51175200400	88.4%	10.5%	11.6%	1.1%	1.1%	0.0%	0.0%	0.0%
	51175200500	92.2%	7.3%	7.8%	0.5%	0.5%	0.0%	0.0%	0.0%
	County Average	**91.3%**	**8.0%**	**8.7%**	**0.7%**	**0.7%**	**0.0%**	**0.0%**	**0.0%**
Commercial	51175200100	92.7%	6.6%	7.3%	0.7%	0.8%	0.0%	0.0%	0.0%
	51175200200	97.3%	2.4%	2.7%	0.3%	0.3%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	91.8%	6.9%	8.2%	1.1%	1.3%	0.1%	0.1%	0.0%
	51175200500	94.7%	4.3%	5.3%	0.9%	1.1%	0.2%	0.2%	0.0%
	County Average	**95.3%**	**4.0%**	**4.7%**	**0.6%**	**0.7%**	**0.1%**	**0.1%**	**0.0%**
Industrial	51175200100	93.2%	6.2%	6.8%	0.6%	0.6%	0.0%	0.0%	0.0%
	51175200200	96.9%	2.8%	3.1%	0.3%	0.4%	0.1%	0.1%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	91.1%	6.9%	8.9%	1.4%	1.9%	0.4%	0.5%	0.0%
	51175200500	93.2%	5.2%	6.8%	1.1%	1.6%	0.5%	0.5%	0.0%
	County Average	**94.9%**	**4.2%**	**5.1%**	**0.7%**	**0.9%**	**0.2%**	**0.2%**	**0.0%**
Agriculture	51175200100	89.7%	8.0%	10.3%	1.6%	2.3%	0.7%	0.8%	0.0%
	51175200200	96.5%	2.9%	3.5%	0.4%	0.5%	0.1%	0.1%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200500	92.9%	5.7%	7.1%	1.0%	1.4%	0.4%	0.4%	0.0%
	County Average	**95.8%**	**3.3%**	**4.2%**	**0.6%**	**0.8%**	**0.3%**	**0.3%**	**0.0%**
Religious/ Non-Profit	51175200100	92.6%	6.9%	7.4%	0.5%	0.5%	0.0%	0.0%	0.0%
	51175200200	97.6%	2.4%	2.4%	0.1%	0.1%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	92.0%	7.4%	8.0%	0.6%	0.6%	0.0%	0.0%	0.0%
	51175200500	95.0%	4.8%	5.0%	0.2%	0.2%	0.0%	0.0%	0.0%
	County Average	**95.4%**	**4.3%**	**4.6%**	**0.3%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**
Government	51175200100	93.3%	6.1%	6.7%	0.6%	0.6%	0.0%	0.0%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	92.6%	6.7%	7.5%	0.8%	0.8%	0.0%	0.0%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**97.2%**	**2.6%**	**2.8%**	**0.3%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**
Education	51175200100	93.1%	6.3%	6.9%	0.6%	0.6%	0.0%	0.0%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	92.5%	6.8%	7.6%	0.7%	0.8%	0.0%	0.0%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**97.1%**	**2.6%**	**2.9%**	**0.3%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**

Source: HAZUS[MH]

Table 5.17: Probability of Damage by Damage State for 200-year Wind Event

	CENSUS TRACT	NO DAMAGE	MINOR	AT LEAST MINOR	MODERATE	AT LEAST MODERATE	SEVERE	AT LEAST SEVERE	DESTROYED
Residential	51175200100	84.8%	13.8%	15.2%	1.3%	1.4%	0.0%	0.1%	0.0%
	51175200200	86.9%	11.9%	13.1%	1.1%	1.2%	0.0%	0.1%	0.0%
	51175200300	77.1%	18.1%	22.9%	4.9%	4.9%	0.0%	0.0%	0.0%
	51175200400	75.1%	20.8%	24.9%	3.7%	4.2%	0.2%	0.4%	0.2%
	51175200500	76.6%	20.0%	23.4%	3.1%	3.4%	0.1%	0.3%	0.2%
	County Average	**80.1%**	**16.9%**	**19.9%**	**2.8%**	**3.0%**	**0.1%**	**0.2%**	**0.1%**
Commercial	51175200100	90.5%	8.3%	9.5%	1.1%	1.2%	0.1%	0.1%	0.0%
	51175200200	90.6%	7.7%	9.4%	1.4%	1.6%	0.2%	0.2%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	80.0%	14.9%	20.0%	4.4%	5.1%	0.6%	0.7%	0.0%
	51175200500	81.5%	12.9%	18.5%	4.4%	5.6%	1.2%	1.2%	0.0%
	County Average	**88.5%**	**8.8%**	**11.5%**	**2.3%**	**2.7%**	**0.4%**	**0.4%**	**0.0%**
Industrial	51175200100	91.1%	7.9%	8.9%	0.9%	1.0%	0.0%	0.0%	0.0%
	51175200200	89.7%	7.9%	10.3%	1.7%	2.4%	0.6%	0.6%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	78.9%	14.1%	21.1%	5.2%	6.9%	1.6%	1.8%	0.1%
	51175200500	78.5%	13.5%	21.5%	5.4%	8.1%	2.4%	2.6%	0.3%
	County Average	**87.6%**	**8.7%**	**12.4%**	**2.7%**	**3.7%**	**0.9%**	**1.0%**	**0.1%**
Agriculture	51175200100	86.7%	10.1%	13.3%	2.1%	3.2%	1.0%	1.1%	0.1%
	51175200200	87.5%	9.6%	12.5%	2.0%	3.0%	0.9%	1.0%	0.1%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200500	76.9%	16.4%	23.2%	4.4%	6.7%	2.1%	2.4%	0.2%
	County Average	**90.2%**	**7.2%**	**9.8%**	**1.7%**	**2.6%**	**0.8%**	**0.9%**	**0.1%**
Religious/ Non-Profit	51175200100	90.3%	8.9%	9.7%	0.8%	0.8%	0.0%	0.0%	0.0%
	51175200200	90.9%	8.4%	9.1%	0.7%	0.8%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	80.0%	16.6%	20.0%	3.3%	3.5%	0.2%	0.2%	0.0%
	51175200500	81.7%	15.4%	18.3%	2.7%	2.9%	0.2%	0.2%	0.0%
	County Average	**88.6%**	**9.8%**	**11.4%**	**1.5%**	**1.6%**	**0.1%**	**0.1%**	**0.0%**
Government	51175200100	91.2%	7.8%	8.8%	1.0%	1.0%	0.0%	0.0%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	81.3%	14.4%	18.7%	4.0%	4.3%	0.3%	0.3%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**94.5%**	**4.5%**	**5.5%**	**1.0%**	**1.1%**	**0.1%**	**0.1%**	**0.0%**
Education	51175200100	91.0%	8.0%	9.0%	0.9%	1.0%	0.0%	0.0%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	81.1%	14.8%	18.9%	3.9%	4.1%	0.3%	0.3%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**94.4%**	**4.6%**	**5.6%**	**1.0%**	**1.0%**	**0.1%**	**0.1%**	**0.0%**

Source: HAZUS[MH]

Table 5.18: Probability of Damage by Damage State for 500-year Wind Event

	CENSUS TRACT	NO DAMAGE	MINOR	AT LEAST MINOR	MODERATE	AT LEAST MODERATE	SEVERE	AT LEAST SEVERE	DESTROYED
Residential	51175200100	51.8%	35.0%	48.2%	10.4%	13.2%	1.4%	2.8%	1.3%
	51175200200	95.2%	4.6%	4.8%	0.2%	0.2%	0.0%	0.0%	0.0%
	51175200300	88.3%	10.2%	11.7%	1.4%	1.4%	0.0%	0.0%	0.0%
	51175200400	50.2%	33.8%	49.8%	12.5%	16.1%	1.7%	3.6%	1.8%
	51175200500	75.2%	21.0%	24.8%	3.5%	3.9%	0.2%	0.4%	0.2%
	County Average	**72.1%**	**20.9%**	**27.9%**	**5.6%**	**6.9%**	**0.7%**	**1.4%**	**0.7%**
Commercial	51175200100	58.7%	25.0%	41.3%	13.8%	16.3%	2.4%	2.5%	0.0%
	51175200200	96.7%	2.9%	3.3%	0.3%	0.4%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	53.4%	25.6%	46.6%	16.4%	21.0%	4.5%	4.6%	0.1%
	51175200500	80.1%	13.6%	19.9%	4.9%	6.2%	1.3%	1.3%	0.0%
	County Average	**77.8%**	**13.5%**	**22.2%**	**7.1%**	**8.8%**	**1.7%**	**1.7%**	**0.0%**
Industrial	51175200100	59.6%	24.4%	40.4%	13.5%	16.0%	2.5%	2.5%	0.0%
	51175200200	96.2%	3.3%	3.8%	0.4%	0.5%	0.1%	0.1%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	52.1%	23.0%	47.9%	17.1%	24.9%	7.0%	7.7%	0.8%
	51175200500	77.0%	14.1%	23.0%	5.9%	8.9%	2.6%	2.9%	0.3%
	County Average	**77.0%**	**13.0%**	**23.0%**	**7.4%**	**10.0%**	**2.4%**	**2.7%**	**0.2%**
Agriculture	51175200100	52.2%	28.5%	47.8%	12.2%	19.2%	6.0%	7.1%	1.1%
	51175200200	95.7%	3.6%	4.3%	0.5%	0.7%	0.2%	0.2%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200500	75.3%	17.3%	24.7%	4.8%	7.4%	2.3%	2.6%	0.3%
	County Average	**84.7%**	**9.9%**	**15.3%**	**3.5%**	**5.5%**	**1.7%**	**2.0%**	**0.3%**
Religious/ Non-Profit	51175200100	58.0%	28.4%	42.0%	11.7%	13.6%	1.8%	1.8%	0.0%
	51175200200	97.0%	2.9%	3.0%	0.1%	0.1%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	53.1%	29.7%	46.9%	14.3%	17.2%	2.9%	2.9%	0.0%
	51175200500	80.3%	16.3%	19.7%	3.1%	3.3%	0.2%	0.2%	0.0%
	County Average	**77.7%**	**15.5%**	**22.3%**	**5.8%**	**6.8%**	**1.0%**	**1.0%**	**0.0%**
Government	51175200100	59.8%	24.0%	40.3%	13.7%	16.3%	2.6%	2.6%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	54.5%	24.9%	45.5%	16.6%	20.6%	4.0%	4.0%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**82.9%**	**9.8%**	**17.1%**	**6.1%**	**7.4%**	**1.3%**	**1.3%**	**0.0%**
Education	51175200100	59.4%	24.9%	40.6%	13.3%	15.7%	2.4%	2.4%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	54.3%	25.8%	45.7%	16.1%	20.0%	3.8%	3.8%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**82.7%**	**10.1%**	**17.3%**	**5.9%**	**7.1%**	**1.3%**	**1.3%**	**0.0%**

Source: HAZUS[MH]

Table 5.19: Probability of Damage by Damage State for 1,000-year Wind Event

	CENSUS TRACT	NO DAMAGE	MINOR	AT LEAST MINOR	MODERATE	AT LEAST MODERATE	SEVERE	AT LEAST SEVERE	DESTROYED
Residential	51175200100	47.6%	36.7%	52.4%	12.0%	15.7%	1.9%	3.7%	1.8%
	51175200200	37.7%	37.0%	62.3%	17.4%	25.3%	3.8%	8.0%	4.1%
	51175200300	20.4%	25.1%	79.6%	50.5%	54.6%	3.8%	4.1%	0.3%
	51175200400	52.0%	33.2%	48.0%	11.7%	14.9%	1.5%	3.2%	1.6%
	51175200500	45.7%	36.0%	54.3%	13.6%	18.3%	2.3%	4.7%	2.4%
	County Average	**40.6%**	**33.6%**	**59.4%**	**21.0%**	**25.8%**	**2.7%**	**4.7%**	**2.0%**
Commercial	51175200100	53.9%	26.4%	46.1%	16.4%	19.7%	3.3%	3.3%	0.0%
	51175200200	38.5%	27.3%	61.5%	24.4%	34.1%	9.6%	9.7%	0.1%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	55.4%	25.1%	44.6%	15.4%	19.4%	4.0%	4.1%	0.0%
	51175200500	48.5%	24.9%	51.5%	18.9%	26.6%	7.6%	7.8%	0.1%
	County Average	**59.3%**	**20.7%**	**40.7%**	**15.0%**	**20.0%**	**4.9%**	**5.0%**	**0.1%**
Industrial	51175200100	54.7%	25.7%	45.3%	16.2%	19.6%	3.4%	3.4%	0.0%
	51175200200	37.0%	24.6%	63.0%	24.3%	38.4%	12.6%	14.1%	1.5%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	54.1%	22.7%	45.9%	16.1%	23.2%	6.4%	7.1%	0.7%
	51175200500	44.9%	22.9%	55.1%	19.7%	32.2%	10.7%	12.5%	1.8%
	County Average	**58.2%**	**19.2%**	**41.8%**	**15.3%**	**22.7%**	**6.6%**	**7.4%**	**0.8%**
Agriculture	51175200100	47.5%	30.3%	52.5%	14.0%	22.2%	6.9%	8.2%	1.4%
	51175200200	33.4%	33.3%	66.6%	20.0%	33.3%	10.9%	13.3%	2.4%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200500	42.9%	31.5%	57.1%	15.9%	25.6%	8.1%	9.8%	1.7%
	County Average	**64.8%**	**19.0%**	**35.2%**	**10.0%**	**16.2%**	**5.2%**	**6.3%**	**1.1%**
Religious/ Non-Profit	51175200100	53.3%	30.1%	46.7%	14.0%	16.6%	2.5%	2.5%	0.0%
	51175200200	38.2%	33.1%	61.8%	21.9%	28.7%	6.8%	6.8%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	55.1%	29.1%	44.9%	13.3%	15.9%	2.6%	2.6%	0.0%
	51175200500	48.4%	31.3%	51.6%	16.6%	20.3%	3.8%	3.8%	0.0%
	County Average	**59.0%**	**24.7%**	**41.0%**	**13.2%**	**16.3%**	**3.1%**	**3.1%**	**0.0%**
Government	51175200100	54.9%	25.2%	45.2%	16.4%	19.9%	3.5%	3.5%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	56.6%	24.4%	43.4%	15.4%	19.0%	3.5%	3.5%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**82.3%**	**9.9%**	**17.7%**	**6.4%**	**7.8%**	**1.4%**	**1.4%**	**0.0%**
Education	51175200100	54.5%	26.3%	45.5%	15.9%	19.2%	3.3%	3.3%	0.0%
	51175200200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200300	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	51175200400	56.3%	25.3%	43.7%	15.1%	18.4%	3.4%	3.4%	0.0%
	51175200500	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	County Average	**82.2%**	**10.3%**	**17.8%**	**6.2%**	**7.5%**	**1.3%**	**1.3%**	**0.0%**

Source: HAZUS[MH]

Table 5.20: Essential Facilities—Damage State Probability (Wind)

FACILITY NAME		PROBABILITY OF BUILDING DAMAGE				
		LOSS OF USE (DAYS)	MINOR	MODERATE	SEVERE	DESTRUC-TION
50-year Event						
Fire	Sedley Volunteer Fire Dept	0	0.8%	0.0%	0.0%	0.0%
	Courtland Volunteer Fire Dept	0	1.3%	0.0%	0.0%	0.0%
	Boykins Fire Dept	0	2.6%	0.1%	0.0%	0.0%
Police	Southampton Sheriff	0	1.3%	0.0%	0.0%	0.0%
Schools	Southampton Academy	0	1.3%	0.0%	0.0%	0.0%
	Boykins Elementary	0	2.6%	0.1%	0.0%	0.0%
	Capron Elementary	0	4.1%	0.2%	0.0%	0.0%
	Courtland Elementary	0	1.3%	0.0%	0.0%	0.0%
	Hunterdale Elementary	0	1.3%	0.0%	0.0%	0.0%
	Ivor Elementary	0	0.7%	0.0%	0.0%	0.0%
	Southampton High	0	4.1%	0.2%	0.0%	0.0%
	Southampton Middle	0	4.1%	0.2%	0.0%	0.0%
100-year Event						
Fire	Sedley Volunteer Fire Dept	0	6.2%	0.6%	0.0%	0.0%
	Courtland Volunteer Fire Dept	0	6.7%	0.8%	0.0%	0.0%
	Boykins Fire Dept	0	4.5%	0.3%	0.0%	0.0%
Police	Southampton Sheriff	0	6.7%	0.8%	0.0%	0.0%
Schools	Southampton Academy	0	6.8%	0.7%	0.0%	0.0%
	Boykins Elementary	0	4.5%	0.3%	0.0%	0.0%
	Capron Elementary	0	2.5%	0.1%	0.0%	0.0%
	Courtland Elementary	0	6.8%	0.7%	0.0%	0.0%
	Hunterdale Elementary	0	6.8%	0.7%	0.0%	0.0%
	Ivor Elementary	0	6.3%	0.6%	0.0%	0.0%
	Southampton High	0	2.5%	0.1%	0.0%	0.0%
	Southampton Middle	0	2.5%	0.1%	0.0%	0.0%
200-year Event						
Fire	Sedley Volunteer Fire Dept	0	7.8%	1.0%	0.0%	0.0%
	Courtland Volunteer Fire Dept	2	14.4%	4.0%	0.3%	0.0%
	Boykins Fire Dept	2	13.4%	3.3%	0.2%	0.0%
Police	Southampton Sheriff	2	14.4%	4.0%	0.3%	0.0%
Schools	Southampton Academy	2	14.8%	3.9%	0.3%	0.0%
	Boykins Elementary	2	13.8%	3.2%	0.2%	0.0%
	Capron Elementary	0	7.8%	1.0%	0.0%	0.0%
	Courtland Elementary	2	14.8%	3.9%	0.3%	0.0%
	Hunterdale Elementary	2	14.8%	3.9%	0.3%	0.0%
	Ivor Elementary	0	8.0%	0.9%	0.0%	0.0%
	Southampton High	0	7.8%	1.0%	0.0%	0.0%
	Southampton Middle	0	7.8%	1.0%	0.0%	0.0%

Table continues on following page.

Table 5.20 (Continued): Essential Facilities—Damage State Probability (Wind)

FACILITY NAME		PROBABILITY OF BUILDING DAMAGE				
		LOSS OF USE (DAYS)	MINOR	MODERATE	SEVERE	DESTRUC-TION
500-year Event						
Fire	Sedley Volunteer Fire Dept	8	24.1%	13.7%	2.5%	0.0%
	Courtland Volunteer Fire Dept	12	24.9%	16.6%	4.0%	0.0%
	Boykins Fire Dept	2	14.2%	3.8%	0.3%	0.0%
Police	Southampton Sheriff	12	24.9%	16.6%	4.0%	0.0%
Schools	Southampton Academy	13	25.8%	16.1%	3.8%	0.0%
	Boykins Elementary	2	14.6%	3.7%	0.3%	0.0%
	Capron Elementary	0	3.0%	0.1%	0.0%	0.0%
	Courtland Elementary	13	25.8%	16.1%	3.8%	0.0%
	Hunterdale Elementary	13	25.8%	16.1%	3.8%	0.0%
	Ivor Elementary	9	24.9%	13.3%	2.4%	0.0%
	Southampton High	0	3.0%	0.1%	0.0%	0.0%
	Southampton Middle	0	3.0%	0.1%	0.0%	0.0%
1,000-year Event						
Fire	Sedley Volunteer Fire Dept	11	25.4%	16.3%	3.5%	0.0%
	Courtland Volunteer Fire Dept	11	24.4%	15.4%	3.5%	0.0%
	Boykins Fire Dept	16	26.0%	19.1%	5.2%	0.0%
Police	Southampton Sheriff	11	24.4%	15.4%	3.5%	0.0%
Schools	Southampton Academy	12	25.3%	15.1%	3.4%	0.0%
	Boykins Elementary	17	27.0%	18.7%	4.9%	0.0%
	Capron Elementary	29	27.6%	24.6%	9.2%	0.0%
	Courtland Elementary	12	25.3%	15.1%	3.4%	0.0%
	Hunterdale Elementary	12	25.3%	15.1%	3.4%	0.0%
	Ivor Elementary	12	26.3%	15.9%	3.3%	0.0%
	Southampton High	29	27.6%	24.6%	9.2%	0.0%
	Southampton Middle	29	27.6%	24.6%	9.2%	0.0%

Source: HAZUS^{MH}

Table 5.21: Estimates of Potential Residential and Commercial Building Damages by Building Count

BUILDING OCCUPANCY	NO DAMAGE	MINOR DAMAGE	MODERATE DAMAGE	SEVERE DAMAGE	DESTRUCTION	TOTAL STRUCTURES
50-year Event						
Residential	6,275	181	9	0	0	6,465
Commercial	16	0	0	0	0	16
Other	5	0	0	0	0	5
TOTAL ALL OCCUPANCIES	**6,296**	**181**	**9**	**0**	**0**	**6,486**
100-year Event						
Residential	5,858	558	47	1	1	6,465
Commercial	15	1	0	0	0	16
Other	5	0	0	0	0	5
TOTAL ALL OCCUPANCIES	**5,878**	**559**	**47**	**1**	**1**	**6,486**
200-year Event						
Residential	5,163	1,120	166	7	9	6,465
Commercial	13	2	1	0	0	16
Other	4	1	0	0	0	5
TOTAL ALL OCCUPANCIES	**5,180**	**1,123**	**167**	**7**	**9**	**6,486**
500-year Event						
Residential	4,187	1,658	491	64	65	6,465
Commercial	10	3	3	0	0	16
Other	4	1	0	0	0	5
TOTAL ALL OCCUPANCIES	**4,201**	**1,662**	**494**	**64**	**65**	**6,486**
1,000-year Event						
Residential	3,024	2,286	862	145	149	6,466
Commercial	8	4	3	1	0	16
Other	3	1	1	0	0	5
TOTAL ALL OCCUPANCIES	**3,035**	**2,291**	**866**	**146**	**149**	**6,487**

Source: HAZUS^{MH}

Social Vulnerability

Due to the widespread, non-localized nature of this hazard, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Therefore, it is assumed that the general population of the county would be uniformly at-risk to varying degrees.

Future Vulnerability and Land Use

All future structures built within Southampton County will likely be exposed to hurricane and tropical storm-force winds to varying degrees and may also experience damage not accounted for in the loss estimates presented in this section. However, continued enforcement of building codes, flood damage prevention ordinances and other local regulatory tools and policies is expected to minimize future losses as construction and planning efforts continue to seek higher standards.

Future Plan updates may include, as additional information, data and methodologies become available, more detailed analysis and hazard mapping to potentially include wind zone delineations, water and wastewater utility vulnerability, site-specific critical facility assessments, and transportation corridor and evacuation considerations.

Severe Thunderstorm

PRI Value: 2.90
Annualized Loss Estimate: $120,837

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the severe thunderstorm hazard scored a PRI value of 2.90 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.22** summarizes the risk levels assigned to each PRI category.

Table 5.22: Qualitative Assessment for Severe Thunderstorm

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Highly Likely	Limited	Moderate	Less Than 6 Hours	Less Than 6 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

As stated in the *Hazard Identification and Analysis* section, Southampton County has experienced 50 severe thunderstorm events and 27 hail events since 1950 (according to the National Climatic Data Center). These events resulted in a total of $6,646,000 in reported property and/or crop damage, which includes the major hail storm experienced on May 9, 2003. Therefore, it is assumed that all assets within Southampton County are exposed to this hazard and that an annualized loss estimate of $120,837 may be calculated based on this historical data. Furthermore, thunderstorms and their associated hazardous elements (lightning, hail and straight-line wind) are not confined to any geographic boundaries that would pertain to a countywide study area, and therefore no determinations of that nature can be made to identify certain at-risk structures based solely on their location.

Social Vulnerability

Due to the widespread, non-localized nature of this hazard, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Therefore, it is assumed that the general population of the county would be uniformly at-risk to varying degrees.

Future Vulnerability and Land Use

All future structures built within Southampton County will likely be exposed to severe thunderstorms, lightning, hail and straight-line winds and may experience damage not accounted for in the estimated losses presented in this section.

Tornado

PRI Value: 2.40
Annualized Loss Estimate: $6,127

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the tornado hazard scored a PRI value of 2.40 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.23** summarizes the risk levels assigned to each PRI category.

Table 5.23: Qualitative Assessment for Tornado

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Possible	Critical	Small	Less Than 6 Hours	Less Than 6 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

As stated in the *Hazard Identification and Analysis* section, five recorded tornadoes are reported to have impacted Southampton County since 1950. These events have caused an estimated $337,000 in damage. Therefore, an annualized loss estimate of $6,127 was derived from this information. Tornadoes are typically not confined to any geographic boundaries or season, and therefore no determinations can be made to identify certain at-risk structures based solely on their location. Any structures noted during future Plan updates to be particularly susceptible to wind hazards may be addressed in detail in this section.

Social Vulnerability

Due to the unpredictable nature of this hazard with regard to geographic location, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Therefore, it is assumed that the general population of the county would be uniformly at-risk to varying degrees.

Future Vulnerability and Land Use

All future structures built within Southampton County are likely to be exposed to the tornado hazard and may experience damage not accounted for in the estimated losses presented in this section.

Winter Storm

PRI Value: 2.60
Annualized Loss Estimate: $41,502

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the winter storm hazard scored a PRI value of 2.90 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.24** summarizes the risk levels assigned to each PRI category.

Table 5.24: Qualitative Assessment for Winter Storm

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Likely	Limited	Large	More Than 24 Hours	Less Than 24 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

As stated in the *Hazard Identification and Analysis* section, 24 severe winter storm events have impacted Southampton County since 1993 (according to the National Climatic Data Center). These events caused an estimated total of $539,532 in property damages in the county (as derived from a reasonable division of damages across the multi-county forecast zones involved in each event). An annualized loss estimate of $41,502 was generated for this hazard by dividing the estimated total dollar amount of property damages ($539,532) by the number of years for which reports are available (13).

Winter storms are not confined to any geographic boundaries, and therefore no determinations can be made to identify certain at-risk structures based solely on their location. Downtime for essential facilities and functions are assumed to be similar to those presented in the hurricane and tropical storm subsection.

Social Vulnerability

Due to the widespread, non-localized nature of this hazard, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Therefore, it is assumed that the general population of the county would be uniformly at-risk to varying degrees.

Future Vulnerability and Land Use

All future structures built within Southampton County are likely to be exposed to the winter storm hazard and may experience damage not accounted for in the estimated losses presented in this section.

Wildfire

PRI Value: 2.30
Annualized Loss Estimate: $14,229

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the wildfire hazard scored a PRI value of 2.30 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.25** summarizes the risk levels assigned to each PRI category.

Table 5.25: Qualitative Assessment for Wildfire

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Highly Likely	Minor	Negligible	Less Than 6 Hours	Less Than 24 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

No information is currently available from the Virginia Department of Forestry (VDOF) as to the value of threatened structures or properties that were successfully protected. Based on the history of wildfire occurrences, including total reported property damage, provided by VDOF, an annualized loss estimate of $14,229 was generated for the wildfire hazard.

As stated in the *Hazard Identification and Analysis* section, the Virginia Department of Forestry in July 2003 released a GIS-based wildfire risk assessment for the Commonwealth of Virginia. While this assessment is not recommended for site-specific determinations of wildfire vulnerability, the data was utilized in this Plan as an indicator of potential areas of wildfire concern within Southampton County. The data was also compared with building footprint data to produce an estimate of the number of structures and, separately, the number of critical facilities potentially at a higher relative level of risk to the wildfire hazard (**Table 5.26**).[11]

[11] Because the wildfire risk assessment data is not intended for site-specific evaluations, no maps have been produced to illustrate those structures believed to be at each varying level of risk.

Table 5.26: Potentially At-risk Structures and Critical Facilities

WILDFIRE THREAT	STRUCTURES	CRITICAL FACILITIES
High		
Unincorporated Southampton County	442 (out of 14,994)	1
Branchville	0 (out of 130)	0
Boykins	30 (out of 492)	0
Capron	0 (out of 179)	0
Courtland	177 (out of 597)	2
Ivor	69 (out of 328)	0
Newsoms	0 (out of 294)	0
Total Intersecting High Threat Category	**718 (out of 17,014)**	**3 (out of 13)**
Moderate		
Unincorporated Southampton County	(7,404 out of 14,994)	2
Branchville	(130 out of 130)	0
Boykins	(116 out of 492)	0
Capron	(43 out of 179)	0
Courtland	(196 out of 597)	1
Ivor	(203 out of 328)	0
Newsoms	(21 out of 294)	0
Total Intersecting Moderate Threat Category	**8,113 (out of 17,014)**	**3 (out of 13)**
Low		
Unincorporated Southampton County	(7,596 out of 14,994)	5
Branchville	(0 out of 130)	0
Boykins	(367 out of 492)	0
Capron	(153 out of 179)	1
Courtland	(266 out of 597)	1
Ivor	(83 out of 328)	0
Newsoms	(281 out of 294)	0
Total Intersecting Low Threat Category	**8,746 (out of 17,014)**	**7 (out of 13)**

Source: GIS Analysis

The method used to identify the number of structures potentially at-risk to the three levels of wildfire threat may result in some double-counting of structures—in some instances a structure may intersect a High wildfire threat area and also intersect a Moderate or Low wildfire threat area. Therefore, the structure would be counted in each of the categories that the structure intersects with.

In addition to this analysis of individual structures, eight woodland home communities comprised of approximately 384 homes (as defined and identified by the Virginia Department of Forestry[12]) have been assessed for wildfire vulnerability. Two of these communities are considered to be at high risk (accounting for approximately 142 homes) and six are considered to be at moderate risk (a total of approximately 242 homes).

[12] The Virginia Department of Forestry defines woodland home communities as clusters of homes located along forested areas at the wildland/urban interface that could possibly be damaged during a nearby wildfire incident.

Social Vulnerability

As an indicator of overall social vulnerability, base-level population data combined with the wildfire analysis presented in the *Hazard Identification and Analysis* section was used to calculate the number of general persons, elderly persons (age 65 and older), and low income persons (income of less than $20,000 per year) living within census blocks that intersect High and Moderate wildfire threat areas (**Table 5.27**).

Table 5.27: Potentially At-risk Population (Countywide)

WILDFIRE THREAT	GENERAL POPULATION	ELDERLY (65 AND OLDER)	LOW INCOME (< $20,000)
High	10,706	1,489	1,101

Source: GIS Analysis

Future Vulnerability and Land Use

Given that the potential loss estimates and annualized losses for this hazard are generally fairly low, it is difficult to assess what significant future vulnerabilities may exist or how land use may factor into discussion of this hazard. Future Plan updates will seek to provide, as data becomes available, a general comparison of areas of high wildfire potential and countywide land use.

Drought

PRI Value: 2.80
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the drought hazard scored a PRI value of 2.80 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.28** summarizes the risk levels assigned to each PRI category.

Table 5.28: Qualitative Assessment for Drought

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Possible	Critical	Large	More Than 24 Hours	More Than 1 Week

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Based on the one official historical occurrence of drought in Southampton County since 1950, which resulted in no reported property or crop damage, annualized losses for the drought hazard is considered to be negligible (less than $1,000). However, the potential impact of future droughts could be critical given existing exposure and vulnerability indicators.

Table 5.29 shows data relevant to the drought hazard for Southampton County, derived from the Agriculture Census of the Unites States (2002), with regard to potential agricultural exposure and vulnerability indicators. It is important to note among these factors that only 3 percent of all harvested cropland is irrigated, leaving the remaining 97 percent at potentially greater risk due to the possibility of greater dependence on rainfall and other natural water sources.

Table 5.29: Agriculture Census of the United States 2002 (Data for Southampton County)

CHARACTERISTIC	VALUE
Average Size of Farms in Acres	613
Percentage of Farms With Sales Less Than $10,000	36%
Percentage of Farms With Sales of $10,000 to $249,000	49%
Average Value of Agricultural Products Sold Per Farm	$127,279
Average Value of Crops Sold Per Acre for Harvested Cropland	$263
Value of Livestock, Poultry and Their Products as a Percentage of the Total Market Value of Agricultural Products Sold	$37
Acres of Total Cropland as a Percentage of Land Area In Acres	23%
Acres of Harvested Cropland as a Percentage of Land In Farms Acreage	49%
Acres of Irrigated Harvested Cropland as a Percentage of All Harvested Cropland Acreage	3%
Corn for Grain, Harvested Acres	10,974
All Wheat for Grain, Harvested Acres	4,158
Upland Cotton, Harvested Acres	31,053
Soybeans for Beans, Harvested Acres	21,019

Source: U.S. Department of Agriculture, National Agricultural Statistics Service

As another indicator of potential vulnerability to the drought hazard, data has been collected from USGS Water Resources showing the estimated use of ground, surface and saline water for public supply, industrial use, irrigation, livestock, mining and thermoelectric power for the year 2000. **Figure 5.14** graphically illustrates the total estimated water use for the region including and surrounding Southampton County. **Table 5.30** provides detailed water use information specific to the county.[13]

Table 5.30: Agriculture Census of the United States 2002 (Data for Southampton County)

CHARACTERISTIC	VALUE
Estimated Total Ground Water and Surface Water Withdrawal of Fresh Water for Public Supply	1.27
Estimated Total Self-Supplied Withdrawal of Fresh Water and Saline Water for Industrial Use	5.03
Estimated Total Withdrawal of Fresh Water for Irrigation	0.89
Estimated Total Ground Water and Surface Water Withdrawal of Fresh Water for Livestock	No Estimate Available
Estimated Total Withdrawal of Fresh Water and Saline Water for Mining	No Estimate Available
Estimated Total Withdrawals of Fresh Water and Saline Water for Thermoelectric Power	0
Estimated Total Withdrawal of Fresh Water and Saline Water for All Categories	**7.80**

Source: USGS Water Resources of the United States

Figure 5.15 shows average annual precipitation for the period 1961 to 1990 for the region including and surrounding Southampton County. Generally speaking, the area that includes Southampton County receives an average of 37.5 to 42.5 inches of precipitation annually.

Social Vulnerability

Due to the widespread, non-localized nature of this hazard, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Therefore, it is assumed that the general population of the county would be uniformly at-risk to varying degrees.

Future Vulnerability and Land Use

All future structures built in Southampton County will be exposed to drought conditions on a comparable level to existing structures; however, the drought hazard typically has little to no physical impact on the built environment in terms of damage to structures, essential facilities or infrastructure elements. Given the lesser nature of this hazard within the planning area, it is not expected that significant changes will be seen in the planning or construction of future building stock in response to this hazard.

[13] Estimates are not available for Southampton County for the livestock and mining categories. Information is also not currently available to map or inventory reservoirs and/or water storage resources that affect Southampton County.

Erosion

PRI Value: 1.50
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the erosion hazard scored a PRI value of 1.50 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.31** summarizes the risk levels assigned to each PRI category.

Table 5.31: Qualitative Assessment for Erosion

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Unlikely	Minor	Small	More Than 24 Hours	More Than 1 Week

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Without the availability of detailed erosion hazard maps, it is difficult to calculate potential losses to existing structures and infrastructure. Due to the highly localized nature of this hazard, it is assumed that annualized losses would be negligible (less than $1,000).

Social Vulnerability

Due to the unmapped, highly localized nature of this hazard, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Therefore, it is assumed that those members of the general population within close proximity to water bodies would be uniformly at-risk to varying degrees.

Future Vulnerability and Land Use

No riverine erosion maps currently exist for Southampton County, and therefore it is difficult to assess future vulnerability and land use with regard to this hazard. Generally speaking, future vulnerability is going to depend greatly on appropriate site planning and permitting where applicable.

Earthquake

PRI Value: 1.90
Annualized Loss Estimate: $4,180

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the earthquake hazard scored a PRI value of 1.90 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.32** summarizes the risk levels assigned to each PRI category.

Table 5.32: Qualitative Assessment for Earthquake

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Unlikely	Minor	Large	Less Than 6 Hours	Less Than 6 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

HAZUS^{MH} was used at the county level to analyze potential losses for the 500, 1,000 and 2,500-year return periods at magnitudes of 5.5, 6.5 and 7.0 respectively. **Table 5.33** shows the annualized losses produced for the earthquake hazard by occupancy class. **Table 5.34** and **Table 5.35** summarize the results of the HAZUS^{MH} analysis performed for residential, commercial, industrial, agriculture, religion/non-profit, government and education structures within Southampton County. This analysis is consistent with the overall methodology described for the HAZUS^{MH} software presented at the beginning of this section. **Table 5.36** and **Table 5.37** provides a breakdown of estimated damages to critical facilities including percent of functionality following the event. For the purposes of these tables, “other losses” include inventory losses, loss of income, wage losses, rental income losses and relocation costs.

Table 5.33: Annualized Losses for Earthquake

BUILDING OCCUPANCY	TOTAL LOSSES	BUILDING LOSSES	CONTENTS LOSSES	OTHER LOSSES
Residential	$3,190	$2,520	$0	$670
Commercial	$830	$310	$0	$520
Industrial	$90	$50	$0	$40
Agriculture	$20	$20	$0	$0
Religion/Non-Profit	$20	$20	$0	$0
Government	$20	$0	$0	$20
Education	$10	$10	$0	$0
TOTAL ALL OCCUPANCIES	**$4,180**	**$2,930**	**$0**	**$1,250**

Source: HAZUS^{MH}

Table 5.34: General HAZUS^{MH} Results for Earthquake

BUILDING OCCUPANCY	TOTAL LOSSES	BUILDING LOSSES	CONTENTS LOSSES	OTHER LOSSES
500-year Event				
Residential	$842,810	$711,530	$62,350	$68,930
Commercial	$81,360	$40,700	$7,680	$32,980
Industrial	$13,780	$7,650	$2,890	$3,240
Agriculture	$1,620	$1,320	$220	$80
Religion/Non-Profit	$6,500	$4,560	$810	$1,130
Government	$2,930	$1,060	$290	$1,580
Education	$4,560	$3,320	$620	$620
TOTAL ALL OCCUPANCIES	**$953,610**	**$770,140**	**$74,870**	**$108,600**
1,000-year Event				
Residential	$5,105,520	$2,096,660	$275,630	$2,733,230
Commercial	$547,310	$139,420	$36,860	$371,030
Industrial	$109,430	$29,520	$12,990	$66,920
Agriculture	$12,480	$4,590	$1,230	$6,660
Religion/Non-Profit	$40,670	$13,890	$3,620	$23,160
Government	$18,190	$3,720	$1,380	$13,090
Education	$31,100	$10,950	$2,890	$17,260
TOTAL ALL OCCUPANCIES	**$5,864,700**	**$2,298,750**	**$334,600**	**$3,231,350**
2,500-year Event				
Residential	$7,375,800	$5,899,550	$1,001,130	$475,120
Commercial	$1,093,620	$559,740	$155,060	$378,820
Industrial	$224,610	$120,620	$53,150	$50,840
Agriculture	$25,350	$18,640	$4,990	$1,720
Religion/Non-Profit	$67,280	$44,920	$14,440	$7,920
Government	$36,190	$15,690	$5,970	$14,530
Education	$62,770	$43,920	$12,320	$6,530
TOTAL ALL OCCUPANCIES	**$8,885,620**	**$6,703,080**	**$1,247,060**	**$935,480**

Source: HAZUS^{MH}

Table 5.35: Estimates of Potential Residential and Commercial Building Damages by Building Count

BUILDING OCCUPANCY	NO DAMAGE	SLIGHT DAMAGE	MODERATE DAMAGE	EXTENSIVE DAMAGE	COMPLETE DESTRUCTION	TOTAL STRUCTURES
500-year Event						
Residential	6,220	184	56	5	0	6,465
Commercial	15	1	0	0	0	16
Other	5	0	0	0	0	5
TOTAL ALL OCCUPANCIES	**6,240**	**185**	**56**	**5**	**0**	**6,486**
1,000-year Event						
Residential	5,901	401	147	16	1	6,466
Commercial	14	1	1	0	0	16
Other	5	0	0	0	0	5
TOTAL ALL OCCUPANCIES	**5,920**	**402**	**148**	**16**	**1**	**6,487**
2,500-year Event						
Residential	5,290	711	391	65	8	6,465
Commercial	11	3	2	0	0	16
Other	4	0	0	0	0	4
TOTAL ALL OCCUPANCIES	**5,305**	**714**	**393**	**65**	**8**	**6,485**

Source: HAZUS^{MH}

Table 5.36: Essential Facilities—Damage State Probability (Earthquake)

	FACILITY NAME	PROBABILITY OF BUILDING DAMAGE				
		NONE	MINOR	MODERATE	EXTENSIVE	COMPLETE
500-year Event						
Fire	Sedley Volunteer Fire Dept	90%	7%	3%	0%	0%
	Courtland Volunteer Fire Dept	90%	7%	3%	1%	0%
	Boykins Fire Dept	90%	7%	3%	1%	0%
Police	Southampton Sheriff	90%	7%	3%	1%	0%
Schools	Southampton Academy	90%	7%	3%	1%	0%
	Boykins Elementary	90%	7%	3%	1%	0%
	Capron Elementary	89%	7%	3%	1%	0%
	Courtland Elementary	90%	7%	3%	1%	0%
	Hunterdale Elementary	90%	7%	3%	0%	0%
	Ivor Elementary	91%	6%	3%	0%	0%
	Southampton High	90%	7%	3%	1%	0%
	Southampton Middle	90%	7%	3%	1%	0%
1,000-year Event						
Fire	Sedley Volunteer Fire Dept	82%	11%	6%	1%	0%
	Courtland Volunteer Fire Dept	81%	12%	6%	1%	0%
	Boykins Fire Dept	81%	12%	6%	1%	0%
Police	Southampton Sheriff	81%	12%	6%	1%	0%
Schools	Southampton Academy	81%	12%	6%	1%	0%
	Boykins Elementary	81%	12%	6%	1%	0%
	Capron Elementary	81%	12%	6%	1%	0%
	Courtland Elementary	81%	12%	6%	1%	0%
	Hunterdale Elementary	82%	11%	6%	1%	0%
	Ivor Elementary	82%	11%	6%	1%	0%
	Southampton High	81%	12%	6%	1%	0%
	Southampton Middle	81%	12%	6%	1%	0%
2,500-year Event						
Fire	Sedley Volunteer Fire Dept	67%	18%	11%	3%	1%
	Courtland Volunteer Fire Dept	67%	18%	12%	3%	1%
	Boykins Fire Dept	67%	18%	12%	3%	1%
Police	Southampton Sheriff	67%	18%	12%	3%	1%
Schools	Southampton Academy	67%	18%	12%	3%	1%
	Boykins Elementary	67%	18%	12%	3%	1%
	Capron Elementary	66%	18%	12%	3%	1%
	Courtland Elementary	67%	18%	12%	3%	1%
	Hunterdale Elementary	68%	17%	11%	3%	1%
	Ivor Elementary	68%	17%	11%	3%	1%
	Southampton High	67%	18%	12%	3%	1%
	Southampton Middle	67%	18%	12%	3%	1%

Source: HAZUS[MH]

Table 5.37: Essential Facilities—Percent Functionality After Event (Earthquake)

	FACILITY NAME	PERCENT FUNCTIONALITY AFTER EVENT					
		DAY 1	DAY 3	DAY 7	DAY 14	DAY 30	DAY 90
500-year Event							
Fire	Sedley Volunteer Fire Dept	90%	90%	97%	97%	99%	100%
	Courtland Volunteer Fire Dept	90%	90%	96%	97%	99%	100%
	Boykins Fire Dept	89%	90%	96%	96%	99%	100%
Police	Southampton Sheriff	90%	90%	96%	97%	99%	100%
Schools	Southampton Academy	81%	81%	92%	93%	99%	99%
	Boykins Elementary	81%	81%	92%	92%	99%	99%
	Capron Elementary	80%	81%	92%	92%	98%	99%
	Courtland Elementary	81%	81%	92%	93%	99%	99%
	Hunterdale Elementary	82%	82%	93%	93%	99%	99%
	Ivor Elementary	82%	82%	93%	93%	99%	99%
	Southampton High	81%	81%	92%	93%	99%	99%
	Southampton Middle	81%	81%	92%	93%	99%	99%
1,000-year Event							
Fire	Sedley Volunteer Fire Dept	82%	82%	93%	93%	99%	99%
	Courtland Volunteer Fire Dept	81%	81%	92%	93%	99%	99%
	Boykins Fire Dept	81%	81%	92%	92%	99%	99%
Police	Southampton Sheriff	81%	81%	92%	93%	99%	99%
Schools	Southampton Academy	81%	81%	92%	93%	99%	99%
	Boykins Elementary	81%	81%	92%	92%	99%	99%
	Capron Elementary	80%	81%	92%	92%	98%	99%
	Courtland Elementary	81%	81%	92%	93%	99%	99%
	Hunterdale Elementary	82%	82%	93%	93%	99%	99%
	Ivor Elementary	82%	82%	93%	93%	99%	99%
	Southampton High	81%	81%	92%	93%	99%	99%
	Southampton Middle	81%	81%	92%	93%	99%	99%
2,500-year Event							
Fire	Sedley Volunteer Fire Dept	67%	68%	84%	85%	96%	98%
	Courtland Volunteer Fire Dept	67%	67%	84%	85%	96%	98%
	Boykins Fire Dept	67%	67%	84%	84%	96%	98%
Police	Southampton Sheriff	67%	67%	84%	85%	96%	98%
Schools	Southampton Academy	67%	67%	84%	85%	96%	98%
	Boykins Elementary	67%	67%	84%	84%	96%	98%
	Capron Elementary	66%	67%	84%	84%	96%	98%
	Courtland Elementary	67%	67%	84%	85%	96%	98%
	Hunterdale Elementary	68%	68%	85%	85%	96%	98%
	Ivor Elementary	68%	68%	85%	85%	96%	98%
	Southampton High	67%	67%	84%	85%	96%	98%
	Southampton Middle	67%	67%	84%	85%	96%	98%

Source: HAZUS^{MH}

Social Vulnerability

Due to the fact that the entire county is located in the same zone of peak ground acceleration as discussed in the *Hazard Identification and Analysis* section, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Overall, it is assumed that the general population of the county would be uniformly at-risk but to a relatively limited degree.

Future Vulnerability and Land Use

All future structures built in Southampton County will be exposed to seismic events on a comparable level to existing structures and may also experience damage not accounted for in the estimated losses presented in this section. Given the lesser nature of this hazard within the planning area, it is not expected that significant changes will be seen in the construction of future building stock in response to seismic concerns.

Sinkhole

PRI Value: 1.80
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the sinkhole hazard scored a PRI value of 1.80 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.38** summarizes the risk levels assigned to each PRI category.

Table 5.38: Qualitative Assessment for Sinkhole

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Possible	Minor	Negligible	Less Than 6 Hours	Less Than 1 Week

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Due to the minor potential impact and highly localized nature of this hazard in Southampton County, few structures or infrastructure elements, if any, are likely to be impacted; therefore, it is expected that potential losses would be negligible.

Social Vulnerability

Due to the unmapped, highly localized nature of this hazard, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Therefore, it is assumed that the general population of the county could potentially be uniformly at-risk to varying degrees.

Future Vulnerability and Land Use

Given that there is little historical evidence of common sinkhole activity resulting in measurable damages, and that potential loss estimates for this hazard are considered to be negligible, it is not possible to assess what future vulnerabilities may exist or how land use may factor into discussion of this hazard.

Landslide

PRI Value: 1.30
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the landslide hazard scored a PRI value of 1.30 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.39** summarizes the risk levels assigned to each PRI category.

Table 5.39: Qualitative Assessment for Landslide

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Unlikely	Minor	Negligible	Less Than 6 Hours	Less Than 6 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Due to the low probability and small potential impact area of this hazard in Southampton County, few structures or infrastructure elements, if any, are likely to be impacted; therefore, it is expected that potential losses would be negligible.

Social Vulnerability

Due to the fact that the entire county is located in the same zone of low landslide incidence as discussed in the *Hazard Identification and Analysis* section, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Overall, it is assumed that the general population of the county would be uniformly at-risk but to a relatively limited degree.

Future Vulnerability and Land Use

Given that there is no historical evidence of landslide activity resulting in measurable damages, and that potential loss estimates for this hazard are considered to be negligible, it is difficult to assess what future vulnerabilities may exist or how land use may factor into this.

Extreme Temperature

PRI Value: 2.10
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the extreme temperature hazard scored a PRI value of 2.10 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.40** summarizes the risk levels assigned to each PRI category.

Table 5.40: Qualitative Assessment for Extreme Temperature

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Possible	Minor	Large	More Than 24 Hours	Less Than 1 Week

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Based on the one official historical occurrence of extreme temperature in Southampton County since 1950, which resulted in no reported property or crop damage, annualized losses for this hazard is considered to be negligible (less than $1,000).

Social Vulnerability

Due to the widespread, non-localized nature of this hazard, it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection. Therefore, it is assumed that the general population of the county would be uniformly at-risk to varying degrees.

Future Vulnerability and Land Use

All future structures built in Southampton County will be exposed to extreme temperatures on a comparable level to existing structures; however, this hazard typically has little to no physical impact on the built environment in terms of substantial damage to structures, essential facilities or infrastructure elements. Given the lesser nature of this hazard within the planning area, it is not expected that significant changes will be seen in the planning or construction of future building stock in response to this hazard.

Hazardous Material Incident

PRI Value: 2.80
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the hazardous material incident hazard scored a PRI value of 2.80 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.41** summarizes the risk levels assigned to each PRI category.

Table 5.41: Qualitative Assessment for Hazardous Material Incident

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Likely	Critical	Small	Less Than 6 Hours	Less Than 24 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Table 5.42 shows potentially at-risk structures according to GIS analysis that utilized building footprint data compared with linear distances of 0.10 mile, 0.25 mile, 0.50 mile and one mile from railroad and 1-mile radii from FEMA-identified fixed HAZMAT sites throughout the county. It is important to note that the categories are not mutually exclusive. In other words, structures estimated to be within 0.10 mile of the railroad are also counted as being within 0.25 mile of the railroad, and so forth.

Table 5.42: Potentially At-risk Structures

PROXIMITY	STRUCTURES
0.10 Mile from Railroad	1,648
0.25 Mile from Railroad	3,358
0.50-Mile from Railroad	4,986
1 Mile from Railroad	7,332
1 Mile from Fixed HAZMAT Sites	545

Source: GIS Analysis

Social Vulnerability

At-risk populations were estimated by locating those census blocks (and the population data associated with each census block) that intersect with structures as identified in the preceding analysis. Given the size of some census blocks, there is a margin of error to be considered; however, by utilizing both census block data and building footprint data, over estimation is minimized to the extent possible in this level of study. Potentially at-risk populations, as shown in **Table 5.43**, are presented in terms of general population, elderly population (male and female persons 65 years of age and older), and low income families and individuals (earning less than $20,000 per year). It is important to note that the categories are not mutually exclusive. In other words, persons estimated to live

within 0.10 mile of the railroad are also counted as living within 0.25 miles of the railroad, and so forth.

Table 5.43: Potentially At-risk Populations

PROXIMITY	GENERAL POPULATION	ELDERLY (65 AND OLDER)	LOW INCOME (< $20,000)
0.10 Mile from Railroad	4,485	741	514
0.25 Mile from Railroad	5,968	963	676
0.50 Mile from Railroad	8,667	1,256	855
1 Mile from Railroad	10,971	1,556	1,044
1 Mile from Fixed HAZMAT Site	603	82	45

Source: GIS Analysis

Future Vulnerability and Land Use

Future land use and zoning of structural development as discussed in previous subsections is expected to have less impact on future vulnerability than the protection of human life through administration of proper emergency notification and evacuation planning with regard to potential hazardous material incidents.

Urban Fire

PRI Value: 1.80
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the urban fire hazard scored a PRI value of 1.80 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.44** summarizes the risk levels assigned to each PRI category.

Table 5.44: Qualitative Assessment for Urban Fire

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Unlikely	Limited	Small	Less Than 6 Hours	Less Than 6 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Given the lack of historical data on major urban fire occurrences in Southampton County, it is difficult to predict the circumstances under which the urban fire hazard would occur and what potential losses would be reasonable to assume. While one major event may result in significant losses, annualizing structural losses over a long period of time would most likely yield an annualized loss estimate of less than $1,000.

Social Vulnerability

According to the U.S. Fire Administration, a division of the Federal Emergency Management Agency, the most at-risk populations, in general, are children, college campus residents, high-rise residents, manufactured home residents, those 65 years of age and older, people with disabilities and rural residents. **Table 5.45** shows the total number of residents of Southampton County within those population groups that most apply to the county.

Table 5.45: Potentially At-risk Populations

POPULATION GROUP	NUMBER
Children (Ages 5 and Under)	899
Elderly (Ages 65 and Over)	2,491
Disabled Status	3,499

Source: GIS Analysis

Future Vulnerability and Land Use

Future land use and construction practices will not increase vulnerability to urban fire due to the adoption and stringent enforcement of structural fire codes in Franklin. New buildings and facilities are not considered nearly as vulnerable as existing, older structures that may have not been built or maintained up to current fire codes.

Terrorism

PRI Value: 1.80
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the terrorism hazard scored a PRI value of 1.80 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.46** summarizes the risk levels assigned to each PRI category.

Table 5.46: Qualitative Assessment for Terrorism

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Unlikely	Limited	Small	Less Than 6 Hours	Less Than 6 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Given the lack of historical occurrences of terrorism in Southampton County, it is difficult to predict the circumstances under which the terrorism hazard would occur and what potential losses would be reasonable to assume. While one major event may result in significant losses, annualizing structural losses over a long period of time would most likely yield an annualized loss estimate of less than $1,000.

Social Vulnerability

At-risk populations would depend on the location and mode of attack as well as other local conditions at the time of occurrence and immediately afterwards. Therefore it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection.

Future Vulnerability and Land Use

Future land use and zoning of structural development as discussed in previous subsections is expected to have less impact on future vulnerability than the protection of human life through administration of proper emergency notification and evacuation planning with regard to potential terrorist attacks. Any larger government or community buildings as well as large infrastructure elements such as dams, nuclear facilities or transportation lifelines constructed in the future may be more at-risk than normal development because these types of facilities present opportunities for greater potential losses in one attack.

Biological Threat

PRI Value: 2.40
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the biological hazard scored a PRI value of 2.40 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.47** summarizes the risk levels assigned to each PRI category.

Table 5.47: Qualitative Assessment for Biological

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Unlikely	Critical	Moderate	Less Than 6 Hours	Less Than 24 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Annualized losses are estimated to be negligible (less than $1,000) due to the relative infrequency of past historical occurrences and it is difficult to predict the circumstances and materials involved in future potential biological incidents.

Social Vulnerability

At-risk populations would depend on the location and type of biological agent released as well as local meteorological conditions at the time of release and immediately afterwards. Therefore it is not possible to identify specific at-risk populations beyond those discussed in the Demographics subsection.

Future Vulnerability and Land Use

Future land use and zoning of structural development as discussed in previous subsections is expected to have less impact on future vulnerability to this hazard than the protection of human life through administration of proper emergency notification and evacuation planning with regard to potential biological threats.

Radiological Threat

PRI Value: 2.30
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the radiological hazard scored a PRI value of 2.30 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.48** summarizes the risk levels assigned to each PRI category.

Table 5.48: Qualitative Assessment for Radiological

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Unlikely	Critical	Moderate	Less Than 6 Hours	Less Than 6 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses and Social Vulnerability

According to the Federal Emergency Management Agency, approximately three million shipments of radioactive materials are made each year by highway, railroad, aircraft and ship. No deaths or serious injuries have ever been attributed to the radioactive nature of any materials involved in a transportation accident.

According to Dominion, if an accident were to occur at the Surry Nuclear Power Plant it is likely that only a part of the area around the station would be affected. To aid in alerting the public in affected areas during an emergency, the area within a 10-mile radius of the facility is divided into 24 “protective action zones.” These zones are identified by political jurisdictions or easily identifiable geographic boundaries. Southampton County is located outside of this 10-mile radius. However, the area within 50 miles of the station, which would include a large portion of Southampton County, would be assessed in the event of an accident to determine if there had been any impact on the environment.

Future Vulnerability and Land Use

Future land use and zoning of structural development as discussed in previous subsections is expected to have less impact on future vulnerability to this hazard than the protection of human life through administration of proper emergency notification and evacuation planning with regard to potential radiological incidents.

Dam Failure

PRI Value: 2.20
Annualized Loss Estimate: Negligible (Less than $1,000)

Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the dam failure hazard scored a PRI value of 2.20 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.49** summarizes the risk levels assigned to each PRI category.

Table 5.49: Qualitative Assessment for Dam Failure

PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION
Unlikely	Critical	Small	Less Than 6 Hours	Less Than 24 Hours

Source: Southampton County Mitigation Advisory Committee

Estimates of Potential Losses

Given the lack of historical data on dam failure occurrences in Southampton County it is assumed that while one major event may result in significant losses, annualizing structural losses over a long period of time would most likely yield an annualized loss estimate of less than $1,000. As stated in previous sections, future Plan updates may include more detailed inundation mapping to identify properties at highest potential risk.

Social Vulnerability

The general at-risk population should a dam fail would be located downstream of the dam within close proximity to the outfall. Protection of human life through administration of proper emergency notification and evacuation planning is crucial to minimizing social losses due to dam failure.

Future Vulnerability and Land Use

Future updates to this Plan will address dam failure and subsequent flood inundation in greater detail, if warranted. This may include a detailed analysis of properties directly downstream of each facility in order to better determine the number of people and value of properties located in potential inundation zones and thereby vulnerable to dam failure. Once a baseline of this detail is established, it should become easier to then assess future vulnerability and land use.

Conclusions on Hazard Risk

The vulnerability assessment performed for Southampton County provides valuable findings that allow the Mitigation Advisory Committee to better prioritize hazard risks and proposed hazard mitigation strategies and actions. Prior to assigning conclusive risk levels for each hazard, the Mitigation Advisory Committee reviewed the results of both the qualitative and quantitative assessments performed, summarized in the following subsections and tables.

Priority Risk Index (Qualitative Assessment)

Table 5.50 summarizes the degree of risk assigned to each category for all identified hazards in Southampton County based on the application of the Priority Risk Index (PRI) tool fully introduced in "Methodologies Used." Assigned risk levels were based on historical and anecdotal data, as well as input from the Mitigation Advisory Committee. The results were then used in calculating PRI values and making conclusions for the qualitative assessment.

Table 5.50: Summary of Qualitative Assessment

HAZARD	CATEGORY/DEGREE OF RISK					
	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	PRI SCORE
Natural Hazards						
Flood	Likely	Critical	Moderate	More Than 24 Hours	More Than 1 Week	**2.90**
Hurricane and Tropical Storm	Likely	Critical	Large	More Than 24 Hours	Less Than 24 Hours	**2.90**
Severe Thunderstorm	Highly Likely	Limited	Moderate	Less Than 6 Hours	Less Than 6 Hours	**2.90**
Tornado	Possible	Critical	Small	Less Than 6 Hours	Less Than 6 Hours	**2.40**
Winter Storm	Likely	Critical[14]	Large	More Than 24 Hours	Less Than 24 Hours	**2.60**
Wildfire	Highly Likely	Limited	Small	Less Than 6 Hours	Less Than 24 Hours	**2.80**
Drought	Possible	Critical	Large	More Than 24 Hours	More Than 1 Week	**2.80**
Erosion	Unlikely	Minor	Small	More Than 24 Hours	More Than 1 Week	**1.50**
Earthquake	Unlikely	Minor	Large	Less Than 6 Hours	Less Than 6 Hours	**1.90**
Sinkhole	Possible	Minor	Negligible	Less Than 6 Hours	Less Than 1 Week	**1.80**
Landslide	Unlikely	Minor	Small	Less Than 6 Hours	Less Than 6 Hours	**1.30**
Extreme Temperature	Possible	Minor	Large	More Than 24 Hours	Less Than 1 Week	**2.10**
Manmade Hazards						
Hazardous Material Incident	Likely	Critical	Small	Less Than 6 Hours	Less Than 24 Hours	**2.80**
Urban Fire	Unlikely	Limited	Small	Less Than 6 Hours	Less Than 6 Hours	**1.80**
Terrorism	Unlikely	Limited	Small	Less Than 6 Hours	Less Than 6 Hours	**1.80**
Biological Threat	Unlikely	Critical	Moderate	Less Than 6 Hours	Less Than 24 Hours	**2.40**
Radiological Threat	Unlikely	Critical	Moderate	Less Than 6 Hours	Less Than 6 Hours	**2.30**
Dam Failure	Unlikely	Critical	Small	Less Than 6 Hours	Less Than 24 Hours	**2.20**

Source: Southampton County Mitigation Advisory Committee

[14] The potential impact for a severe winter storm in Southampton County is determined based on the potential for long-term effects of winter storms in large rural areas (downed power lines, untreated roads, etc.).

Annualized Loss Estimates (Quantitative Assessment)

Table 5.51 summarizes the annualized loss estimates that were generated for the applicable hazards based on the quantitative assessment and compares them with the PRI values determined for each hazard based on the qualitative assessment. The results and comparisons of both assessments aided the Mitigation Advisory Committee in determining the final conclusions on overall hazard risk for Southampton County.

Table 5.51: Comparison of Annualized Loss Estimates and Priority Risk Index (PRI) Values

QUANTITATIVE ASSESSMENT FINDINGS		QUALITATIVE ASSESSMENT FINDINGS	
HAZARD	ANNUALIZED LOSS ESTIMATES	HAZARD	PRI VALUE
Natural Hazards			
Hurricane and Tropical Storm	$480,390	Flood	2.90
Flood	$361,142	Hurricane and Tropical Storm	2.90
Severe Thunderstorm	$120,837	Severe Thunderstorm	2.90
Winter Storm	$41,502	Winter Storm	2.90
Wildfire	$14,229	Drought	2.80
Tornado	$6,127	Wildfire	2.80
Earthquake	$4,180	Tornado	2.40
Drought	Negligible	Extreme Temperature	2.10
Erosion	Negligible	Earthquake	1.90
Sinkhole	Negligible	Sinkhole	1.80
Landslide	Negligible	Erosion	1.50
Extreme Temperature	Negligible	Landslide	1.30
Manmade Hazards			
Hazardous Material (HAZMAT) Incident	Negligible	Hazardous Material (HAZMAT) Incident	2.80
Urban Fire	Negligible	Biological Threat	2.40
Terrorism	Negligible	Radiological Threat	2.30
Biological Threat	Negligible	Dam Failure	2.20
Radiological Threat	Negligible	Urban Fire	1.80
Dam Failure	Negligible	Terrorism	1.80

Final Determinations

The conclusions drawn from the qualitative and quantitative assessments, combined with final determinations from the Mitigation Advisory Committee, were fitted into three categories of hazard risk for Southampton County: High, Moderate or Low (**Table 5.52**). These designations are based on a cross comparison of all risk assessment findings for jurisdictions participating in the development of this Plan.[15] For example, while the drought hazard has little to no estimated quantifiable losses in terms of damage to structures, essential facilities or infrastructure elements, it did receive a relatively high relative PRI value (2.80) through the qualitative assessment. While the winter storm hazard received the same PRI value (2.90) as "high risk" hazards, it was determined to be a moderate risk hazard based on quantitative dollar impacts and the lack of conventional mitigation techniques. Prior to proceeding, final classifications of hazard risk were adopted by the City of Franklin Mitigation Advisory Committee.

Table 5.52: Conclusions on Hazard Risk for Southampton County

HIGH RISK	**Flood** **Hurricane and Tropical Storm** **Severe Thunderstorm**
MODERATE RISK	**Winter Storm** **HAZMAT Incident** **Drought** **Wildfire** **Tornado** **Biological Threat** **Radiological Threat**
LOW RISK	**Dam Failure** **Extreme Temperature** **Earthquake** **Sinkhole** **Urban Fire** **Terrorism** **Erosion** **Landslide**

Source: Southampton County Mitigation Advisory Committee

These conclusions on hazard risk are a basis for the mitigation goals and actions found in the *Mitigation Strategy* and *Mitigation Action Plan* sections.

[15] While it is understood that some communities may have unique hazard risks and vulnerability concerns, it has been determined that in the case of Southampton County and its incorporated jurisdictions that these conclusions on hazard risk are appropriate for the entire planning area.

Capability Assessment

This section of the Plan discusses the capability of Southampton County and the participating towns to implement hazard mitigation activities. It consists of the following five subsections:

- What is a Capability Assessment?
- Conducting the Capability Assessment
- Capability Assessment Findings
- Previously Implemented Mitigation Measures
- Conclusions on Local Capability
- Linking Capability with Risk

What is a Capability Assessment?

The purpose of conducting a capability assessment is to determine the ability of a local jurisdiction to implement a comprehensive mitigation strategy, and to identify potential opportunities for establishing or enhancing specific mitigation policies, programs or projects.[1] As in any planning process, it is important to try to establish which goals, objectives and/or actions are feasible, based on an understanding of the organizational capacity of those agencies or departments tasked with their implementation. A capability assessment helps to determine which mitigation actions are practical and likely to be implemented over time given a local government's planning and regulatory framework, level of administrative and technical support, amount of fiscal resources and current political climate.

A capability assessment has two primary components: an inventory of a local jurisdiction's relevant plans, ordinances or programs already in place; and an analysis of its capacity to carry them out. Careful examination of local capabilities will detect any existing gaps, shortfalls or weaknesses with ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. A capability assessment also highlights the positive mitigation measures already in place or being implemented at the local government level, which should continue to be supported and enhanced if possible through future mitigation efforts.

The capability assessment completed for Southampton County and its towns serves as a critical planning step and an integral part of the foundation for designing an effective multi-jurisdictional hazard mitigation strategy. Coupled with the *Risk Assessment*, the *Capability Assessment* helps identify and target meaningful mitigation actions for incorporation in the *Mitigation Strategy* portion

[1] While the Interim Final Rule for implementing the Disaster Mitigation Act of 2000 does not require a local capability assessment to be completed for local hazard mitigation plans, it is a critical step to develop a mitigation strategy that meets the needs of each jurisdiction while taking into account their own unique abilities. The Rule does state that a community's mitigation strategy should be "based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools" (44 CFR, Part 201.6(c)(3)).

of the Hazard Mitigation Plan. It not only helps establish the goals and objectives for Southampton County to pursue under this Plan, but also ensures that those goals and objectives are realistically achievable under given local conditions.

Conducting the Capability Assessment

In order to facilitate the inventory and analysis of local government capabilities throughout Southampton County, a detailed Capability Assessment Survey[2] was distributed to representatives of Southampton County and town jurisdictions. The survey questionnaire, which was completed by PBS&J with assistance from appropriate local government officials, requested information on a variety of "capability indicators" such as existing local plans, policies, programs or ordinances that contribute to and/or hinder the community's ability to implement hazard mitigation actions. Other indicators included information related to each jurisdiction's fiscal, administrative and technical capabilities such as access to local budgetary and personnel resources for mitigation purposes. Survey respondents were also asked to comment on the current political climate in their jurisdiction to implement mitigation actions, an important consideration for any local planning or decision making process.

At a minimum, survey results provide an extensive inventory of existing local plans, ordinances, programs and resources in place or under development in addition to their overall effect on hazard loss reduction. In completing the survey, local officials were also required to conduct a self-assessment of their jurisdiction's specific capabilities. The survey instrument thereby not only helps accurately assess each jurisdiction's degree of local capability, but also serves as a good source of introspection for those jurisdictions wishing to improve their capability as identified gaps, weaknesses or conflicts can be recast as opportunities for specific actions to be proposed as part of the community's mitigation strategy.

The information provided by participating jurisdictions in response to the survey questionnaire was incorporated into a database for further analysis. A general scoring methodology[3] was then applied to quantify and rank each jurisdiction's overall capability relative to one another. According to the scoring system, each capability indicator was assigned a point value based on its relevance to hazard mitigation. Additional points were added based on each jurisdiction's self-assessment of their own planning and regulatory capability, administrative and technical capability, fiscal capability and political capability.

A total score and general capability rating of "High," "Moderate" or "Limited" was then determined for each jurisdiction according to the total number of points received. These classifications are designed to provide nothing more than a general assessment of each individual jurisdiction's local capability relative to one another using a consistent methodology. In combination with the narrative responses provided by local officials, the results of this multi-jurisdictional capability assessment lend critical information for developing an effective and meaningful mitigation strategy.

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[2] The *Capability Assessment Survey* instrument used to assess County and town capabilities is available through Southampton County upon request.
[3] The scoring methodology used to quantify and rank local capability is fully described later in this section of the Plan under *Conclusions on Local Capability*.

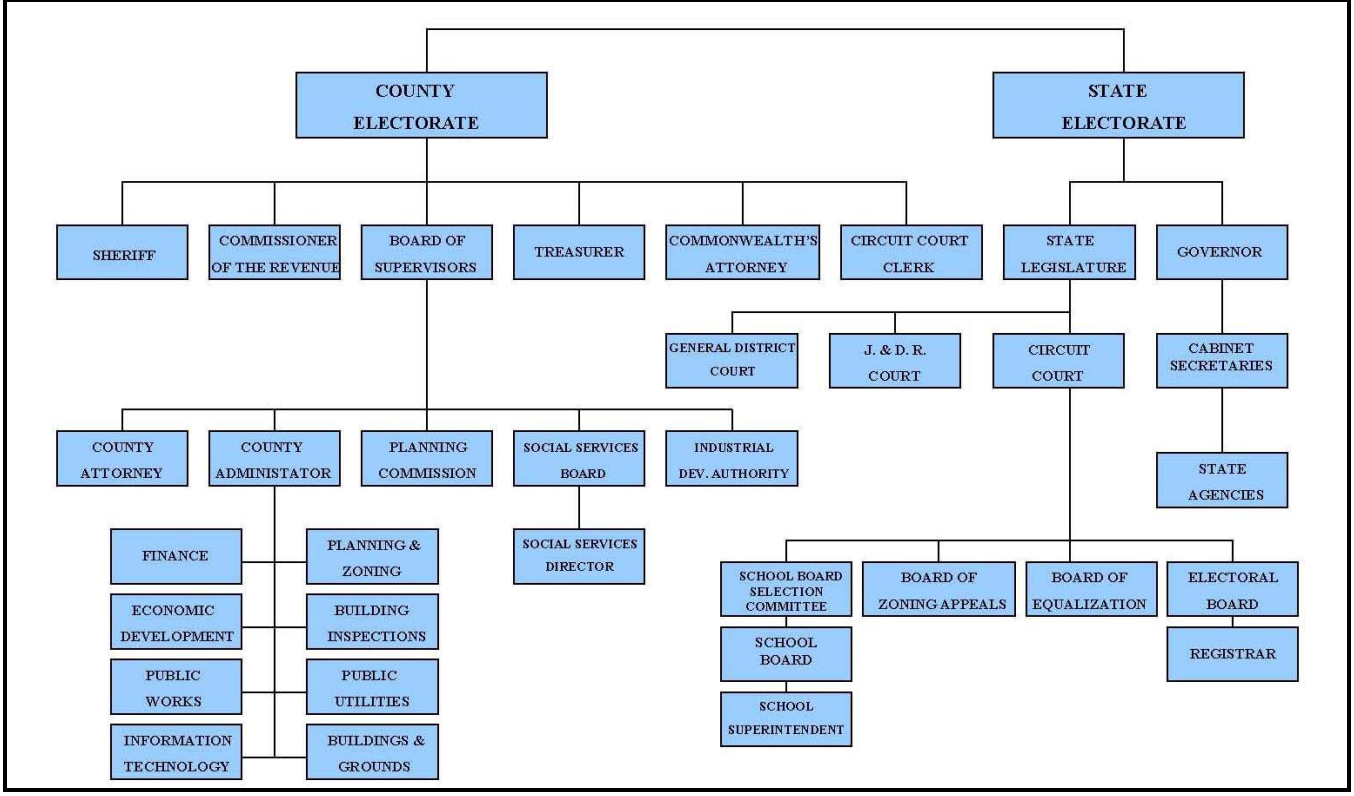
Capability Assessment Findings

The findings of the capability assessment are summarized in this Plan to provide insight into relevant capacity of Southampton County's jurisdictions to implement hazard mitigation activities. All information is based upon the responses provided by local government officials to the Capability Assessment Survey and during meetings of the Mitigation Advisory Committee. All completed survey questionnaires are available through Southampton County upon request.

Overview of Local Government Structure

Southampton County's governing body is the Board of Supervisors, which is comprised of seven Southampton County citizens, one each from seven election districts. Supervisors serve a four-year term with a Chairman and Vice-Chairman elected annually. The Board has overall administrative and legislative responsibilities, including the levying of county taxes, appropriating funds, approving and enforcing the Comprehensive Plan, which governs land use, the making and enforcing ordinances and setting policies and procedures for the citizens of Southampton County. The County Administrator is the chief administrative officer and oversees the daily operations of the County government. An organizational chart for Southampton County's government structure is provided as **Figure 6.1**.

Figure 6.1: Southampton County Organizational Chart



The towns of Boykins, Branchville, Capron, Courtland, Ivor and Newsoms operate under the leadership of mayors directed by town councils. It is particularly worth noting that Southampton County oversees many of the planning, regulatory and administrative activities on behalf of the incorporated towns.[4] This includes the provision of services such as schools, sewer and water, emergency management, fire protection and building code enforcement. The County also spearheads coordination with regional, state and federal agencies on a variety of grant programs and countywide planning initiatives. This continued cooperation and coordination helps facilitate increased capability among all jurisdictions within Southampton County.

Planning and Regulatory Capability

Planning and regulatory capability is based on the implementation of plans, ordinances and programs that demonstrate a local jurisdiction's commitment to guiding and managing growth, development and redevelopment in a responsible manner while maintaining the general welfare of the community. It includes emergency response and mitigation planning, comprehensive land use planning and transportation planning in addition to the enforcement of zoning or subdivision ordinances and building codes that regulate how land is developed and structures are built, as well as protecting environmental, historic and cultural resources in the community. Although some conflicts can arise, these planning initiatives generally present significant opportunities to integrate hazard mitigation principles and practices into the local decision making process.

This assessment is designed to provide a general overview of the key planning and regulatory tools or programs in place or under development for jurisdictions in Southampton County, along with their potential effect on loss reduction. This information will help identify opportunities to address existing gaps, weaknesses or conflicts with other initiatives in addition to integrating the implementation of this Plan with existing planning mechanisms, where appropriate.

Table 6.1 provides a summary of the relevant local plans, ordinances and programs already in place or under development for Southampton County's participating local jurisdictions. A checkmark (✓) indicates that the given item is currently in place and being implemented by the local jurisdiction, or that it is currently being developed for future implementation. A "**C**" symbol indicates that the given item is in place for a town jurisdiction but is maintained and administered by Southampton County. Each of these other local plans, ordinances and programs should be considered available mechanisms for incorporating the requirements of the All-Hazards Mitigation Plan.

[4] Each incorporated town in Southampton County has adopted its own zoning ordinance and provides for its own law enforcement, but relies heavily on coordination with Southampton County for most public services.

Table 6.1: Relevant Plans, Ordinances and Programs

PLANNING / REGULATORY TOOL	SOUTHAMPTON COUNTY	BOYKINS	BRANCHVILLE	CAPRON	COURTLAND	IVOR	NEWSOMS
Hazard Mitigation Plan	✓	C	C	C	C	C	C
Comprehensive Land Use Plan	✓	✓	✓	✓	✓	✓	✓
Floodplain Management Plan							
Open Space Management Plan	✓						
Stormwater Management Plan							
Flood Response Plan	✓						
Emergency Operations Plan	✓	C	C	C	C	C	C
SARA Title III Plan	✓						
Radiological Emergency Plan	✓						
Continuity of Operations Plan	✓						
Evacuation Plan	✓						
Disaster Recovery Plan	✓						
Capital Improvements Plan	✓						
Economic Development Plan	✓	✓	✓	✓	✓	✓	✓
Historic Preservation Plan							
Flood Damage Prevention Ordinance	✓	✓	✓		✓	✓	✓
Zoning Ordinance	✓	✓	✓	✓	✓	✓	✓
Subdivision Ordinance	✓	✓	✓	✓	✓	✓	✓
Unified Development Ordinance							
Post-disaster Red/Rec. Ordinance							
Building Code	✓	C	C	C	C	C	C
Fire Code	✓	C	C	C	C	C	C
National Flood Insurance Program	✓	✓	✓		✓	✓	✓
NFIP Community Rating System							

A more detailed discussion on each jurisdiction's planning and regulatory capability follows, along with the incorporation of additional information based on the narrative comments provided by local officials in response to the survey questionnaire or follow-up interviews.

Emergency Management

Hazard mitigation is widely recognized as one of the four primary phases of emergency management. The three other phases include preparedness, response and recovery. In reality, each phase is interconnected with hazard mitigation as **Figure 6.2** suggests. Opportunities to reduce potential losses through mitigation practices are most often implemented before disaster strikes, such as elevation of flood prone structures or through the continuous enforcement of regulatory policies that prevent hazardous construction. However, mitigation opportunities will also be presented during immediate

preparedness or response activities (such as installing storm shutters in advance of a hurricane), and certainly during the long-term recovery and redevelopment process following a hazard event.

Figure 6.2: The Four Phases of Emergency Management

Planning for each phase is a critical part of a comprehensive emergency management program and a key to the successful implementation of hazard mitigation actions. As a result, the Capability Assessment Survey asked several questions across a range of emergency management plans in order to assess the jurisdiction's willingness to plan and their level of technical planning proficiency.

Hazard Mitigation Plan: A hazard mitigation plan represents a community's blueprint for how it intends to reduce the impact of natural and/or human-caused hazards on people and the built environment. The essential elements of a hazard mitigation plan include a risk assessment, capability assessment and mitigation strategy.

- Prior to this Plan, no local hazard mitigation plan was in place for Southampton County or its incorporated jurisdictions. The County has however implemented a wide variety of hazard mitigation projects, particularly following Hurricane Floyd in 1999 (see subsection for Previously Implemented Mitigation Measures).

Disaster Recovery Plan: A disaster recovery plan serves to guide the physical, social, environmental and economic recovery and reconstruction process following a disaster. In many instances, hazard mitigation principles and practices are incorporated into local disaster recovery plans with the intent of capitalizing on opportunities to break the cycle of repetitive disaster losses. Disaster recovery plans can also lead to the preparation of disaster redevelopment policies and ordinances to be enacted following a hazard event.

- Southampton County addresses disaster recovery as a component of the Emergency Operations Plan, but does not have a stand alone Disaster Recovery Plan.

Emergency Operations Plan: An emergency operations plan outlines responsibilities and the means by which resources are deployed during and following an emergency or disaster.

- Southampton County maintains a countywide Emergency Operations Plan to address emergency preparedness and response activities in coordination with each of the towns. The County Administrator serves as the coordinator of emergency management during local emergencies and disasters in a manner consistent with the EOP.

Continuity of Operation Plan: A continuity of operations plan establishes a chain of command, line of succession and plans for backup or alternate emergency facilities in case of an extreme emergency or disaster event.

- Southampton County addresses the continuity of County operations as a component of the Emergency Operations Plan, but does not have a stand alone Continuity of Operations Plan.

Radiological Emergency Plan: A radiological emergency plan delineates roles and responsibilities for assigned personnel and the means to deploy resources in the event of a radiological accident.

- Southampton County addresses radiological emergencies as a component of the Emergency Operations Plan, but does not have a stand alone Radiological Emergency Plan.

SARA Title III Emergency Response Plan: A SARA Title III Emergency Response Plan outlines the procedures to be followed in the event of a chemical emergency such as the accidental release of toxic substances. These plans are required by federal law under Title III of the Superfund Amendments and Re-authorization Act (SARA), also known as the Emergency Planning and Community Right-to-Know Act (EPCRA).

- Southampton County participates on the Southampton/Franklin Joint Local Emergency Planning Committee (LEPC) in compliance with SARA Title III and maintains response plans accordingly.

General Planning

The implementation of hazard mitigation activities often involves agencies and individuals beyond the emergency management profession. Other stakeholders may include local planners, public works officials, economic development specialists and others. In many instances, concurrent local planning efforts will help to achieve or complement hazard mitigation goals even though they are not designed as such. Therefore, the Capability Assessment Survey also asked questions regarding each jurisdiction's general planning capabilities and to what degree hazard mitigation is integrated into other on-going planning efforts.

Comprehensive Land Use Plan: A comprehensive land use plan establishes the overall vision for what a community wants to be and a guide to future governmental decision making. Typically a comprehensive plan is comprised of demographic conditions, land use, transportation elements and community facilities. Given the broad nature of the plan and its regulatory standing in many

communities, the integration of hazard mitigation measures into the comprehensive plan can enhance the likelihood of achieving risk reduction goals, objectives and actions.

- Southampton County maintains a Comprehensive Plan as a statement of policy for future growth. The current version of the Plan was prepared in the year 2000 and is based upon the target date of 2020. The Plan is scheduled to go through a review and update process in FY-2006. The current version has been regularly referred to throughout the County's mitigation planning process.

- The Southampton County Comprehensive Plan includes goals and implementation strategies for actions that address each the following elements: Natural Conditions; Population and Demographic Analysis; Economy; Housing; Transportation; Community Facilities and Services and Utilities; and Growth Management.

- Each town has developed its own Comprehensive Plan, but many of these plans have not been recently updated with the exception of Courtland.

Capital Improvements Plan: A capital improvement plan guides the scheduling of spending on public improvements. A capital improvements plan can serve as an important mechanism to guide future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments.

- Southampton County maintains a Capital Improvements Plan, which is regularly updated every four years. The current version was completed in 2001 and is for Fiscal Years 2002-2003 through 2006-2007.

Historic Preservation Plan: A historic preservation plan is intended to preserve historic structures or districts within a community. An often overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards to include the identification of the most effective way to reduce future damages.[5] This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards or are within a historic district that cannot easily be relocated out of harms way.

- Southampton County does not have Historic Preservation Plan in place, though it does include a number of structures designated on the National Registry of Historic Places (though no registered neighborhoods of contiguous historic structures).

Zoning Ordinances: Zoning represents the primary means by which land use is controlled by local governments. As part of a community's police power, zoning is used to protect the public health, safety and welfare of those in a given jurisdiction that maintains zoning authority. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable local governments to limit the type and density of development, it can serve as a powerful tool when applied in identified hazard areas.

[5] See *Protecting the Past from Natural Disasters*. 1989. Nelson, Carl. National Trust for Historic Preservation: Washington, D.C.

- Southampton County and all of its incorporated towns have adopted and enforce local zoning ordinances.

Subdivision Ordinances: A subdivision ordinance is intended to regulate the development of housing, commercial, industrial or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Subdivision design that accounts for natural hazards can dramatically reduce the exposure of future development.[6]

- Southampton County and all of its incorporated towns have adopted and enforce local subdivision ordinances.

Building Codes, Permitting and Inspections: Building Codes regulate construction standards. In many communities, permits are issued for, and inspections of work take place on, new construction. Decisions regarding the adoption of building codes (that account for hazard risk), the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community.

- Southampton County has adopted and enforces the Virginia Uniform Statewide Building Code (USBC) for all unincorporated areas as well as the incorporated towns.

The adoption and enforcement of building codes by local jurisdictions is routinely assessed through the Building Code Effectiveness Grading Schedule (BCEGS) program developed by the Insurance Services Office, Inc. (ISO).[7] Under the BCEGS program, ISO assesses the building codes in effect in a particular community and how the community enforces its building codes, *with special emphasis on mitigation of losses from natural hazards*. The results of BCEGS assessments are routinely provided to ISO's member private insurance companies, which in turn may offer ratings credits for new buildings constructed in communities with strong BCEGS classifications. The concept is that communities with well-enforced, up-to-date codes should demonstrate better loss experience, and insurance rates can reflect that.

In conducting the assessment, ISO collects information related to personnel qualification and continuing education as well as number of inspections performed per day. This type of information, combined with local building codes, is used to determine a grade for that jurisdiction. The grades range from 1 to 10, with the lower grade being more ideal. A BCEGS grade of 1 represents exemplary commitment to building code enforcement, and a grade of 10 indicates less than minimum recognized protection.

- Southampton County and each of its incorporated towns received a BCEGS grade of four (4) in the year 2004 indicating a very strong local building code program.

[6] For additional information regarding the use of subdivision regulations in reducing flood hazard risk, see *Subdivision Design in Flood Hazard Areas*. 1997. Morris, Marya. Planning Advisory Service Report Number 473. American Planning Association: Washington, D.C.

[7] Participation in BCEGS is voluntary and may be declined by local governments if they do not wish to have their local building codes evaluated.

Floodplain Management

Flooding represents the greatest natural hazard facing the nation. At the same time, the tools available to reduce the impacts associated with flooding are among the most developed when compared to other hazard-specific mitigation techniques. In addition to approaches that cut across hazards, such as education, outreach, and the training of local officials, the National Flood Insurance Program (NFIP) contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments, but the program is promoted by FEMA as a first basic step for implementing and sustaining an effective hazard mitigation program. It is therefore used as a key indicator for measuring local capability as part of this assessment.

In order for a county, city or town to join the NFIP, they must adopt a local flood damage prevention ordinance that requires jurisdictions to follow established minimum building standards in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by the 100-year flood, and that new floodplain development will not aggregate existing flood problems or increase damage to other properties.

Another key service provided by the NFIP is the mapping of identified flood hazard areas. Once prepared, the Flood Insurance Rate Maps (FIRMs) are used to assess flood hazard risk, regulate construction practices and set flood insurance rates. FIRMs are an important source of information to educate residents, government officials and the private sector about the likelihood of flooding in their community.

Table 6.2 summarizes NFIP participation for each of Southampton County's local jurisdictions along with general NFIP policy data.[8] As can be seen, all jurisdictions participate in the NFIP with the exception of the Town of Capron (no Special Flood Hazard Areas identified within its jurisdiction). Each participating jurisdiction is committed to maintaining its continued compliance with the NFIP.

Table 6.2: NFIP Participation in Southampton County

JURISDICTION	NFIP ENTRY DATE	CURRENT EFFECTIVE MAP	NUMBER OF POLICIES	AMOUNT OF COVERAGE	NUMBER OF LOSSES	TOTAL PAYMENTS
Southampton County	1982	2002	113	$17,899,900	51	$2,517,182
Boykins	1982	2002	10	$1,564,300	1	$10,170
Branchville	1979	2002	2	$230,000	–	–
Capron	N/A*	2002	–	–	–	–
Courtland	1982	2002	20	$5,734,400	4	$27,905
Ivor	2002	2002	1	$350,000	–	–
Newsoms	2004	2002	–	–	–	–
TOTAL			**146**	**$25,778,600**	**56**	**$2,555,257**

Source: Federal Emergency Management Agency
** - Not currently in the NFIP*

[8] General NFIP participation data provided through the Federal Emergency Management Agency's Community Status Book (June 2005). NFIP policy and claims data are current as of December 2004.

An additional indicator of floodplain management capability is the active participation of local jurisdictions in the Community Rating System (CRS). The CRS is an incentive-based program that encourages counties and municipalities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP, adding extra local measures to provide protection from flooding. All of the 18 creditable CRS mitigation activities are assigned a range of point values. As points are accumulated and reach identified thresholds, communities can apply for an improved CRS class. Class ratings, which run from 10 to 1, are tied to flood insurance premium reductions as shown in **Table 6.3**. As class ratings improve (decrease), the percent reduction in flood insurance premiums for NFIP policy holders in that community increases.

Table 6.3: CRS Premium Discounts, By Class

CRS CLASS	PREMIUM REDUCTION
1	45%
2	40%
3	35%
4	30%
5	25%
6	20%
7	15%
8	10%
9	5%
10	0

Source: Federal Emergency Management Agency

Community participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. The CRS application process has been greatly simplified over the past several years based on community comments to make the CRS more user friendly as possible, and extensive technical assistance is also available for communities who request it.

- Currently, neither Southampton County nor any of its incorporated towns participate in the Community Rating System, but it is believed that they would receive a number of credit points based on past or existing mitigation efforts.

Floodplain Management Plan: A floodplain management plan (or a flood mitigation plan) provides a framework for action regarding the corrective and preventative measures in place to reduce flood-related impacts.

- Neither Southampton County nor its incorporated towns have a stand alone Floodplain Management Plan, though floodplain districts are regulated through the local zoning and flood damage prevention ordinances.

Open Space Management Plan: An open space management plan is designed to preserve, protect and restore largely undeveloped lands in their natural state, and to expand or connect areas in the public domain such as parks, greenways

and other outdoor recreation areas. In many instances open space management practices are consistent with the goals of reducing hazard losses, such as the preservation of wetlands or other flood-prone areas in their natural state in perpetuity.

- Southampton County does not have a stand alone Open Space Management Plan, though the subject of open space is adequately addressed in the Comprehensive Plan.

Stormwater Management Plan: A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding.

- Neither Southampton County nor its incorporated towns have a Stormwater Management Plan.

Administrative and Technical Capability

The ability of a local government to develop and implement mitigation projects, policies and programs is directly tied to its ability to direct staff time and resources for that purpose. Administrative capability can be evaluated by determining how mitigation-related activities are assigned to local departments and how adequate the personnel resources are for carrying the activities out. The degree of intergovernmental coordination among departments will also affect administrative capability for the implementation and success of proposed mitigation activities. Technical capability can generally be evaluated by assessing the level of knowledge and technical expertise of local government employees, such as personnel skilled in using Geographic Information Systems (GIS) to analyze and assess community hazard vulnerability.

The Capability Assessment Survey was used to capture information on administrative and technical capability through the identification of available staff and personnel resources. **Table 6.4** provides a summary of the results for each jurisdiction in Southampton County. A checkmark (✓) indicates that the given local staff member(s) is maintained through each particular jurisdiction's local government resources. Additional information on administrative and technical capability for Southampton County's jurisdictions is provided in the hard copies completed surveys which can be obtained through Southampton County.

Table 6.4: Relevant Staff / Personnel Resources

STAFF / PERSONNEL RESOURCES	SOUTHAMPTON COUNTY	BOYKINS	BRANCHVILLE	CAPRON	COURTLAND	IVOR	NEWSOMS
Planners with knowledge of land development and land management practices	✓				✓		
Engineers or professionals trained in construction practices related to buildings and/or infrastructure		✓			✓		
Planners or engineers with an understanding of natural and/or human-caused hazards	✓						
Emergency manager	✓						
Floodplain manager	✓						
Land surveyors							
Scientist familiar with the hazards of the community							
Staff with education or expertise to assess the community's vulnerability to hazards	✓						
Personnel skilled in Geographic Information Systems (GIS) and/or HAZUS	✓						
Resource development staff or grant writers							

Fiscal Capability

The ability of a local government to take action is often closely associated with the amount of money available to implement policies and projects.[9] This may take the form of outside grant funding awards or locally-based revenue and financing. The costs associated with mitigation policy and project implementation vary widely. In some cases, policies are tied primarily to staff time or administrative costs associated with the creation and monitoring of a given program. In other cases, direct expenses are linked to an actual project such as

[9] Gaining access to federal, state or other sources of funding is often an overriding factor driving the development of hazard mitigation plans. However, an important objective of local governments seeking a more sustainable future is the concept of self reliance. Over time, local jurisdictions should seek the means to become less dependent on federal assistance, developing a more diversified approach that assesses the availability of federal, state and locally-generated funding to implement mitigation actions. Additional assistance may be available from the business and corporate sector as well as certain non-profit organizations. This should be coupled with an attempt to identify mitigation measures that cost little or no money, yet may compliment the larger array of actions identified in the plan.

the acquisition of flood-prone homes, which can require a substantial commitment from local, state and federal funding sources.

The Capability Assessment Survey was used to capture information on each jurisdiction's fiscal capability through the identification of locally available financial resources. **Table 6.5** provides a summary of the results for each jurisdiction in Southampton County. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including as match funds for state and federal mitigation grant funds). Additional information on fiscal capability for Southampton County's jurisdictions is provided in the hard copies completed surveys which can be obtained through Southampton County.

Table 6.5: Relevant Fiscal Resources

FISCAL RESOURCES	SOUTHAMPTON COUNTY	BOYKINS	BRANCHVILLE	CAPRON	COURTLAND	IVOR	NEWSOMS
Capital Improvement Programming	✓						
Community Development Block Grants (CDBG)	✓	✓	✓	✓	✓	✓	✓
Special Purpose Taxes (or tax districts)							
Gas / Electric Utility Fees	✓						
Water / Sewer Fees	✓			✓	✓	✓	
Stormwater Utility Fees							
Development Impact Fees							
General Obligation, Revenue and/or Special Tax Bonds	✓	✓	✓	✓	✓	✓	✓
Partnering Arrangements or Intergovernmental Arrangements	✓						
Other:							

Political Capability

One of the most difficult capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to reduce the impact of future hazard events. Hazard mitigation may not be a local priority, may conflict or could mistakenly be seen as an impediment to other goals of the community, such as growth and economic development. Therefore the local political climate must be considered in designing mitigation strategies, as it could

be the most difficult hurdle to overcome in accomplishing their adoption or implementation.

The Capability Assessment Survey was used to capture information on each jurisdiction's political capability. Survey respondents were asked to identify some general examples of political capability for their jurisdiction, such as guiding development away from identified hazard areas, restricting public investments or capital improvements within hazard areas, or enforcing local development standards that go beyond minimum state or federal requirements (e.g. building codes, floodplain management, etc.).

- Survey responses and follow-up interviews indicate that there is a strong local commitment to mitigation the effects of natural and manmade hazards throughout Southampton County. These findings are further confirmed through the area's past mitigation activities as described in the subsection *Previously Implemented Mitigation Measures*.

County and Town Self Assessment

In addition to the inventory and analysis of specific local capabilities, the Capability Assessment Survey required each local jurisdiction to conduct its own self assessment of its capability to implement hazard mitigation activities. As part of this process, county and town officials were encouraged to consider the barriers to implementing proposed mitigation strategies in addition to the mechanisms that could enhance or further such strategies. In response to the survey questionnaire, local officials classified each of the aforementioned capabilities as either "limited," "moderate" or "high."

Table 6.6 summarizes the results of the self assessment process for each jurisdiction in Southampton County. An "**L**" indicates limited capability; an "**M**" indicated moderate capability; and an "**H**" indicates high capability.

Table 6.6: Self-Assessment of Local Capability

JURISDICTION	PLANNING AND REGULATORY CAPABILITY	ADMINISTRATIVE AND TECHNICAL CAPABILITY	FISCAL CAPABILITY	POLITICAL CAPABILITY	OVERALL CAPABILITY
Southampton County	**M**	**M**	**L**	**M**	**M**
Boykins	**L**	**L**	**L**	**M**	**L**
Branchville	**L**	**L**	**L**	**M**	**L**
Capron	**L**	**L**	**L**	**M**	**L**
Courtland	**M**	**M**	**L**	**M**	**M**
Ivor	**L**	**L**	**L**	**M**	**L**
Newsoms	**L**	**L**	**L**	**M**	**L**

Previously Implemented Mitigation Measures

The success of future mitigation efforts in a community can be gauged to some extent by its past efforts. Previously implemented mitigation measures indicate that there is, or has been, a desire to reduce the effects of natural hazards, and the success of these projects can be influential in building local government support for new mitigation efforts.

Southampton County has implemented a wide range of hazard mitigation measures, particularly as it relates to the flood hazard. Following Hurricane Floyd in 1999, Southampton County matched federal Hazard Mitigation Grant Program (HMGP) funds to implement a number of projects that cost nearly $2 million. This included the acquisition of 67 residential properties with structures that had been damaged or destroyed by flooding. The acquisition projects required the demolition of structures and resulted in the County owning another more than 42 acres of flood prone properties that will be maintained as open space for perpetuity. The County also managed the elevation of three structures to comply with NFIP requirements for a total cost of nearly $120,000 (included temporary relocation costs for the residents), and also helped fund one industrial floodproofing project.

Following Hurricane Floyd in 1999, Southampton County used federal hazard mitigation funds to elevate structures that had been damaged by flooding.

(Photo credit: Southampton County)

Southampton County and all of its jurisdictions with identified flood hazard areas actively participate in the NFIP, requiring that development standards are enforced to minimize potential flood damage. Southampton County goes beyond the minimum federal requirements under NFIP to enforce a "freeboard" of one foot (all structures approved for construction in floodplain areas are required to have first floor elevations of one foot above the 100-year base flood elevation). The County also enforces a substantial damage provision that requires any existing floodplain structure to come into code compliance when any modification, alteration, repair reconstruction or improvement exceeds 50 percent of its market value. This provision was enforced through joint building inspections following the flood damages caused by Hurricane Floyd in 1999.

Other previously implemented mitigation measures in Southampton County include a drainage study in Courtland (improvements under way), the installation of emergency back-up generators at town critical facilities and a requirement that electrical power lines in new subdivisions be supplied underground.

A number of protective emergency measures have been implemented by towns throughout Southampton County, such as the installation of this emergency generator at Branchville's volunteer fire station.

(PBS&J Project Photo)

American Red Cross

The American Red Cross of Southeastern Virginia has significantly involved in disaster awareness and education, particularly in preparedness to respond to disasters. The Franklin/Southampton Service Delivery Unit is a part of the Southeastern Virginia Chapter, whereby the Southeastern Virginia Chapter certifies the Franklin/Southampton Unit to perform the services required by the Red Cross.

In addition to service provided by the Southeastern Virginia Chapter for employees and volunteers, training events have prepared additional Franklin/Southampton Service Delivery Unit staff and volunteers to provide service. Staff and Volunteers are continuing to seek every opportunity for training. One of their volunteers is a Disaster Services instructor and teaches these courses locally.

Franklin High School and Southampton High School have both been established as American Red Cross approved shelters. Emergency plans are coordinated with the Southampton County Department of Social Services and the City of Franklin Department of Social Services. Both departments will man the shelters and have been trained in shelter operations.

The Franklin/Southampton Service Delivery Unit always has a volunteer that is "on-call" with the unit cell phone. This cell phone enables the Red Cross to be on call twenty-four hours a day seven days a week. Staff keeps the fire departments updated with information about any changes.

The Franklin/Southampton Service Delivery Unit has many committees. Two committees that are necessary for Community Disaster Education are the Emergency Services Committee and the Finance Committee for funding sources. The primary duties of these committees are:

Emergency Services Committee:

1. See that immediate emergency needs of shelter, food, and clothing are provided for those impacted by disaster by well-trained staff and volunteers.
2. Make sure that emergency military contacts are made for families of service men.
3. Help people to prevent, prepare for, and recover from disasters through Community Disaster Education, activation of Disaster Action Teams, and ongoing volunteer recruitment and training.
4. Arrange for agreements to be signed and or updated between the Red Cross and local merchants for the provision of emergency food, clothing and shelter through Disbursing Orders.

Finance Committee:

1. Work with the Southeastern Virginia Chapter staff to set fundraising goals.
2. Create mailing list and locate potential major donors.
3. Conduct an annual membership campaign.
4. Plan special Red Cross Month event in March.
5. Identify grant sources and assist in preparation funding requests.

Conclusions on Local Capability

In order to form meaningful conclusions on the assessment of local capability, a quantitative scoring methodology was designed and applied to results of the Capability Assessment Survey. This methodology, further described below, attempts to assess the level of capability for each jurisdiction in Southampton County by determining a general capability rating for each.

Points System for Capability Ranking

0-24 points = Limited overall capability
25-49 points = Moderate overall capability
50-80 points = High overall capability

I. Planning and Regulatory Capability (Up to 45 points)

Yes = 3 points
Under Development / Under County Authority = 1 point
No = 0 points

- Hazard Mitigation Plan
- Comprehensive Land Use Plan
- Floodplain Management Plan
- Participate in CRS Program
- BCEGS Grade of 1 to 5

Yes = 2 points
Under Development = 1 point
No = 0 points

- Open Space Management / Parks & Rec. Plan
- Stormwater Management Plan
- Emergency Operations Plan
- Flood Response Plan
- SARA Title III
- Radiological Emergency Plan
- Continuity of Operations Plan
- Evacuation Plan
- Disaster Recovery Plan
- Flood Damage Prevention Ordinance
- BCEGS Grade of 6 to 9

Yes = 1 point
No = 0 points

- Capital Improvements Plan
- Economic Development Plan
- Historic Preservation Plan
- Zoning Ordinance
- Subdivision Ordinance
- Unified Development Ordinance
- Post-disaster Redevelopment / Reconstruction Ordinance
- Building Code
- Fire Code
- Participate in NFIP Program

II. Administrative and Technical Capability (Up to 15 points)

Yes = 2 points
No = 0 points

- Planners with knowledge of land development and land management practices
- Engineers or professionals trained in construction practices related to buildings and/or infrastructure
- Planners or engineers with an understanding of natural and/or human-caused hazards
- Emergency manager
- Floodplain manager

Yes = 1 point
No = 0 points

- Land surveyors
- Scientist familiar with the hazards of the community
- Staff with education or expertise to assess the community's vulnerability to hazards
- Personnel skilled in Geographic Information Systems (GIS) and/or HAZUS
- Resource development staff or grant writers

III. Fiscal Capability
(Up to 10 points)

Yes = 1 point
No = 0 points

- Capital Improvement Programming
- Community Development Block Grants
- Special Purpose Taxes
- Gas / Electric Utility Fees
- Water / Sewer Fees
- Stormwater Utility Fees
- Development Impact Fees
- General Obligation/ Revenue/ Special Tax Bonds
- Partnering arrangements or intergovernmental agreements
- Other

IV. Self-Assessment of Overall Capability
(Up to 10 points)

High = 2 points
Moderate = 1 points
Low = 0 points

- Technical Capability
- Fiscal Capability
- Administrative Capability
- Political Capability
- Overall Capability

Note: This methodology is based on best available information. If a jurisdiction does not provide information on any of the above items, a point value of zero (0) will be assigned for that item.

Table 6.7 shows the results of the capability assessment using the designed scoring methodology. According to the assessment, the average local capability score for all local governments in Southampton County is **25.71** (though this is skewed heavily by the County's score of 47).

Table 6.7: Capability Assessment Results

JURISDICTION	CAPABILITY SCORE	CAPABILITY RATING
Southampton County	**47**	**MODERATE**
Boykins	**23**	**LIMITED**
Branchville	**21**	**LIMITED**
Capron	**17**	**LIMITED**
Courtland	**29**	**MODERATE**
Ivor	**22**	**LIMITED**
Newsoms	**21**	**LIMITED**

The capability of local governments in Southampton County to implement mitigation actions is determined to be limited to moderate, with the County Government and the Town of Courtland scoring enough points in the assessment to be deemed as having moderate capability. It is worth noting however that the scoring methodology used to conduct this capability assessment is only meant to provide a general understanding of local capability for each jurisdiction relative to

one another. The results are based solely on the information provided by local officials in response to the Capability Assessment Survey, an instrument designed to measure local capability based on those indicators determined to be most relevant for mitigation purposes and referenced in FEMA planning guidance.

According to the assessment and as discussed at the outset of this section, local government capability certainly relies heavily on coordination with the County government. While some towns have some "in-house" staff resources, most depend on outside sources such as Southampton County, the Hampton Roads Planning District Commission or private contractors to perform certain local functions or services such as emergency planning, code enforcement and GIS services. The small towns typically combine multiple job responsibilities particular elected officials, such as the mayors or council members being assigned responsibility for all town matters.

As it relates to emergency management, the Franklin/Southampton Service Delivery Unit of the American Red Cross is also actively involved in emergency planning and community disaster education programs. Their organization maintains knowledgeable staff and capable volunteers who have obtained varied training on emergency response operations and disaster management, and are critical partners for Southampton County and its towns before and after disaster strikes.

An important consideration for Southampton County's jurisdictions should be to continue working with each other as they are in the implementation of hazard mitigation strategies. This All-Hazards Mitigation Plan provides a vehicle to initiate this process. However, in order to succeed, it will require clearly articulating the benefits of participating in and sustaining the countywide mitigation planning process. One of the best ways to obtain local buy-in and long-term success is to identify and implement achievable mitigation actions (as listed in each jurisdictions' individual Mitigation Action Plans) that will facilitate continued intergovernmental coordination not only across the county, but with state and federal agencies as well.

Linking Capability with Risk

The conclusions of the *Risk Assessment* and *Capability Assessment* serve as the foundation for a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, each jurisdiction must consider not only their level of hazard risk but also their existing capability to minimize or eliminate that risk. **Figure 6.3** shows a *Risk vs. Capability Matrix* that is used to illustrate each jurisdiction's overall hazard risk[10] in comparison to their overall capability. This matrix has been completed (marked with a "✓") for each of Southampton County's participating jurisdictions and is included in each jurisdiction's separate and distinct *Mitigation Action Plan* provided in Section 9 of this Plan.

[10] Overall hazard risk was determined for each jurisdiction using the results of the risk assessment (estimated losses for all natural hazards) combined with specific information on the following factors: total population, population growth rate, land area, historical disaster declarations, unique hazard risks, NFIP participation and the number of structures that intersect floodplain areas. More information on the methodology used to determine overall hazard risk is available through Southampton County upon request.

Figure 6.3: Risk vs. Capability Matrix

		HAZARD RISK		
		Limited	Moderate	High
OVERALL CAPABILITY	High			
	Moderate			
	Limited			

In jurisdictions where the overall hazard risk is considered to be HIGH, and local capability is considered LIMITED, then specific mitigation actions that account for these conditions should be considered. This may include less costly actions such as minor ordinance revisions or public awareness activities. Further, if necessary, specific capabilities may need to be improved in order to better address recurring threats. Similarly, in cases where the hazard vulnerability is LIMITED and overall capability is HIGH, more emphasis can be placed on actions that may impact future vulnerability such as guiding development away from known hazard areas.

Mitigation Strategy

This section of the Plan provides the blueprint for Southampton County and its participating jurisdictions to follow in becoming less vulnerable to its identified hazards. It is based on general consensus of the Mitigation Advisory Committee and the findings and conclusions of the Capability Assessment and Risk Assessment. It consists of the following three subsections:

- Introduction
- Mitigation Goals
- Identification and Analysis of Mitigation Techniques
- Selection of Mitigation Techniques and Proposed Actions for Southampton County

Introduction

The intent of the Mitigation Strategy is to provide Southampton County and its incorporated towns with the goals that will serve as guiding principles for future mitigation policy and project administration, along with a listing of proposed actions deemed necessary to meet those goals and reduce the impact of hazards. It is designed to be comprehensive, strategic and functional in nature:

- In being comprehensive, the development of the strategy includes a thorough review of all hazards and identifies extensive mitigation measures intended to not only reduce the future impacts of high risk hazards, but also to assist Southampton County achieve compatible economic, environmental and social goals.
- In being strategic, the development of the strategy ensures that all policies and projects to be proposed for implementation under the All-Hazards Mitigation Plan are consistent with pre-identified, long-term and countywide planning goals.
- In being functional, each proposed mitigation action is linked to established priorities and assigned to specific departments or individuals responsible for their implementation with target completion deadlines. When necessary, funding sources are identified that can be used to assist in project implementation.

The first step in designing the Mitigation Strategy includes the identification of countywide mitigation goals. Mitigation goals represent broad statements that are achieved through the implementation of more specific, action-oriented objectives listed in each jurisdiction's Mitigation Action Plan. These actions include both hazard mitigation policies (such as the regulation of land in known hazard areas through a local ordinance), and hazard mitigation projects that seek to address specifically targeted hazard risks (such as the acquisition and relocation of a repetitive loss structure).

The second step involves the identification, consideration and analysis of available mitigation measures to help achieve the identified mitigation goals. This is a long-term, continuous process sustained through the development and maintenance of this Plan, beginning with the cardstorming exercise for Mitigation Advisory Committee members during the first Mitigation Strategy Workshop. Alternative mitigation measures will continue to be considered as future

mitigation opportunities become identified, as data and technology improve, as mitigation funding becomes available, and as this Plan is maintained over time.

The third and last step in designing the Mitigation Strategy is the selection and prioritization of specific mitigation actions for each of the participating jurisdictions in Southampton County (provided separately in Section 8: *Mitigation Action Plans*). The Mitigation Action Plans, or MAPs, represents unambiguous and functional plans for action and are considered to be the most essential outcome of the mitigation planning process.

The MAPs include a prioritized listing of proposed hazard mitigation actions (policies and projects) for each of Southampton County's local jurisdictions to carry out along with accompanying information such as those agencies or individuals assigned responsibility for their implementation, potential funding sources and an estimated target date for completion. The MAPs provides those departments or individuals responsible for implementing mitigation actions with a clear roadmap that also serves as an important tool for monitoring success or progress over time. The cohesive collection of actions listed in each jurisdiction's MAP also can serve as an easily understood menu of mitigation policies and projects for those local decision makers who want to quickly review their jurisdiction's respective element of the countywide All-Hazards Mitigation Plan.

In preparing their own individual Mitigation Actions Plans, each jurisdiction considered their overall hazard risk and capability to mitigate the effects of hazards as recorded through the risk and capability assessment process, in addition to meeting the adopted countywide mitigation goals and the unique needs of their community. Prioritizing mitigation actions for each jurisdiction was based on the following five (5) factors:

- Effect on overall risk to life and property;
- Ease of implementation;
- Political and community support;
- A general economic cost/benefit review[1]; and
- Funding availability.

[1] Only a general economic cost/benefit review was considered through the process of selecting and prioritizing mitigation actions. Mitigation actions with "high" priority were determined to be the most cost effective and most compatible with each jurisdiction's unique needs. A more detailed cost/benefit analysis will be applied to particular projects prior to the application for or obligation of funding, as appropriate.

Mitigation Goals

The goals of Southampton County's All-Hazards Mitigation Plan were crafted early in the planning process through a facilitated discussion and brainstorming session with the Mitigation Advisory Committee (for more details, please see the summary of the second Mitigation Advisory Committee meeting in Section 2: *Planning Process*). Each of the following countywide goal statements represent a broad target for Southampton County and its incorporated towns to achieve through the implementation of their own specific Mitigation Action Plans provided in Section 8.

44 CFR Requirements

44 CFR Part 201.6(c)(3)(i):
The mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Goal #1

Increase local capability to implement long-term mitigation measures that will protect lives and property from hazards.

Goal #2

Enhance local emergency services to ensure Southampton County is fully prepared to respond to and mitigate against potential hazard events.

Goal #3

Develop local plans and policy measures to reduce the effects of identified hazards.

Goal #4

Design and build structural mitigation projects to reduce the effects of identified hazards.

Goal #5

Upgrade and enhance local stormwater management efforts to reduce the potential for small and large-scale drainage problems, and maintain continued compliance with the National Flood Insurance Program (NFIP).

Goal #6

Increase public education and awareness efforts to ensure the residents of Southampton County know how to best prepare for and mitigate against high risk hazards.

Identification and Analysis of Mitigation Techniques

In formulating the Mitigation Strategy for Southampton County, a wide range of activities were considered in order to help achieve the established mitigation goals in addition to addressing any specific and targeted hazard concerns. These activities were discussed at length during Mitigation Advisory Committee meetings as well as through site visits conducted by the PBS&J project team. In general, all activities considered by the committee can be classified under one of the following six (6) broad categories of mitigation techniques.

44 CFR Requirements

44 CFR Part 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 effect of each hazard, with particular emphasis on new and existing buildings and infrastructure.

1. Prevention

Preventative activities are intended to keep hazard problems from getting worse, and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of preventative activities include:

- Planning and zoning
- Building codes
- Open space preservation
- Floodplain regulations
- Stormwater management regulations
- Drainage system maintenance
- Capital improvements programming
- Riverine / fault zone setbacks

2. Property Protection

Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or removal of the structures from hazardous locations. Examples include:

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection
- Retrofitting (e.g., windproofing, floodproofing, seismic design techniques, etc.)
- Safe rooms, shutters, shatter-resistant glass
- Insurance

3. Natural Resource Protection

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their protective functions. Such areas include floodplains, wetlands, steep slopes and sand dunes. Parks, recreation or conservation agencies and organizations often implement these protective measures. Examples include:

- Floodplain protection
- Watershed management
- Riparian buffers
- Forest and vegetation management (e.g., fire resistant landscaping, fuel breaks, etc.)
- Erosion and sediment control

- Wetland preservation and restoration
- Habitat preservation
- Slope stabilization

4. Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event through construction. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs
- Dams / levees / dikes / floodwalls
- Diversions / detention / retention
- Channel modification
- Storm sewers

5. Emergency Services

Although not typically considered a "mitigation" technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems
- Evacuation planning and management
- Emergency response training and exercises
- Sandbagging for flood protection
- Installing temporary shutters for wind protection

6. Public Education and Awareness

Public education and awareness activities are used to advise residents, elected officials, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- Outreach projects
- Speaker series / demonstration events
- Hazard map information
- Real estate disclosure
- Library materials
- School children educational programs
- Hazard expositions

The Mitigation Techniques Menu

In order to help facilitate the identification and analysis of available mitigation techniques for Southampton County, a detailed Mitigation Techniques Menu was designed to evaluate potential measures for each hazard identified as having high risk.[2] This extensive menu of practical mitigation options became a springboard for discussion among the Mitigation Advisory Committee and the PBS&J project team in proposing measures for incorporation into the County's Mitigation Action Plans.

[2] The *Mitigation Techniques Menu* is available through Southampton County upon request.

Selection of Mitigation Techniques for Southampton County

In order to determine the most appropriate mitigation techniques for Southampton County, local government officials from each jurisdiction and the PBS&J project team thoroughly reviewed and considered the findings of the Capability Assessment and Risk Assessment. Other considerations included each individual mitigation action's effect on overall risk to life and property, its ease of implementation, its degree of political and community support, its general cost-effectiveness, and funding availability (if necessary).

44 CFR Requirements

44 CFR Part 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 effect of each hazard, with particular emphasis on new and existing buildings and infrastructure.

FEMA guidance for meeting the planning requirements of the Disaster Mitigation Act of 2000 specifies that local governments should prioritize their mitigation actions based on the level of risk a hazard poses to life and property. In response to this requirement, Southampton County's Mitigation Advisory Committee used and completed a Mitigation Techniques Matrix (**Figure 7.1**) to make certain they addressed, at a minimum, those hazards posing the greatest threat.

The matrix provides the committee with the opportunity to cross-reference each of the priority high risk hazards (as determined by through the *Risk Assessment)* with the aforementioned comprehensive range available mitigation techniques, including prevention; property protection; natural resource protection; structural projects; emergency services; and public education and awareness. However, it is important to note that Southampton County's Mitigation Action Plan include an array of actions targeting multiple hazards, and is not necessarily limited to only those classified as high risk.

Table 7.1: Mitigation Techniques Matrix for Southampton County

MITIGATION TECHNIQUE	HIGH RISK HAZARDS		
	FLOOD	HURRICANE AND TROPICAL STORM	SEVERE THUNDERSTORM
Prevention	✓		
Property Protection	✓	✓	✓
Natural Resource Protection	✓		
Structural Projects	✓	✓	
Emergency Services	✓	✓	✓
Public Education And Awareness	✓	✓	✓

Mitigation Action Plans

This section of the Plan includes the listing of the mitigation actions proposed by the Southampton County and its participating town jurisdictions. It has been designed to achieve the mitigation goals and priorities established in the countywide, multi-jurisdictional Mitigation Strategy (see Section 7: *Mitigation Strategy*), as well as the objectives of each individual jurisdiction.

The mitigation actions proposed for local adoption by each of Southampton County's local governing bodies are listed in seven (7) individual Mitigation Action Plans (MAPs) on the pages that follow according to **Table 8.1**. They will be implemented and maintained on a regular basis according to the plan maintenance procedures established for the Southampton County All-Hazards Mitigation Plan (see Section 9: *Plan Maintenance Procedures*).

44 CFR Requirements

44 CFR Part 201.6(c)(3)(iii): *The mitigation strategy shall include an action plan describing how the actions identified in paragraph (c)(2)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction.*

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

Table 8.1: Southampton County Mitigation Action Plans

JURISDICTION	NUMBER OF MITIGATION ACTIONS	PAGE NUMBER
Southampton County	10	4
Town of Boykins	8	14
Town of Branchville	7	22
Town of Capron	2	29
Town of Courtland	5	31
Town of Ivor	6	36
Town of Newsoms	2	42

As described in the previous section, each jurisdiction's MAP represents an unambiguous and functional plan for action. Each proposed mitigation action has been identified as an effective measure (policy or project) to reduce hazard risk in Southampton County. Each action is listed in the MAP in conjunction with background information such as the specific site and location of the project and the history of damages, if applicable.

Other information provided in the MAP includes data on cost estimates and potential funding sources to implement the action should funding be required (not all proposed actions are contingent upon funding). Most importantly, implementation mechanisms are provided for each action, including the designation of a lead agency or department responsible for carrying the action out as well as a timeframe for its completion. These implementation mechanisms ensure that the Southampton County All-Hazards Mitigation Plan remains a functional document that can be monitored for progress over time. For each MAP, the proposed actions are not listed in exact priority order though each has been assigned a priority level of "high," "moderate" or "low" as described in the previous section.

Table 8.2 describes the key elements of the Mitigation Action Plan, and **Table 8.3** lists the additional considerations that were evaluated for each proposed action once selected for inclusion in the Mitigation Action Plan. This includes social, technical, administrative, political, legal, economic and environmental considerations collectively know as "STAPLEE" evaluation criteria.

Table 8.2: Key Elements of the Mitigation Action Plan	
Proposed Action	Identifies a specific action that, if accomplished, will reduce vulnerability and risk in the impact area. Actions may be in the form of local policies (i.e., regulatory or incentive-based measures), programs or structural mitigation projects and should be consistent with any pre-identified mitigation goals and objectives.
Site and Location	Provides details with regard to the physical location or geographic extent of the proposed action, such as the location of a specific structure to be mitigated, whether a program will be citywide, countywide or regional, etc.
History of Damages	Provides a brief history of any known damages as it relates to the proposed action and the hazard(s) being addressed. For example, the proposed elevation of a repetitive loss property should include an overview of the number of times the structure has flooded, total dollar amount of damages if available, etc.
Hazard(s) Addressed	Lists the hazard(s) the proposed action is designed to mitigate against.
Goal(s) Addressed	Indicates the Plan's established Mitigation Goal(s) the proposed action is designed to help achieve.
Priority	Indicates whether the action is a "high" priority, "moderate" priority or "low" priority based on the established prioritization criteria.
Estimated Cost	If applicable, indicates what the total cost will be to accomplish this action. This amount will be an estimate until actual final dollar amounts can be determined. Some actions (such as ordinance revisions) may only cost "local staff time" and should be noted so.
Potential Funding Sources	If applicable, indicates how the cost to complete the action will be funded. For example, funds may be provided from existing operating budgets or general funds, a previously established contingency fund, a cost-sharing federal or state grant program, etc.
Lead Agency / Department Responsible	Identifies the local agency, department or organization that is best suited to implement the proposed action.
Implementation Schedule	Indicate when the action will begin and when the action is expected to be completed. Remember that some actions will require only a minimal amount of time, while others may require a long-term or continuous effort.

Table 8.3: Additional Considerations (STAPLEE evaluation)	
Socially Acceptable	Is the proposed action socially acceptable to the community? Is the action compatible with present and future community values? Are there equity issues involved that would mean that one segment of the community is adversely affected?
Technically Feasible	Will the proposed action serve as a long term solution? Will it create any negative secondary impacts? Are there any foreseeable problems or technical constraints that could limit its effectiveness?
Administratively Possible	Does the community have the capability to implement the proposed action? Is there someone available to coordinate and sustain the effort?
Politically Acceptable	Is there political support to implement the proposed action? Is there enough public support to ensure the success of the action?
Legal	Is the community authorized to implement the proposed action? Is there a clear legal basis or precedent for the action? Are they any potential legal consequences of the action?
Economically Sound	What are the costs and benefits of the proposed action? Does the cost seem reasonable for the size of the problem and the estimated benefits? Are there funding sources available to help offset costs of the action? Is the action compatible with other economic goals of the community?
Environmentally Sound	How will the action impact the environment (natural resources, ecosystems, endangered species, etc.)? Will the action require any environmental regulatory approvals? Is the action consistent with other environmental goals of the community?

Key to Potential Funding Sources:[1]

DHS U.S. Department of Homeland Security

- **PDM –** Predisaster Mitigation Program
- **HMGP –** Hazard Mitigation Grant Program
- **FMA –** Flood Mitigation Assistance Program
- **BZPP –** Buffer Zone Protection Program
- **HGSP –** Homeland Security Grant Program
- **TSGP –** Transit Security Grant Program
- **PA –** Public Assistance Program
- **NEHRP –** National Earthquake Hazards Reduction Program
- **AFGP –** Assistance to Firefighters Grant Program
- **FMAG –** Fire Management Assistance Grants

ACE U.S. Army Corps of Engineers

- **FCW/EW –** Flood Control Works / Emergency Rehabilitation
- **ESSP –** Emergency Streambank and Shoreline Protection
- **SFCP –** Small Flood Control Projects

DOI U.S. Department of the Interior

- **LWCF –** Land and Water Conservation Fund Grants

EDA U.S. Economic Development Administration

- **DMTA – Disaster Mitigation and Technical Assistance Grants**

EPA U.S. Environmental Protection Agency

- **CWA –** Clean Water Act Section 319 Grants

HUD U.S. Department of Housing and Urban Development

- **CDBG –** Community Development Grant Program

SBA U.S. Small Business Administration

- **PDMLP –** Pre-Disaster Mitigation Loan Program

USDA U.S. Department of Agriculture

- **EWP –** Emergency Watershed Protection
- **WPFP –** Watershed Protection and Flood Prevention
- **WSP –** Watershed Surveys and Planning

[1] More complete descriptions of potential funding sources can be found in Appendix C.

Southampton County

		HAZARD RISK		
		Limited	Moderate	High
OVERALL CAPABILITY	High			
	Moderate		✓	
	Limited			

SOUTHAMPTON COUNTY MITIGATION ACTION 1	
Identify suitable sites for new County Emergency Operations Center outside of the designated special flood hazard area.	
BACKGROUND INFORMATION	
Site and Location:	To be determined
History of Damages:	
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All
Goal(s) Addressed:	#2, #4
Priority (High, Moderate, Low):	High
Estimated Cost:	Staff time
Potential Funding Sources:	N/A
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Technically Feasible:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Administratively Possible:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Politically Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Legal:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Economically Sound:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Environmentally Sound:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒

ADDITIONAL COMMENTS

The current County EOC is located in a designated flood hazard area along the Nottoway River.
Potential alternative project – floodproofing the current EOC.

SOUTHAMPTON COUNTY MITIGATION ACTION 2

Continue to enhance and expand communications interoperability between County departments and the town jurisdictions during and following emergency or disaster events.

BACKGROUND INFORMATION

Site and Location:	Countywide
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#2
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** HSGP, HMGP
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Southampton County radio interoperability project is underway in coordination with the towns of Boykins, Courtland and Newsoms.

SOUTHAMPTON COUNTY MITIGATION ACTION 3	
www.FirewiseVirginia.org	**Coordinate with the Virginia Department of Forestry and targeted neighborhoods in Southampton County to join the Firewise Communities/USA program.**

BACKGROUND INFORMATION	
Site and Location:	Darden Mill Estates, Edge Hill, Drewryville*
History of Damages:	

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Goal(s) Addressed:	#1, #6
Priority (High, Moderate, Low):	High
Estimated Cost:	Staff and volunteer time; projects are TBD
Potential Funding Sources:	VDOF
Lead Agency/Department Responsible:	Fire and Rescue
Implementation Schedule:	September 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

* These areas have been identified as large neighborhoods with no elevated water supply for fire suppression.

SOUTHAMPTON COUNTY MITIGATION ACTION 4

Coordinate with all town jurisdictions on the protection of critical facilities from high risk hazards.

BACKGROUND INFORMATION

Site and Location:	Countywide
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999 Multiple winter storms and severe thunderstorms

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#3
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined on a case-by-case basis
Potential Funding Sources:	**DHS:** PDM, HMGP, FMA; HSGP
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	Ongoing

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

SOUTHAMPTON COUNTY MITIGATION ACTION 5

Complete a countywide drainage study that can prioritize drainage maintenance requirements and stormwater management projects to alleviate future large and small-scale flooding problems.

BACKGROUND INFORMATION

Site and Location:	Countywide
History of Damages:	

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Flood
Goal(s) Addressed:	#5
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	**DHS:** PDM, HMGP, HSGP; **USDA:** WPFP
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2007

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Technically Feasible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Many storm ditches throughout Southampton County were constructed in the 1930's and are not maintained. A new stormwater drainage study would be contracted out to a qualified hydrologic and hydaulic engineering firm.

SOUTHAMPTON COUNTY MITIGATION ACTION 6

Determine necessary shelter retrofits and improvements to Southampton County High School.

BACKGROUND INFORMATION

Site and Location:	Southampton County High School
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#1, #4
Priority (High, Moderate, Low):	High
Estimated Cost:	$20,000
Potential Funding Sources:	**DHS:** PDM, HMGP, HSGP;
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Southampton County High School serves as the County's designated shelter. Existing skylight determined as a potential problem.

SOUTHAMPTON COUNTY MITIGATION ACTION 7

Develop and implement a public education and awareness campaign in coordination with the town jurisdictions, the City of Franklin and the American Red Cross to ensure the residents of Southampton County know how to best prepare for and mitigate against high risk hazards.

BACKGROUND INFORMATION

Site and Location:	Countywide
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999 Multiple winter storms, severe thunderstorms and hazardous material events

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP; American Red Cross; FEMA materials provided at no charge
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Particular life/safety concerns were identified as it relates to driving on roads that have been or could be flooded, as well as promoting water conservation techniques during widespread power outages.

SOUTHAMPTON COUNTY MITIGATION ACTION 8

Implement a "Prune in June" campaign for local residents to promote tree pruning and the removal of hazardous trees prior to hurricane season each year beginning in June 2006.

BACKGROUND INFORMATION

Site and Location:	Countywide
History of Damages:	Hurricane Isabel, 2003 Multiple winter storms

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Hurricane and Tropical Storm, Winter Storm
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000 / year
Potential Funding Sources:	To be determined
Lead Agency/Department Responsible:	County Administrator's Office / County Forester
Implementation Schedule:	Beginning in June 2006; then annually

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐

ADDITIONAL COMMENTS

Tree failure has been identified by citizens as a significant hazard concern.

SOUTHAMPTON COUNTY MITIGATION ACTION 9	
	Coordinate with the Federal Emergency Management Agency and the Virginia Department of Emergency Management to join the Community Rating System (CRS) under the National Flood Insurance Program.
BACKGROUND INFORMATION	
Site and Location:	Countywide
History of Damages:	Hurricane Floyd, 1999

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Goal(s) Addressed:	#3, #6
Priority (High, Moderate, Low):	High
Estimated Cost:	Staff time
Potential Funding Sources:	N/A
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Joining CRS could provide NFIP flood insurance policy holders throughout the County to receive premium rate reductions.

SOUTHAMPTON COUNTY MITIGATION ACTION 10	
	Coordinate with the Federal Emergency Management Agency and the National Oceanic and Atmospheric Administration (National Weather Service) to acquire NOAA weather radios for all public office buildings, schools and day care centers throughout Southampton County.
BACKGROUND INFORMATION	
Site and Location:	Countywide
History of Damages:	Multiple severe thunderstorm and hail events (see Section 4)

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Goal(s) Addressed:	#2
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** HMGP, HGSP; possible in-kind donations
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

NOAA weather radios will be programmed for all County and Town officials to receive alerts on any imminent weather hazards for the Southampton County forecast area.

Town of Boykins

OVERALL CAPABILITY	HAZARD RISK: Limited	Moderate	High
High			
Moderate			
Limited	✓		

TOWN OF BOYKINS MITIGATION ACTION 1	
Address issue of beaver dams on Tarrara Creek that cause water to stop flowing resulting in backing up of water that floods the northeastern portion of the town including the flooding of roads and several homes.	
BACKGROUND INFORMATION	
Site and Location:	Along Tarrara Creek
History of Damages:	Happens with every significant rain/flood event
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Goal(s) Addressed:	#5
Priority (High, Moderate, Low):	High
Estimated Cost:	Volunteer time
Potential Funding Sources:	N/A
Lead Agency/Department Responsible:	Town of Boykins Mayor's Office
Implementation Schedule:	September 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Technically Feasible:				
1 ☐	2 ☒	3 ☐	4 ☐	5 ☐
Administratively Possible:				
1 ☐	2 ☐	3 ☒	4 ☐	5 ☐
Politically Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Legal:				
1 ☐	2 ☐	3 ☒	4 ☐	5 ☐
Economically Sound:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Environmentally Sound:				
1 ☐	2 ☒	3 ☐	4 ☐	5 ☐

ADDITIONAL COMMENTS

Permission obtained from US Game Warden to trap/relocate beaver(s).

TOWN OF BOYKINS MITIGATION ACTION 2

Continue to support ongoing North Carolina / Virginia railroad efforts to widen and deepen ditches on both sides of railroad tracks south of Highway 186 to S. Railroad St., then back on Tarrara Swamp.

BACKGROUND INFORMATION

Site and Location:	Highway 186 to S. Railroad St.
History of Damages:	Area has flooded with every significant rainfall and flood event

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Flood
Goal(s) Addressed:	#4
Priority (High, Moderate, Low):	High
Estimated Cost:	No cost to town
Potential Funding Sources:	None needed
Lead Agency/Department Responsible:	Town of Boykins Mayor's Office
Implementation Schedule:	Ongoing

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐

ADDITIONAL COMMENTS

Also benefits mosquito control.

TOWN OF BOYKINS MITIGATION ACTION 3

Maintain the Town's agreement with Federal Railroad Administration stating that no cars carrying hazardous materials can be stored within town limits.

BACKGROUND INFORMATION

Site and Location:	Throughout Town
History of Damages:	None to date

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Hazardous Material Incidents
Goal(s) Addressed:	#1, #3
Priority (High, Moderate, Low):	High
Estimated Cost:	Staff time
Potential Funding Sources:	N/A
Lead Agency/Department Responsible:	Town of Boykins/Mayor's Office
Implementation Schedule:	Continuous

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

ADDITIONAL COMMENTS

Ordinance was proposed but written agreement is sufficient at present time.

TOWN OF BOYKINS MITIGATION ACTION 4

Continue to coordinate with Dominion Power on the upgrading of all poles, wires, attachments and generators (complete upgrade of services), removing all poles from swamp area and mitigating vulnerability of tree limb damage.

BACKGROUND INFORMATION

Site and Location:	Throughout Town
History of Damages:	Frequent during wind, thunderstorms and ice events

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Wind, hurricane, winter storm
Goal(s) Addressed:	#3
Priority (High, Moderate, Low):	High
Estimated Cost:	None to town
Potential Funding Sources:	N/A
Lead Agency/Department Responsible:	Town of Boykins Mayor's Office
Implementation Schedule:	Ongoing

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐

ADDITIONAL COMMENTS

Vendor also involved.

TOWN OF BOYKINS MITIGATION ACTION 5

Installation of multi-tone siren system for fire, inclement weather (tornado, wind, hail, flood) and HAZMAT incident including generator/backup power options in coordination with Southampton County.

BACKGROUND INFORMATION

Site and Location:	1 pole/station centrally located at fire station
History of Damages:	

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Fire, tornado, wind, hail, flood, HAZMAT
Goal(s) Addressed:	#1, #2, #4
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP
Lead Agency/Department Responsible:	Town of Boykins Mayor's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

ADDITIONAL COMMENTS

Action is to coordinate with county

TOWN OF BOYKINS MITIGATION ACTION 6
Coordinate with Southampton County and the American Red Cross on extensive public education and awareness campaigns to ensure citizens are knowledgeable of protective preparedness and mitigation activities that will lessen the potential impacts of disasters.

BACKGROUND INFORMATION	
Site and Location:	Throughout Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999 Multiple winter storms, severe thunderstorms and hazardous material events

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP; American Red Cross; FEMA materials provided at no charge
Lead Agency/Department Responsible:	Town of Boykins
Implementation Schedule:	Continuous

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Particular life/safety concerns were identified as it relates to driving on roads that have been or could be flooded, as well as promoting water conservation techniques during widespread power outages.

TOWN OF BOYKINS MITIGATION ACTION 7

Continue to enhance and expand communications interoperability between the Town of Boykins, Southampton County and other jurisdictions during and following emergency or disaster events.

BACKGROUND INFORMATION

Site and Location:	Throughout the Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#2
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** HSGP, HMGP
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Radio interoperability project is underway in coordination with Southampton County.

TOWN OF BOYKINS MITIGATION ACTION 8

Acquisition of floodprone property (four condemned homes) on Spring Garden Street and conversion of land to open space.

BACKGROUND INFORMATION

Site and Location:	Spring Garden Street
History of Damages:	Flooded at least five or six times since 1945, three to four times with extreme inundation including in 2003.

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Flood
Goal(s) Addressed:	#4
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$20,000 for land; $5,000 for each demolition
Potential Funding Sources:	Purchaser (see comments)
Lead Agency/Department Responsible:	Town of Boykins Mayor's Office
Implementation Schedule:	Within 2-3 years from 09/05

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

ADDITIONAL COMMENTS

Need third-party purchaser of land (Town does not need/want land)
Department of Housing and Community Development ruled out.

Town of Branchville

		HAZARD RISK		
		Limited	Moderate	High
OVERALL CAPABILITY	High			
	Moderate			
	Limited	✓		

TOWN OF BRANCHVILLE MITIGATION ACTION 1	
Continue to enhance and expand communications interoperability between the Town of Branchville, Southampton County and other jurisdictions during and following emergency or disaster events.	
BACKGROUND INFORMATION	
Site and Location:	Throughout the Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All
Goal(s) Addressed:	#2
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** HSGP, HMGP
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Technically Feasible:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Administratively Possible:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Politically Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Legal:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Economically Sound:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Environmentally Sound:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒

ADDITIONAL COMMENTS

TOWN OF BRANCHVILLE MITIGATION ACTION 2

Install a new community-wide siren warning system.

BACKGROUND INFORMATION

Site and Location:	To be determined
History of Damages:	HAZMAT spill in 2002 resulted in evacuation of residents in Town of Branchville and Boykins.

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#1, #2, #4
Priority (High, Moderate, Low):	High
Estimated Cost:	$15,000
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP
Lead Agency/Department Responsible:	Town of Branchville
Implementation Schedule:	Target completion date of Fall 2007

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Economically Sound:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

ADDITIONAL COMMENTS

Old siren (pictured above) no longer functions.

TOWN OF BRANCHVILLE MITIGATION ACTION 3

Enhance the community center's ability to serve as an assembly point, distribution and information center.

BACKGROUND INFORMATION

Site and Location:	Community Center in the Town of Branchville
History of Damages:	Hurricane Isabel, 2003 HAZMAT Spill, 2002 Ice Storm, 2000 Hurricane Floyd, 1999

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#4
Priority (High, Moderate, Low):	High
Estimated Cost:	$20,000
Potential Funding Sources:	**DHS:** PDM, HMGP, HSGP
Lead Agency/Department Responsible:	Town of Branchville
Implementation Schedule:	Target completion date of Fall 2007

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

ADDITIONAL COMMENTS

The Community Center has served as a short term staging area for distributing donated goods and foods to disaster victims. However, this building is not equipped with a big enough kitchen, stockpiled foods, blankets and beds to accommodate evacuees or displaced residents at times when Branchville becomes isolated.

TOWN OF BRANCHVILLE MITIGATION ACTION 4

Coordinate with Southampton County the expansion of the culvert under local CSX railroad trestle to minimize future flooding events.

BACKGROUND INFORMATION

Site and Location:	The culvert is located 0.2 miles east of the Town of Branchville on Highway 186.
History of Damages:	Hurricane Isabel-2003, Hurricane Floyd-1999, and other major storm events have routinely flooded residential areas in the Whitehead Road area and along Highway 666. On Whitehead Road, flood waters have come up to houses, flooded garages, and inundated areas underneath houses. Along Highway 666 the water has flooded areas surrounding houses – but most are elevated 12-18'' above grade. No flood damages confirmed. Flood waters have also reached the nearby church, but no damages confirmed. During Hurricane Floyd, caskets flooded out in the area.

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Flood
Goal(s) Addressed:	#4, #6
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined; requires engineering study
Potential Funding Sources:	**DHS:** PDM, HMGP; **CSX**
Lead Agency/Department Responsible:	Town of Branchville and Southhampton County
Implementation Schedule:	Target completion date of Fall 2008

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Economically Sound:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐

ADDITIONAL COMMENTS

A small culvert (approximately 5' x 4') on the CSX railroad track located just outside of town caused widespread flooding in the north areas of Whitehead Road and has resulted in property damages. Railroad trestle blocks up, and "acts like a dam" causing the north side of Highway 186 to flood. Future flooding could cause repeated damages to residential structures in the area. Most flooding problems occur in unincorporated Southampton County – not in town limits – but one of the creeks is within town limits. People look to the Town for help.

TOWN OF BRANCHVILLE MITIGATION ACTION 5

Coordinate with Southampton County and the American Red Cross on extensive public education and awareness campaigns to ensure citizens are knowledgeable of protective preparedness and mitigation activities that will lessen the potential impacts of disasters.

BACKGROUND INFORMATION

Site and Location:	Throughout Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999 Multiple winter storms, severe thunderstorms and hazardous material events

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP; American Red Cross; FEMA materials provided at no charge
Lead Agency/Department Responsible:	Town of Branchville
Implementation Schedule:	Continuous

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Particular life/safety concerns were identified as it relates to driving on roads that have been or could be flooded, as well as promoting water conservation techniques during widespread power outages.

TOWN OF BRANCHVILLE MITIGATION ACTION 6

Educate town residents what can be expected following major disaster events and how to be prepared to be on their own for at least 72 hours before outside help arrives.

BACKGROUND INFORMATION

Site and Location:	Town of Branchville and surrounding communities
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	Staff time
Potential Funding Sources:	N/A
Lead Agency/Department Responsible:	Town of Branchville
Implementation Schedule:	Continuous

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

ADDITIONAL COMMENTS

As seen in recent hurricane events along the Gulf Coast, people need to better understand how to be self sufficient immediately following major disaster events and before outside help arrives.

TOWN OF BRANCHVILLE MITIGATION ACTION 7	
Encourage the development of an Evacuation Coordination Plan between Virginia and North Carolina.	
BACKGROUND INFORMATION	
Site and Location:	Town of Branchville and surrounding communities
History of Damages:	Hurricane Isabel, 2003; Hurricane Floyd, 1999
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane
Goal(s) Addressed:	#3
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	Staff time
Potential Funding Sources:	N/A
Lead Agency/Department Responsible:	VA and NC Emergency Management and DOT
Implementation Schedule:	Target completion date of Fall 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

During the hurricane Isabel and Floyd, many evacuees from North Carolina and other Southeast coastal areas ended up in the Town of Branchville for food, lodging and other needs. However, the Town was isolated from other major cities and lacked resources to accommodate those people. It is necessary to develop a coordinated evacuation plan to better guide evacuees from North Carolina and stockpile maps and road signs.

Town of Capron

		HAZARD RISK		
		Limited	Moderate	High
OVERALL CAPABILITY	High			
	Moderate			
	Limited	✓		

TOWN OF CAPRON MITIGATION ACTION 1	
Continue to enhance and expand communications interoperability between the Town of Capron, Southampton County and other jurisdictions during and following emergency or disaster events.	
BACKGROUND INFORMATION	
Site and Location:	Throughout the Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All
Goal(s) Addressed:	#2
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** HSGP, HMGP
Lead Agency/Department Responsible:	Town of Capron
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Technically Feasible:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Administratively Possible:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Politically Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Legal:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Economically Sound:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Environmentally Sound:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒

ADDITIONAL COMMENTS

TOWN OF CAPRON MITIGATION ACTION 2

Coordinate with Southampton County and the American Red Cross on extensive public education and awareness campaigns to ensure citizens are knowledgeable of protective preparedness and mitigation activities that will lessen the potential impacts of disasters.

BACKGROUND INFORMATION

Site and Location:	Throughout Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999 Multiple winter storms, severe thunderstorms and hazardous material events

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP; American Red Cross; FEMA materials provided at no charge
Lead Agency/Department Responsible:	Town of Capron
Implementation Schedule:	Continuous

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Particular life/safety concerns were identified as it relates to driving on roads that have been or could be flooded, as well as promoting water conservation techniques during widespread power outages.

Town of Courtland

OVERALL CAPABILITY	HAZARD RISK: Limited	Moderate	High
High			
Moderate		✓	
Limited			

TOWN OF COURTLAND MITIGATION ACTION 1	
Continue the implementation of the Town's storm water drainage projects.	
BACKGROUND INFORMATION	
Site and Location:	Throughout Courtland
History of Damages:	Multiple stormwater runoff events, causing damage to buildings, cars, cemetery plots and trees.
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Goal(s) Addressed:	#3, #5
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Lead Agency/Department Responsible:	Town of Courtland
Implementation Schedule:	Ongoing

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

	1	2	3	4	5
Socially Acceptable:	☐	☐	☐	☒	☐
Technically Feasible:	☐	☐	☒	☐	☐
Administratively Possible:	☐	☐	☒	☐	☐
Politically Acceptable:	☐	☐	☐	☒	☐
Legal:	☐	☒	☐	☒	☐
Economically Sound:	☐	☐	☒	☐	☐
Environmentally Sound:	☐	☐	☒	☐	☐

ADDITIONAL COMMENTS

TOWN OF BOYKINS MITIGATION ACTION 2	
	Installation of multi-tone siren system for fire, inclement weather (tornado, wind, hail, flood) and HAZMAT incident including generator/backup power options in coordination with Southampton County.

BACKGROUND INFORMATION	
Site and Location:	To be determined in conjunction with Fire Department
History of Damages:	

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Fire, tornado, wind, hail, flood, HAZMAT
Goal(s) Addressed:	#1, #2, #4
Priority (High, Moderate, Low):	High
Estimated Cost:	$50,000
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP
Lead Agency/Department Responsible:	Town of Courtland
Implementation Schedule:	As soon as possible

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

ADDITIONAL COMMENTS

Old siren located at Courtland Rescue Squad building

TOWN OF COURTLAND MITIGATION ACTION 3

Evaluate and retrofit Courtland Elementary School to serve as a public shelter.

BACKGROUND INFORMATION

Site and Location:	Courtland Elementary School
History of Damages:	

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#1, #4
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP
Lead Agency/Department Responsible:	Town of Courtland
Implementation Schedule:	As soon as possible

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

This building has been identified as having potential to serve as a shelter. Will coordinate with the American Red Cross.

TOWN OF COURTLAND MITIGATION ACTION 4

Coordinate with Southampton County and the American Red Cross on extensive public education and awareness campaigns to ensure citizens are knowledgeable of protective preparedness and mitigation activities that will lessen the potential impacts of disasters.

BACKGROUND INFORMATION

Site and Location:	Throughout Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999 Multiple winter storms, severe thunderstorms and hazardous material events

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP; American Red Cross; FEMA materials provided at no charge
Lead Agency/Department Responsible:	Town of Courtland
Implementation Schedule:	Continuous

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Particular life/safety concerns were identified as it relates to driving on roads that have been or could be flooded, as well as promoting water conservation techniques during widespread power outages.

TOWN OF COURTLAND MITIGATION ACTION 5

Continue to enhance and expand communications interoperability between the Town of Courtland, Southampton County and other jurisdictions during and following emergency or disaster events.

BACKGROUND INFORMATION

Site and Location:	Throughout the Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#2
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** HSGP, HMGP
Lead Agency/Department Responsible:	County Administrator's Office
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Radio interoperability project is underway in coordination with Southampton County.

Town of Ivor

		HAZARD RISK		
		Limited	Moderate	High
OVERALL CAPABILITY	High			
	Moderate			
	Limited	✓		

TOWN OF IVOR MITIGATION ACTION 1	
Conduct a public awareness campaign on burning laws in order to reduce the number of occurrences of wildland fires.	
BACKGROUND INFORMATION	
Site and Location:	Ivor and surrounding areas identified as high risk for wildfire.
History of Damages:	
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000 per year
Potential Funding Sources:	Virginia Department of Forestry
Lead Agency/Department Responsible:	Town in coordination with the Virginia Department of Forestry
Implementation Schedule:	Annually, prior to and during burning law season

ADDITIONAL CONSIDERATIONS
The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Technically Feasible:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Administratively Possible:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Politically Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Legal:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Economically Sound:				
1 ☐	2 ☐	3 ☒	4 ☐	5 ☐
Environmentally Sound:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒

ADDITIONAL COMMENTS

Work with VDOF to establish a more aggressive public awareness campaign to inform citizens on the burning laws and the consequences of breaking these laws.

TOWN OF IVOR MITIGATION ACTION 2

Establish buffer zones between residential construction and wooded areas in high wildfire risk zones.

BACKGROUND INFORMATION

Site and Location:	Ivor and surrounding areas identified as high risk for wildfire.
History of Damages:	

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Wildfire
Goal(s) Addressed:	#3
Priority (High, Moderate, Low):	High
Estimated Cost:	Staff time
Potential Funding Sources:	N/A
Lead Agency/Department Responsible:	Town in coordination with Southampton County
Implementation Schedule:	July 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐
Technically Feasible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Legal:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Work with Southampton County code and enforcement department to inform developers and individual homeowners if they are considering building in a high risk area for wildfire, and make suggestions on buffer zones for defensible space purposes.

TOWN OF IVOR MITIGATION ACTION 3

Acquire secondary power source for the Town of Ivor water system.

BACKGROUND INFORMATION

Site and Location:	
History of Damages:	

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Hurricane and Tropical Storm, Winter Storm, Severe Thunderstorm
Goal(s) Addressed:	#1, #2
Priority (High, Moderate, Low):	High
Estimated Cost:	$20,000
Potential Funding Sources:	Southampton Charities
Lead Agency/Department Responsible:	Town of Ivor
Implementation Schedule:	November 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐

ADDITIONAL COMMENTS

The Town of Ivor has three wells, two already with small diesel generators operational on manual control. Proposed action will be to install second generator at site #4 well with an automatic transfer switch. The second generator will continue to provide water supply in case one generator fails. This backup power source will also help maintain water storage levels in case of a catastrophic fire event.

TOWN OF IVOR MITIGATION ACTION 4

Coordinate with Southampton County and the American Red Cross on extensive public education and awareness campaigns to ensure citizens are knowledgeable of protective preparedness and mitigation activities that will lessen the potential impacts of disasters.

BACKGROUND INFORMATION

Site and Location:	Throughout Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999 Multiple winter storms, severe thunderstorms and hazardous material events

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP; American Red Cross; FEMA materials provided at no charge
Lead Agency/Department Responsible:	Town of Ivor
Implementation Schedule:	Continuous

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Particular life/safety concerns were identified as it relates to driving on roads that have been or could be flooded, as well as promoting water conservation techniques during widespread power outages.

TOWN OF COURTLAND MITIGATION ACTION 5

Continue to enhance and expand communications interoperability between the Town of Ivor, Southampton County and other jurisdictions during and following emergency or disaster events.

BACKGROUND INFORMATION

Site and Location:	Throughout the Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#2
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** HSGP, HMGP
Lead Agency/Department Responsible:	Town of Ivor
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

TOWN OF IVOR MITIGATION ACTION 6

Develop a hazardous materials response plan for Fire and EMS personnel.

BACKGROUND INFORMATION

Site and Location:	Town of Ivor and First Run Service area for Ivor Fire and Ivor Rescue.
History of Damages:	

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	Hazardous Materials Incidents
Goal(s) Addressed:	#3
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	#25,000
Potential Funding Sources:	**DHS:** HGSP
Lead Agency/Department Responsible:	Ivor Fire; Ivor Rescue
Implementation Schedule:	September 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐
Administratively Possible:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

ADDITIONAL COMMENTS

Develop a plan of action for HAZMAT initial response for Ivor Fire and Ivor Rescue and other agencies that may be needed depending on the severity and type of incident.

Town of Newsoms

OVERALL CAPABILITY	HAZARD RISK: Limited	Moderate	High
High			
Moderate			
Limited	✓		

TOWN OF NEWSOMS MITIGATION ACTION 1	
Continue to enhance and expand communications interoperability between the Town of Newsoms, Southampton County and other jurisdictions during and following emergency or disaster events.	
BACKGROUND INFORMATION	
Site and Location:	Throughout the Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All
Goal(s) Addressed:	#2
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** HSGP, HMGP
Lead Agency/Department Responsible:	Town of Newsoms
Implementation Schedule:	June 2006

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Technically Feasible:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Administratively Possible:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Politically Acceptable:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Legal:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
Economically Sound:				
1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
Environmentally Sound:				
1 ☐	2 ☐	3 ☐	4 ☐	5 ☒

ADDITIONAL COMMENTS

Radio interoperability project is underway in coordination with Southampton County.

TOWN OF NEWSOMS MITIGATION ACTION 2

Coordinate with Southampton County and the American Red Cross on extensive public education and awareness campaigns to ensure citizens are knowledgeable of protective preparedness and mitigation activities that will lessen the potential impacts of disasters.

BACKGROUND INFORMATION

Site and Location:	Throughout Town
History of Damages:	Hurricane Isabel, 2003 Hurricane Floyd, 1999 Multiple winter storms, severe thunderstorms and hazardous material events

MITIGATION ACTION DETAILS

Hazard(s) Addressed:	All
Goal(s) Addressed:	#6
Priority (High, Moderate, Low):	High
Estimated Cost:	To be determined
Potential Funding Sources:	**DHS:** PDM, HGSP, HMGP; American Red Cross; FEMA materials provided at no charge
Lead Agency/Department Responsible:	Town of Newsoms
Implementation Schedule:	Continuous

ADDITIONAL CONSIDERATIONS

The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does Not Satisfy ▪ 3 = Moderately Satisfies ▪ 5 = Strongly Satisfies)

Socially Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Technically Feasible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Administratively Possible:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Politically Acceptable:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Legal:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Economically Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒
Environmentally Sound:				
1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

ADDITIONAL COMMENTS

Particular life/safety concerns were identified as it relates to driving on roads that have been or could be flooded, as well as promoting water conservation techniques during widespread power outages.

Plan Maintenance Procedures

This section discusses how Southampton County's Mitigation Strategy and Mitigation Action Plans will be implemented by participating jurisdictions and how the All-Hazards Mitigation Plan will be evaluated and enhanced over time. This section also discusses how the public will continue to be involved in the All-Hazards Mitigation Planning process. It consists of the following three subsections:

- Implementation
- Monitoring, Evaluation and Enhancement
- Continued Public Involvement

44 CFR Requirements

44 CFR Part 201.6(c)(4)(i): *The plan shall include a plan maintenance process that includes a section describing the method and schedule of monitoring, evaluating and updating the mitigation plan within a five-year cycle.*

44 CFR Part 201.6(c)(4)(ii): *The plan maintenance process 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.*

Implementation

Each jurisdiction participating under Southampton County All-Hazards Mitigation Plan is responsible for implementing specific mitigation actions as prescribed in their locally adopted Mitigation Action Plan. In each Mitigation Action Plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally-specific actions also ensures that each jurisdiction is not held responsible for the monitoring and implementing the actions of other jurisdictions involved in the planning process.

In addition to the assignment of a local lead department or agency, an implementation time period or a specific implementation date has been assigned in order to assess whether actions are being implemented in a timely fashion. Southampton County and its jurisdictions will seek outside funding sources to implement mitigation projects in both the predisaster and post-disaster environments[1]. When applicable, potential funding sources have been identified for proposed actions listed in the Mitigation Action Plans.

It will be the responsibility of each participating jurisdiction to determine additional implementation procedures beyond those listed within their Mitigation Action Plan. This includes integrating the requirements of the All-Hazards Mitigation Plan into other local planning documents, processes or mechanisms such as comprehensive or capital improvement plans, when appropriate. The members of the Mitigation Advisory Committee will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their jurisdictions or agencies are consistent with the goals and actions of the All-Hazards Mitigation Plan, and will not contribute to increased hazard vulnerability in Southampton County.

Opportunities to integrate the requirements of this Plan into other local planning mechanisms shall continue to be identified through future meetings of the Mitigation Advisory Committee and through the five-year review process described herein. Although it is recognized that there are many possible benefits to integrating components of this Plan into other local planning mechanisms, the development and maintenance of this stand-alone All-Hazards Mitigation Plan is

[1] A listing of key federal hazard mitigation funding sources is provided in Appendix C.

deemed by the Southampton County Mitigation Advisory Committee to be the most effective and appropriate method to implement local hazard mitigation actions at this time.

Monitoring, Evaluation and Enhancement

Periodic revisions and updates of the All-Hazards Mitigation Plan are required to ensure that the goals of the Plan are kept current, taking into account potential changes in hazard vulnerability and mitigation priorities. In addition, revisions may be necessary to ensure that the Plan is in full compliance with applicable federal and state regulations. Periodic evaluation of the Plan will also ensure that specific mitigation actions are being reviewed and carried out according to each jurisdiction's individual Mitigation Action Plan.

The Southampton County Mitigation Advisory Committee will continue to meet at least annually and following any disaster events warranting a reexamination of the mitigation actions being implemented or proposed by the participating jurisdictions. This will ensure that the Plan is continuously updated to reflect changing conditions and needs within Southampton County. If determined appropriate or as requested, an annual report on the Plan will be developed and presented to local governing bodies of participating jurisdictions in order to report progress on the actions identified in the Plan and to provide information on the latest legislative requirements and/or changes to those requirements.

Five (5) Year Plan Review

The Plan will be reviewed by the Mitigation Advisory Committee every five years to determine whether there have been any significant changes in Southampton County that may, in turn, necessitate changes in the types of mitigation actions proposed. New development in identified hazard areas, an increased exposure to hazards, the increase or decrease in capability to address hazards, and changes to federal or state legislation are examples of factors that may affect the necessary content of the Plan.

The plan review provides community officials with an opportunity to evaluate those actions that have been successful and to explore the possibility of documenting potential losses avoided due to the implementation of specific mitigation measures. The plan review also provides the opportunity to address mitigation actions that may not have been successfully implemented as assigned. The Southampton County Administrator's office will be responsible for reconvening the Mitigation Advisory Committee and conducting the five-year review.

During the five-year plan review process, the following questions will be considered as criteria for assessing the effectiveness and appropriateness of the Plan:

- Do the goals address current and expected conditions?
- Has the nature or magnitude of risks changed?
- Are the current resources appropriate for implementing the Plan?
- Are there implementation problems, such as technical, political, legal or coordination issues with other agencies?

- Have the outcomes occurred as expected?
- Did the jurisdictions, agencies and other partners participate in the plan implementation process as assigned?

Following the five-year review, any revisions deemed necessary will be summarized and implemented according to the reporting procedures and plan amendment process outlined herein. Upon completion of the review and update/amendment process, the Southampton County All-Hazards Mitigation Plan will be submitted to the State Hazard Mitigation Officer at the Virginia Department of Emergency Management for final review and approval in coordination with the Federal Emergency Management Agency.

Disaster Declaration

Following a disaster declaration, the Southampton County All-Hazards Mitigation Plan will be revised as necessary to reflect lessons learned, or to address specific issues and circumstances arising from the event. It will be the responsibility of the Southampton County Administrator's office to reconvene the Mitigation Advisory Committee and ensure the appropriate stakeholders are invited to participate in the plan revision and update process following declared disaster events.

Reporting Procedures

The results of the five-year review will be summarized by the Mitigation Advisory Committee in a report that will include an evaluation of the effectiveness of the Plan and any required or recommended changes or amendments. The report will also include an evaluation of implementation progress for each of the proposed mitigation actions, identifying reasons for delays or obstacles to their completion along with recommended strategies to overcome them.

Any necessary revisions of changes to the countywide Plan elements must follow the plan amendment process outlined herein. For changes and updates to the individual Mitigation Action Plans, appropriate local designees will assign responsibility for the completion of the task.[2]

Plan Amendment Process

Upon the initiation of the amendment process, Southampton County and its town jurisdictions will forward information on the proposed change(s) to all interested parties including, but not limited to, all directly affected County departments, Town offices, residents, and businesses. Information will also be forwarded to the Virginia Department of Emergency Management. This information will be disseminated in order to seek input on the proposed amendment(s) for not less than a 45-day review and comment period.

At the end of the 45-day review and comment period, the proposed amendment(s) and all comments will be forwarded to the Mitigation Advisory Committee for final consideration. The committee will review the proposed

[2] Town jurisdictions do have the authority to approve/adopt changes to their own Mitigation Action Plans without approval from the County; however, the County should be advised of all changes as a courtesy and for consideration for changes or modifications to the countywide Plan. Changes to either the multi-jurisdictional plan or local Mitigation Action Plans will necessitate the adoption of these changes by the appropriate local governing body. Ultimately, the updated Plan or plan component(s) will be submitted to the Virginia Department of Emergency Management.

amendment along with the comments received from other parties, and if acceptable, the committee will submit a recommendation for the approval and adoption of changes to the Plan to each appropriate governing body within 60 days.

In determining whether to recommend approval or denial of a Plan amendment request, the following factors will be considered by the Mitigation Advisory Committee:

- There are errors, inaccuracies or omissions made in the identification of issues or needs in the Plan;
- New issues or needs have been identified which are not adequately addressed in the Plan;
- There has been a change in information, data, or assumptions from those on which the Plan is based.

Upon receiving the recommendation from the Mitigation Advisory Committee and prior to adoption of the Plan, each local governing body will hold a public hearing if deemed necessary. The governing body will review the recommendation from the Mitigation Advisory Committee (including the factors listed above) and any oral or written comments received at the public hearing. Following that review, the governing body will take one of the following actions:

- Adopt the proposed amendments as presented;
- Adopt the proposed amendments with modifications;
- Refer the amendments request back to the Mitigation Advisory Committee for further revision; or
- Defer the amendment request back to the Mitigation Advisory Committee for further consideration and/or additional hearings.

Continued Public Involvement

44 CFR Requirements

44 CFR Part 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.*

Public participation is an integral component to the mitigation planning process and will continue to be essential as this Plan evolves over time. As described above, significant changes or amendments to the Plan shall require a public hearing prior to any adoption procedures.

Other efforts to involve the public in the maintenance, evaluation and revision process will be made as necessary. These efforts may include:

- Advertising meetings of the Mitigation Advisory Committee in the *Tidewater News*, public bulletin boards and/or County and Town office buildings;
- Designating willing and voluntary citizens and private sector representatives as official members of the Mitigation Advisory Committee;
- Utilizing local media to update the public of any maintenance and/or periodic review activities taking place;
- Utilizing the Southampton County Web site to advertise any maintenance and/or periodic review activities taking place; and
- Keeping copies of the Plan in public libraries.