# City of Franklin

## ALL-HAZARDS MITIGATION PLAN

FINAL JANUARY 2006

# CITY OF FRANKLIN ALL-HAZARDS MITIGATION PLAN

# JANUARY 2006

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# Introduction

This section provides a general introduction to the City of Franklin 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.

The City of Franklin 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 the City of Franklin. This vulnerability was most recently highlighted through the devastating effects wrought by Hurricanes Isabel (2003) and Floyd (1999).

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*.

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.

**FEMA Definition of Hazard Mitigation:**
*"Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards."*

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 City of Franklin All-Hazards Mitigation Plan is a logical first step toward incorporating hazard mitigation principles and practices into the routine government activities and functions of the City of Franklin. 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 the City of Franklin'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 City of Franklin All-Hazards Mitigation Plan has been prepared in coordination with FEMA Region III and the Virginia Department 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 City of Franklin 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 the community a safer place 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 those hazards determined to be “high” or “moderate” risk as determined through a detailed hazard risk assessment conducted for the City of Franklin.[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 the City of Franklin 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 areas within the territorial limits of the City of Franklin.

## Authority

The Plan, developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans, has been adopted by the City of Franklin in accordance with the authority and police powers granted to 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 (i.e., risk assessment, capability assessment), this information is separated from the more meaningful planning outcomes or actions (i.e., 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

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

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 the City of Franklin, 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 baseline information provides a snapshot of the planning area and thereby assists City 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 the City of Franklin's overall risk to hazards. The risk assessment also attempts to define any hazard risks that may uniquely or exclusively affect specific areas of the city.

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 the City of Franklin seeks to determine the most appropriate mitigation actions to pursue and implement—enabling it to prioritize and focus its 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 the City of Franklin'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 City of Franklin 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 citywide goal statements as well as an analysis of hazard mitigation techniques for the City of Franklin 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 City department or agency 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 the City of Franklin 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, downtown revitalization, recreational opportunities, transportation improvements, environmental quality, land development, and public health and safety.

***Plan Maintenance Procedures***, found in Section 9, includes the measures that the City of Franklin 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 process undertaken by the City of Franklin in the development of the All-Hazards Mitigation Plan. It consists of the following five subsections:

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

## 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 a hazard mitigation plan, responsibility is assigned for each proposed mitigation action to a specific individual, department or agency along with a schedule or target completion date 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 the plan remains a current, dynamic and effective planning document over time that becomes integrated into the routine local decision making process.

Mitigation planning offers many benefits, including:

- saving lives and property;
- saving money;
- speeding recovery following disasters;
- reducing future vulnerability through wise development and post-disaster recovery and reconstruction;
- expediting the receipt of pre-disaster and post-disaster grant funding; and
- demonstrating a firm commitment to improving community health and safety.

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 the investments made before a hazard event 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

**44 CFR Requirement**

***44 CFR Part 201.6(c)(1):*** The plan shall include documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process and how the public was involved.

The City of Franklin utilized the 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 the City of Franklin'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*.

## 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 City's Fire and Rescue Department engaged local 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 *City of Franklin 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
- support the adoption of the All-Hazards Mitigation Plan by the City of Franklin.

**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.

Additional participation and input from other identified stakeholders and the general public was sought by the City 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).

**Figure 2.1: City of Franklin Hazard Mitigation Planning Process**

**Table 2.1: City of Franklin Mitigation Advisory Committee**

| NAME | DEPARTMENT / AGENCY | TITLE |
|---|---|---|
| Darden, Lin | Department of Public Works | Superintendent |
| Edwards, Bruce | Police Department | Deputy Chief |
| Futrell, Michael | Police Department | Communications Supervisor |
| Goodwin, Donald | Department of Community Development | Director |
| Hersi, Hibak | Virginia Department of Emergency Management | Mitigation Planning Coordinator |
| Holt, Vince | Fire and Rescue Department | Director of Emergency Services |
| McPhillips, Mike | Local Emergency Planning Committee (LEPC) | Chairman |
| Pace, Russell L. | Department of Public Works | Director |
| Punchard, Darrin | PBS&J | Project Manager |
| Robinson, Mike | PBS&J | Risk Assessment Specialist |
| Slaughter, Nathan | PBS&J | Mitigation Planner |
| Taylor, Bucky | City Manager's Office | City Manager |
| Trumble, Christie | American Red Cross | Service Delivery Coordinator |
| Watson, Steve | Department of Public Works | Utility Superintendent |
| Williams, Anne C. | Downtown Franklin Association | Downtown Manager |

# 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 City of Franklin Mitigation Advisory Committee.[1] In many cases, routine discussions and additional meetings were held by locals to accomplish planning tasks specific to their department or 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 April 8, 2005, the City of Franklin 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 the City of Franklin and PBS&J was held on April 21, 2005 and was attended by Vince Holt, Director of Emergency Services for Franklin, and 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 City 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. Holt about the history of hazards in Franklin 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 a variety of City departments (Community Development, Public Works, Police, Public Health, etc.) as well as outside organizations such as the American Red Cross, Disaster Response Council, Chamber of Commerce and Downtown Franklin Association. It was determined that a smaller, more focused group would be most appropriate for achieving the purpose of the committee, but that 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 City'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 May 17, 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 City's mitigation strategy.

## May 17, 2005
## First Mitigation Advisory Committee Meeting

The first meeting of the City of Franklin Mitigation Advisory Committee was held on May 17, 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 the City of Franklin, 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.

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

The meeting began immediately with an interactive "icebreaker" exercise for committee members to help determine the hazards of most critical concern to the City of Franklin. First, committee members identified a listing of 10 hazards they felt were important for the Plan to address. Then, each attendee was given $20 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 wind and flood hazards receiving the most attention:

1. Wind – $79
2. Flood – $62
3. Railroad (HazMat) – $21
4. Fire – $16
5. Industrial Accident – $13
6. Drought – $11
7. Ice – $6
8. Nuclear – $5
9. Wildfire – $4
10. Heat – $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 concept of hazard mitigation was introduced along with some background information on the Disaster Mitigation Act of 2000 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 for the City of Franklin. 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. These were primarily related to the methodologies and data requirements for completing the risk and capability assessments, in addition to the types of mitigation actions that would be proposed within the completed Plan. It was also suggested that the ice hazard be moved up in the rankings determined by the hazard identification exercise (the City maintains its own electric utility and recent ice storm events have caused significant cost burdens).

***Members of the 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)***

Data collection efforts were launched through the distribution and explanation of the Capability Assessment Survey to each member of the committee. Each committee member was assigned the task of going back to their respective department or agency and meeting with appropriate officials to help complete the survey questionnaire, though much of the data being requested was supplied during the meeting by Donald Goodwin, Director of Community Development. The committee members also reviewed and made suggestions for enhancing the Public Participation Survey before making it available to the general public. Suggestions for advertising public meetings and distributing the

[3] Copies of all PowerPoint presentation slides are available through the City of Franklin upon request.

survey were also discussed among the group before adjourning the meeting. The next meeting of the Mitigation Advisory Committee was scheduled for July 19, 2005.

## July 19, 2005
## Second Mitigation Advisory Committee Meeting—Mitigation Strategy Workshop

The second Mitigation Advisory Committee meeting was held on July 19, 2005 in the form of a 4½-hour "Mitigation Strategy Workshop." The workshop began with a detailed presentation by PBS&J on the findings of the risk assessment and capability assessment. A complete draft of the risk assessment document prepared for the City of Franklin was also made available for review and comment prior to its submittal to the Virginia Department of Emergency Management (VDEM). By providing committee members with a more thorough understanding of the hazard risks present in the City of Franklin, 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]

Risk Assessment Findings:

- There have been three major disaster events in the history of Franklin including a major downtown fire (1881) and two devastating floods (1940 and 1999).
- According to FEMA's HAZUS®MH loss estimation software, the current estimated building count in the City of Franklin is approximately 2,700 with a total estimated exposure value of $740.4 million (building and contents).
- Twenty-two critical facilities are identified throughout the city, each of which 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 the City of Franklin: Flood, Hurricane and Tropical Storm, Severe Thunderstorm and Hazardous Materials Incidents.

Most of the questions raised at this point in 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. After discussing the local perspective on the impacts of these hazards, the committee decided to maintain the rankings as presented.

Capability Assessment Findings:

- Franklin has participated in the National Flood Insurance Program (NFIP) since 1980. The Flood Insurance Rate Maps were last updated in September 2002.
- Franklin does not participate in the Community Rating System (CRS).
- Franklin received a grade of "4" under the Building Codes Effectiveness Grading Schedule (BCEGS) in 2002, according to Insurance Services Office, Inc.
- The City of Franklin has a relatively high degree of planning and regulatory capability, administrative and technical capability, fiscal capability and political capability.
- Based on the capability assessment scoring methodology applied by PBS&J, the City of Franklin has a "high" capability to implement hazard mitigation programs and activities.

Cardstorming Exercise

Upon completing the presentation and discussions on the findings of the risk and capability assessments, PBS&J 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 department or agency could undertake to help the City of Franklin become less vulnerable to the high risk hazards identified through the risk assessment. Each participant was encouraged to keep their own department or agency'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.

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

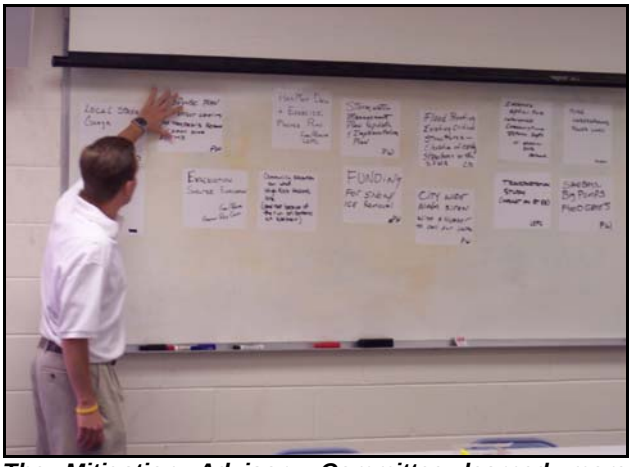
As part of the exercise, workshop participants were asked to discuss potential mitigation policies or projects and instructed to record their proposed mitigation actions on cards that would then be posted along the front wall of the meeting room. This exercise resulted in a variety of potential mitigation 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 preliminary 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 goal statements for the draft All-Hazards Mitigation Plan. These categories included the following:

- Communication and Coordination
- Emergency Preparedness
- Mitigation Capital Improvements
- Property/Infrastructure Protection
- Public Education
- Stormwater Management

Another outcome of the cardstorming exercise was the preliminary identification of potential mitigation actions the City of Franklin to consider for incorporation into the All-Hazards Mitigation Plan. These actions are summarized in **Table 2.3**.



***The Mitigation Advisory Committee learned more about the City of Franklin's vulnerability and worked to propose a variety of possible objectives and mitigation actions at the Mitigation Strategy Workshop. (Photo credit: PBS&J Project Photo)***

**Table 2.3: Preliminary Mitigation Actions Identified for the City of Franklin**

| ACTION | LEAD DEPARTMENT / AGENCY | ASSOCIATED GOAL |
|---|---|---|
| Develop a response plan for street clearing and tree/debris removal for small scale storms | Public Works | Mitigation Capital Improvements |
| Assess local capabilities for removing snow/ice and develop enhancement/coordination plan | Public Works | Mitigation Capital Improvements |
| Establish local fund for snow/ice removal equipment | Public Works | Mitigation Capital Improvements |
| Update the City's Stormwater Management Plan and Implementation Plan | Public Works | Stormwater Management |
| Design and build culverts where necessary under railroad beds | Public Works | Stormwater Management |
| Develop a Hazardous Material Drill and Exercise Master Plan | Fire and Rescue / LEPC | Emergency Preparedness |
| Prepare a Transportation Study for the transport of hazardous materials on Hwy. 58 | LEPC | Emergency Preparedness |
| Conduct an evaluation of local schools for purposes of evacuation shelters | Fire and Rescue / American Red Cross | Emergency Preparedness |
| Coordinate with the Army Corps of Engineers for a local stream gauge | Police | Emergency Preparedness |
| Increase options for interoperable communications between departments (i.e. wireless data network) | Police | Communication and Coordination |
| Radio interoperability between departments (Police, Fire, EMS, Planning, Public Works, etc.) | Police | Communication and Coordination |
| Establish city-side alarm siren with a dedicated phone number to call for public information | Public Works | Communication and Coordination |
| Place more power lines underground to minimize electric power failure | Electric | Property / Infrastructure Protection |
| Floodproof and/or elevate existing critical facilities in the Special Flood Hazard Area | Community Development / Public Works | Property / Infrastructure Protection |
| Acquire sandbags, big pumps and flood gates for emergency protective measures | Public Works | Property / Infrastructure Protection |
| Increase community education efforts on individual and family preparedness for high risk hazards | American Red Cross | Public Education |
| Investigate the use of Reverse 911 technology in Franklin | Police | Public Education |

Before the meeting concluded, PBS&J distributed and explained several final handouts for workshop participants to use in identifying specific mitigation actions for incorporation in the City's *Mitigation Action Plan*. 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 departments or agencies to begin proposing and prioritizing[6] their preliminary mitigation actions for submission to the City of Franklin's Fire and Rescue Department and PBS&J for further study and refinement. The committee determined that all Mitigation Action Worksheets should be completed and returned to the City by August 12, 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 by committee members in advance of the meeting through a dedicated FTP site which became active on October 20, 2005. At the meeting, the committee considered all recommended revisions from local officials as well as 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 subsection: *Involving the Public*, and a summary of the findings is provided in Appendix B.

Following the meeting, the City of Franklin instructed committee members to coordinate with relevant officials from their departments or agencies and to provide final review comments on the draft Plan no later than November 15, 2005. Feedback was also requested on how each department or agency planned to integrate the Plan into their other local planning procedures and tracking mechanisms.

Lastly, prior to adjourning, it was determined at the meeting that a "public forum" would be held upon the completion of the final draft All-Hazards Mitigation Plan in order to get citizen comments on the document at least two weeks prior to any formal adoption procedures by the City Council.

## Involving the Public and Identified Stakeholders

### Involving the Public

**44 CFR Requirement**

***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.

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 city safer from the potential effects of hazards.

Public involvement in the development of the City of Franklin 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 the City of Franklin. 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 City's Web site and at government offices and public libraries.

[5] Copies of all planning tools and reference guides distributed at the meeting are available through the City of Franklin 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.

## Public Meetings

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 City'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 Southampton County at the Workforce Development Center. The meeting was advertised using the notice shown in **Figure 2.2**, which was posted on the City's Web site and at various public buildings in addition to being advertised in the bi-weekly *Tidewater News* (Sunday, August 21, 2005 edition). This publication has widespread local and regional circulation which ensured local officials, residents, businesses, academia and other private interests in Franklin 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 12 through August 25.

Immediately following the open public meeting, PBS&J sponsored a *Small Business Workshop* that specifically targeted the independent owners and operators of small businesses throughout the City of Franklin. 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.

Upon completion of a final draft Plan, the City of Franklin held an open public hearing on the final All-Hazards Mitigation Plan. This meeting 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 the City of Franklin.

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.

***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)***

## 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 City's Web site for easy online completion over the course of eight weeks in September and October, 2005. 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 City offices. The availability of the survey was also promoted through advertisements in the *Tidewater News* (Sunday, September 11 edition) as well in *City Clips* (local newsletter included with utility bills) 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.

**Figure 2.2: Public Meeting Advertisement**

Sometimes

# DISASTER STRIKES!

*Hurricanes…*

*Floods…*

*Tornadoes…*

*Wildfires…*

## What Concerns You?

Do you have ideas for helping our community become better prepared for possible disasters?

You're invited to bring your local knowledge and thoughts to an open **Public Meeting** on the development of All-Hazards Mitigation Plans for the City of Franklin and Southampton County. These plans are currently being prepared for our community and your input is important to us! Also, following the public meeting, there will be an interactive **Small Business Workshop** designed specifically for our local business owners to share their concerns and learn more about disaster preparedness.

**Thursday, August 25, 2005**

Open Public Meeting @ 6:00 to 7:00 PM

Small Business Workshop @ 7:00 to 8:00 PM

Regional Workforce Development Center
100 North College Drive, Franklin

**For more information please contact:**

Vince Holt, Franklin Emergency Services Director - (757) 562-8581

Michael Johnson, Southampton County Administrator - (757) 653-3015

## Involving Stakeholders

### 44 CFR Requirement

***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.

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 City's notifications and invitations to neighboring communities and select agencies or individuals to participate in Mitigation Advisory Committee meetings. These agencies included various City officials as well as representatives from the American Red Cross, the Southampton/Franklin Joint Local Emergency Planning Committee (LEPC), the Downtown Franklin Association, the Franklin/Southampton Area Chamber of Commerce, and the Virginia Department of Emergency Management.

In addition to the Mitigation Advisory Committee meetings, the City of Franklin 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 City went above and beyond in its local outreach efforts through the design and posting of the Public Participation Survey on the City'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 the City of Franklin and its neighboring communities to be involved and offer input throughout the local mitigation planning process.

The City of Franklin 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.

# Community Profile

This section of the Plan provides a general overview of the City of Franklin[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

The City of Franklin has been shaped by its location along the Blackwater River, by the railroads that run through it, by its topography, type of soils, prevailing winds, natural resources found in the city and in neighboring localities, and by its location between the seashore and the mountains of southern Virginia. The city is centrally located in proximity to several notable destinations, including the famous seashore of Virginia Beach, the historic capital City of Richmond, and the resort areas of North Carolina's Outer Banks – all within an hour's drive from Franklin. An orientation map illustrating each of Franklin's neighboring jurisdictions is provided as **Figure 3.1**, and a locally-specific base map with aerial imagery is provided as **Figure 3.2**.

Franklin lies in the western part of Virginia's relatively flat coastal plain, also known as the Tidewater area of southeastern Virginia. The total land area of the city is 8.7 square miles, with approximately eight miles along the Blackwater River. Approximately 34 percent of the city is forested while 29 percent is devoted to cropland and pastures. The remaining areas are designated as residential (29 percent) and commercial (8 percent).

Typically, the city enjoys mild winters with warm, humid summers. The average annual precipitation is approximately 50 inches, including approximately seven inches of snowfall. In addition to summer thunderstorms, major producers of rainfall include nor'easters and tropical storms. Wind direction is predominantly from the west and southwest; however, immediately following storm systems, northwesterly winds typically dominate for some time.

Most topographic variation in Franklin is associated with the eroding action of rivers and streams. Elevations range from less than five feet above sea level on Franklin's eastern boundary to a maximum of eighty feet in the northwestern portion of the city.

The dominant surface water resources in the Franklin area are the Blackwater and Nottaway Rivers and their tributaries. These two rivers join at the North Carolina state line to form the Chowan River, a tributary of the Albemarle Sound. The majority of the City of Franklin lies in the Blackwater River drainage basin while the northwest corner of the city lies in the Nottoway River drainage basin.

The Blackwater River is a relatively slow moving, dark river that serves as a valuable resource for the city. Residents rely on the river for recreation, using it heavily for boating and freshwater fishing. There are swampy marshes along the river including extensive areas within the city classified as non-tidal wetlands. Generally, these areas are conserved and not considered suitable for development. In fact, the City of Franklin has a large percentage of open space, consisting or forests, agriculture and wetlands that offer great opportunities for trails, picnic areas, nature programs, access to the Blackwater River, and camping sites.

In September 1999, the rains associated with Hurricane Floyd caused the Blackwater River to flood to record levels and devastate the City of Franklin (discussed further in the *Hazard Identification and Analysis* section). 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. Many of these areas have since been determined by the City as the most suitable lands for preserving open space.

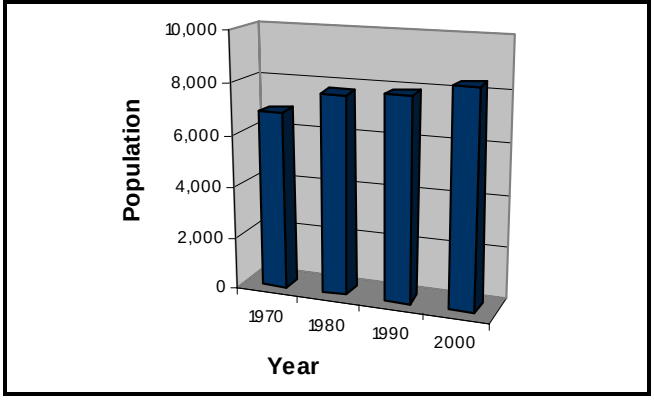
## Population and Demographics

Franklin was incorporated as a Town in March of 1876. The first official census of 1880 indicated that there were 447 inhabitants within its limits. By 1970,

[1] Unless otherwise cited, most information in this section was incorporated from the U.S. Census Bureau and the City of Franklin Draft Comprehensive Plan (March 2005) prepared by the Staff of the Hampton Roads Planning District Commission in cooperation with the City of Franklin.

nearly 7,000 people lived in Franklin. Since that time, growth has been slow and steady as illustrated in **Figure 3.1**. According to the 2000 Census, the total population of the City of Franklin was 8,346. This represents an increase of 482 residents (6.1 percent) since the 1990 Census. The latest population estimate indicated that Franklin's current population is 8,471 (U.S. Census Bureau, 2004 Population Estimates).

**Figure 3.1: Population Growth in Franklin**




*Source: U.S. Census Bureau*

Franklin's historical growth and stable population can be attributed to its agricultural advantages and its industry as well as annexations from Southampton County. On January 1, 1960, the boundaries increased from 1.02 square miles to 3.92 square miles due to annexation. The Town was then incorporated as a City on December 22, 1961. Subsequent annexations in 1986 & 1996 increased the land area of the city to it present size of 8.7 square miles.

According to the 2000 Census, the median age for the city is 39.9 years. It is estimated that 18.4 percent of the city's population is made up of persons that are 65 years old and over, notably higher than the statewide average of 11.2 percent. It is expected that this segment of the population will account for 29 percent of Franklin's total population by 2026.

Franklin's racial mix has varied little since 1980. Black or African American persons make up 52.3 percent of the city's population, followed by white persons making up 45.7 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 0.6 percent of the City of Franklin's population.

Since 1970, the percent of high school graduates in Franklin has more than doubled. Of all persons more than 25 years of age, 71 percent are high school graduates and 16.4 percent have a Bachelor's degree or higher.

An estimated 74 percent of Franklin's 3,395 households in 1999 reported earnings, with a mean income of $43,113. Of the income earning households, 33 percent collected social security, 4 percent received public assistance and 22 percent earned retirement income. Approximately 1,600 individuals (19 percent of total population) were identified as being below the poverty level in 1999.

## Housing, Infrastructure and Land Use

### Housing

According to the 2000 Census, the City of Franklin contained a total of 3,767 housing units. Of these, 2,289 were one-unit detached structures (predominantly single-family homes), 121 were one-unit attached structures such as townhouses, 848 were two to four-unit structures, and 11 were manufactured homes. Median home value has increased at a rate comparable to that of Virginia as a whole, yet in 2000 the average value of $94,900 in Franklin cost markedly less than the statewide average of $125,400.

The age distribution of the city's housing stock as reported in the 2000 Census is as follows:

- Pre-1939 – 8.3%
- 1940 to 1959 – 22.2%
- 1960 to 1979 – 39.9%
- 1980 to 1990 – 12.6%
- 1990 to 2000 – 17.0%

There was a net increase of 260 housing units between 1990 and 2002 (excluding the annexation of 1996). The year 1998 included the greatest number of building permits issued in a single year, while the largest number of demolitions occurred in 1999-2000 following the devastation wrought by Hurricane Floyd.

Residential development in Franklin, which formerly consisted mainly of single-family houses, has changed direction somewhat in recent years so that,

in relation to neighboring communities, a larger portion of housing in the city consists of multi-family rental units, including a large quantity of public housing and other publicly subsidized units. As a result, the city's homeowner population has not increased proportionally the way it has in a number of other area communities. According to the 2000 Census, 53.7 percent of the city's total occupied housing units are owner-occupied and 46.3 percent were renter-occupied.

Of the city's 8.7 square miles of land, approximately 71.4 percent are currently zoned residential. The city does not have the same control over residential housing as it does over public utilities, roads, and community facilities. However, it does exercise indirect control over housing through zoning, subdivision, building code and related ordinances as well as the infrastructure improvements which must be installed by developers in order to subdivide and sell residential lots and to construct and sell or lease multi-family units.

## Transportation

Franklin is served by one major controlled access highway (U.S. 58 Bypass), which is mostly four lanes from Virginia Beach to the west side of South Hill. The local roadway system in Franklin consists of almost 60 miles of public maintained roads. The only primary arterial in the city is Business 58 (3 miles). Minor arterials include Armory Drive, College Drive, High Street, Pretlow Street, South Street and Secon Avenue with a combined length of approximately 12 miles. The remaining streets are urban collectors within residential, commercial and industrial areas and local access streets where through traffic is discouraged.

Although the Greyhound Bus Line provides passenger service to and from the city, there is no intracity service. Rail service is not available for personal travel, though there are two railway companies providing freight service to and from the city. The Norfolk Southern Railway has a rail line running through the city in a generally northwest-southeast axis with an infrequently staffed office located off Mechanic Street, and the CSX Railroad has a line running in a generally northeast-southwest axis through the city.

Franklin has and maintains a municipal airport located one mile east of Franklin on U.S. Route 58 and 258. The area of the airport is approximately 375 acres, with a service area defined by a circle with a radius of 20 miles. It currently has two paved runways which can accommodate general aviation and corporate jet aircraft. The airport has two maintenance facilities, one corporate hangar, two eight plane T-hangars, one six plane T-hangar, and a new state of the art terminal building erected in 1999. The nearest commercial airport is Norfolk International, approximately 50 miles to the northeast.

## Utilities

The City of Franklin provides citizens and businesses in and around the city with a water supply and distribution system, a sewage collection and treatment system, a stormwater drainage system, a solid waste management system and an electric utility system. City services are rendered through the operation of six major departments: the Department of Public Works, Franklin Power & Light, Department of Emergency Services, Police Department, Department of Parks & Recreation and City Administration. The Department of Public Works is responsible for the construction and maintenance of all City-owned property, including public buildings, street, sidewalks, curb and gutter, water mains, sewer lines, cemeteries, parks and the municipal airport.

Ground water from the Upper and Middle Potomac Aquifers is currently the sole source of Franklin's water supply. Water is supplied from 2 deep wells, which provide an abundant supply of unusually soft, pure, palatable water to three elevated tanks with a total storage capacity of 1.5 million gallons. Distribution lines are interconnected so that water may be supplied from one or both of the wells to all developed areas of the city as well as portions of Southampton and Isle of Wight counties.

The City owns and operates its own electric utility system by purchasing bulk power from Dominion Virginia Power Company, and reselling it to residential and business customers. The City serves approximately 5,500 customers within a 20 square mile area through 170 miles of power distribution lines (150 miles above ground and 20 miles below ground) and three substations.

Stormwater drainage facilities in the city have been constructed by the City, by City contractors, and by private developers. Currently, most such facilities are installed by private developers and then deeded to the City for maintenance. The City maintains retention ponds, open and piped ditches and other drainage facilities. The Virginia Department of Transportation maintains drainage facilities on the U.S. 58 Bypass.

### Community Facilities

There are a number of public buildings and community facilities located throughout Franklin, including but not limited to City Hall, the Police Department, three Fire and Rescue stations, three public schools, and a regional hospital (Southampton Memorial).[2] The City also maintains a number of parks and recreation facilities.

## Employment and Industry

The City of Franklin began as a transportation trade center after construction of the Seaboard Railroad in 1837; however, the City's growth was slow until 1887 when the Union Camp lumber mill was established. Manufacturing, along with agriculture, quickly became the chief industry for the area. Today, Franklin serves as a central shopping and service district for surrounding counties and remains a major manufacturing center for native forest products.

As Franklin's population has increased, retail sales and service employment has increased as well. Since 1970, Franklin has experienced significant growth in retail trade, services, government, finance, insurance and real estate employment. At the same time, Franklin and Southampton County continued a decrease in the number of persons employed in agriculture and fluctuations for those employed in manufacturing. It is anticipated that these trends will continue for the next twenty years and beyond. According the Hampton Roads Planning District Commission, Franklin's employment base of 5,651 in 2000 is expected to increase to 7,300 in 2026. Most of these new jobs are projected to take place in the retail trade, services, government, finance, insurance and real estate employment sectors.

Franklin's major industrial presence is still International Paper (purchased from Union Camp in 1999) which is located in Isle of Wight County. This company produces lumber, Kraft paper, pulp and chemical by-products. Other major industries include Hercules Inc. located in Southampton County, producers of Pamak (tall oil fatty acids) rosin, and other chemical processing materials; Franklin Equipment Co. located in Isle of Wight County, manufacturers of the Franklin Logger; Birdsong Peanut Co.; Money Mailer, LLC, a direct-mail coupon distributor and Southampton Memorial Hospital which is the City's largest employer.

## Development Trends

The City of Franklin is at a crossroads between its past and its future. The historic downtown area and the surrounding residential areas provide a link to the past, to a time when American urban design created pedestrian-friendly neighborhoods. The floodwaters of Hurricane Floyd in 1999 devastated the downtown business district, but the past four years have witnessed rebuilding and revitalization projects that once again make Franklin's downtown the center of commercial activity.

Given the ample supply of undeveloped land and substantial projected population growth, the built environment in Franklin will change dramatically during the next twenty years. The City is experiencing increased pressures for residential development, particularly in areas to the north of downtown. The City's emphasis on pedestrian-friendly neighborhoods containing a mix of uses and housing types aims to create unified and sustainable communities. A key element to this movement includes minimizing or eliminating the long-term risk to people and property from hazards, and fortunately, many of the undeveloped flood hazard areas are currently zoned for conservation. The City works with developers to incorporate sustainable and conservation design principles into subdivision proposals (such as the creation of permanently protected open space), and will continue to do so as new residential development takes place. The majority of Franklin's commercial and industrial areas are in and around the historic downtown, along the Armory Drive corridor and in the southern tip of the city. More undeveloped industrial sites are available in a City-owned Industrial Park adjacent to the four-lane Route 58. As a center of much of the city's commercial activity, the Armory Drive corridor is a thoroughfare under a great deal of development pressure. From a stormwater management perspective, the vast area of impervious cover resulting from the type of development prevalent along Armory Drive creates special hazard concerns. One potential solution is the application of Low Impact Development standards in both new construction and retrofits. This strategy of dealing with stormwater involves reducing the amount of impervious cover in order to mimic the pre-development hydrology of the site, something the City of Franklin is considering as it relates to guiding future development patterns.

[2] Critical public facilities are more thoroughly addressed as part of the asset inventory for the risk assessment in the *Vulnerability Assessment* section.

# Hazard Identification and Analysis

The United States and its communities are vulnerable to a wide range of natural and manmade hazards that threaten life and property. These hazards include (and this section is presented based upon) the following:[1]

**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 City of Franklin 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.

**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.

## 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, the City of Franklin has received four presidential disaster declarations including hurricane, flood and severe winter weather events (**Table 4.1**).

**Table 4.1: Presidential Disaster Declarations for the City of Franklin**

| EVENT | DECLARATION DATE | DECLARATION NUMBER |
|---|---|---|
| Hurricane Isabel | 09/18/2003 | 1491 |
| Severe Winter Storms | 02/28/2000 | 1318 |
| Hurricane Floyd | 09/18/1999 | 1293 |
| Blizzard of '96 (Severe Snow Storm) | 02/02/1996 | 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.

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.

***Hurricane Floyd in September 1999 left the downtown area of Franklin under six feet of water. The water has begun to recede in this photo, as shown by the high-water marks—but hazards such as floating propane tanks, gas tanks, chemical barrels and pesticides remain a concern. (Photo credit: Liz Roll/FEMA News Photo)***

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 City of Franklin is located on the Blackwater River.

**Figure 4.1** shows the flood hazard boundary of Zone AE, the floodway and the 0.2% Annual Chance Flood Hazard within the City of Franklin, along with hydrologic information, city streets, railroad corridors and building footprints. This digital flood data is based on new flood maps created for the community following Hurricane Floyd in 1999.

| Flood Zone Definitions |
| --- |
| ***Zone AE*** is defined as an area inundated by 100-year flooding, for which BFEs (Base Flood Elevations) have been established. |
| ***Floodway*** for most waterways is where the water is likely to be deepest and fastest. It is the area of the floodplain that should be reserved (kept free of obstructions) to allow floodwaters to move downstream. Placing fill or buildings in a floodway may block the flow of water and increase flood heights. |
| ***0.2% Annual Chance Flood Hazard*** is defined as an area inundated by 500-year flooding. |

## Historical Occurrences

*Information in this subsection was collected and adapted from City of Franklin and National Climatic Data Center historical records.*

Since 1940, four significant flood events have impacted the City of Franklin, including the current flood of record which resulted from Hurricane Floyd in September 1999 and the previous flood of record, which occurred in August 1940.

### August 13-18, 1940: Flood

The last major flood with the exception of Hurricane Floyd in 1999 occurred August 13-18, 1940 as the result of four significant rainfall events within a three-week period. The result was a historical flood for the region with the Blackwater River cresting at 21.9 feet, approximately 10 feet above flood stage in the City of Franklin. One of the primary factors in this flood event was an unnamed tropical cyclone that meandered across the southeast United States for four days before dying out on August 15. Rains began in earnest in Virginia on August 13 as the storm entered the state from the west. Deluges flooded locations statewide with 4.76 inches of rainfall being measured at Hampton Roads. Nearby Emporia on the Meherrin River reached a flood of record stage on August 17 when the river crested at 31.5 feet—8.5 feet above flood stage. A total of 16 deaths in Virginia and neighboring states are directly attributed to this flood event.

### September 16, 1999: Hurricane Floyd

The most significant flood event in the City of Franklin's recent history was a result of Hurricane Floyd in September 1999. Extremely heavy rain from this tropical storm-force event produced widespread riverine flooding and flash flooding across much of central and eastern Virginia – areas that had experienced heavy amounts of rainfall during Tropical Storm Dennis only weeks earlier. Floyd's rainfall amounts generally ranged from near seven inches from eastern Caroline County in central Virginia to nearby Brunswick, Lunenburg and Mecklenburg counties, to 12 to 18 inches in much of the Virginia Tidewater. Numerous roads were washed out due to flooding and many areas normally prone only to flooding due to poor drainage and low lying areas experienced significant flash flooding. Primary routes out-of-service due to flooding included U.S. Highway 58 near Franklin and Interstate 95 south of Petersburg to Emporia.

***Downtown Franklin, a historic district boasting an impressive 98 percent business occupancy rate and a flagship location for the Virginia Main Street Program, was devastated by the flooding caused by Hurricane Floyd. (Photo credit: City of Franklin)***

Riverine flooding was extensive and prolonged throughout the Chowan River Basin with the Blackwater, Meherrin and Nottoway Rivers all exceeding flood stage. Water levels within the City of Franklin were estimated to be several feet above the previous flood of record which occurred in August 1940 making it the new flood of record. By early morning on September 16, the Blackwater River had made its way to Main Street bringing four to five feet of water to even the higher elevations of Downtown Franklin, and floodwaters continued to rise at a rate of approximately six inches per hour. Approximately 100 homes and 182 businesses were considered totally destroyed as a result of the flooding. Floodwaters did not begin to recede until September 21, and home and business owners were not able return to their properties and begin to evaluate their losses until September 28.

Virtually none of the businesses in Downtown Franklin carried flood insurance. Even insurance companies located downtown deemed it unnecessary because many of the areas that flooded during Hurricane Floyd had never before been threatened by rising water. Despite the devastation, the downtown community pulled together and citizens have worked hard to rebuild the area, incorporating several mitigation measures into the recovery and redevelopment efforts.

***Downtown Franklin, a historic district boasting an impressive 98 percent business occupancy rate and a flagship location for the Virginia Main Street Program, was devastated by the flooding caused by Hurricane Floyd. (Photo credit: PBS&J Project Photo)***

Overall, 64 jurisdictions in Virginia were affected by Hurricane Floyd, with the total storm damage in the state reaching approximately $255 million. Four people in Virginia lost their lives as a direct result of this storm.

### October 17, 1999: Flash Flood

Very heavy rainfall associated with Hurricane Irene, which ranged from five to nine inches in Southampton County and the City of Franklin, resulted in numerous flooded roads and road closures due to high water. Specific problem areas included a ditch along Armory Drive near the Wal-Mart Shopping Plaza where fast-moving water and drainage issues caused some road erosion, and also an area near the library that caused problems along 2nd Avenue.

### July 24, 2000: Flash Flood

Many secondary roads in Southampton County were flooded in areas due to countywide flash flooding. Several roads were completely washed out.

*Additional information on drainage and stormwater management issues can be found in the City of Franklin Master Drainage Study prepared in September 1988 by Baldwin & Gregg, LTD Engineers, Surveyors and Planners, Norfolk, Virginia.*

## Probability of Future Occurrences

Flooding remains a highly likely occurrence throughout the identified flood hazard areas of the City of Franklin. 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, the City of Franklin does have policies for development that should help lessen potential property damage due to future floods.

# Hurricane and Tropical Storm

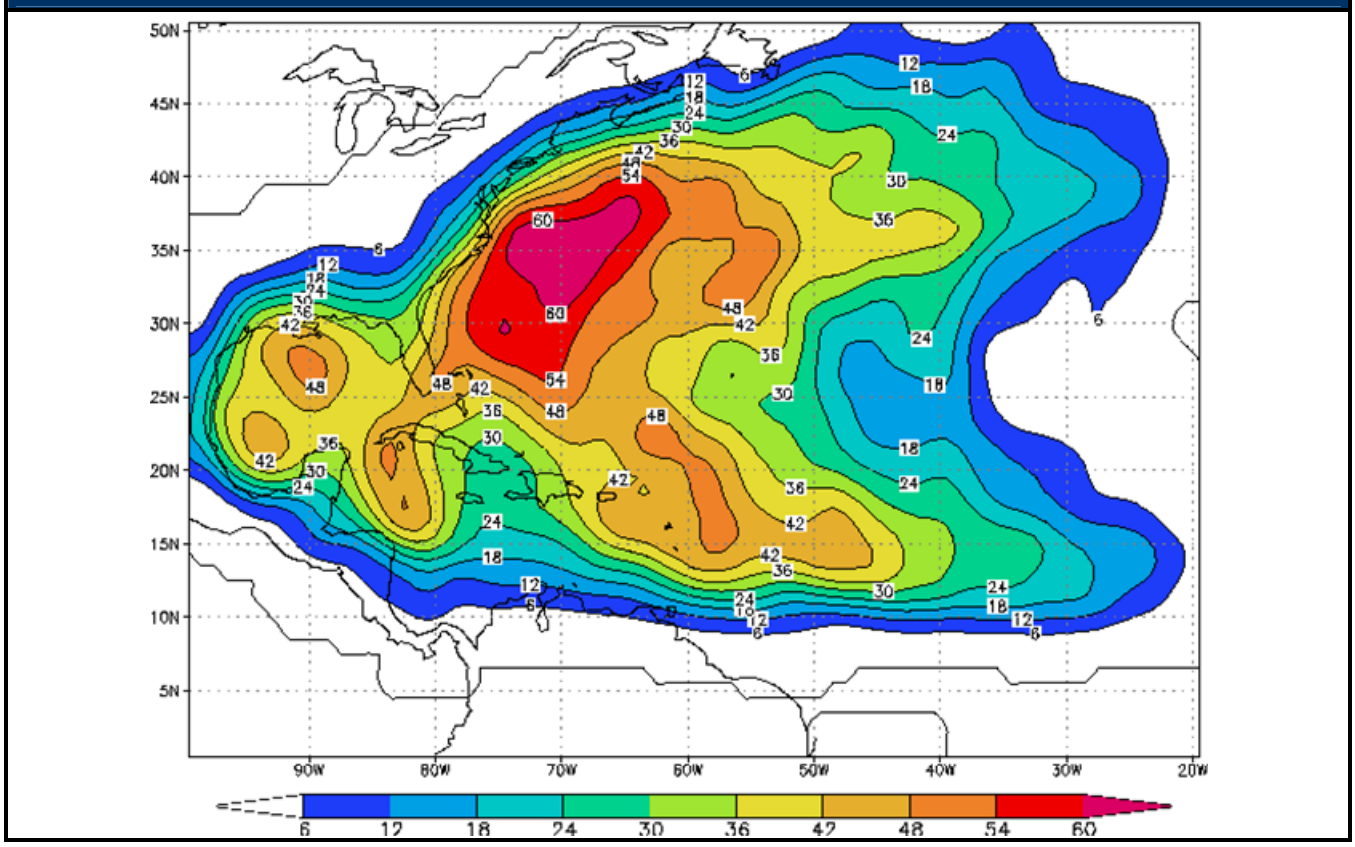
## Background

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.

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 (6).

**Figure 4.2** 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. This illustration 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 4.2: 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 4.2**.

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 4.3** 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 4.2: 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 4.3: 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; Federal Emergency Management Agency*

## Location and Spatial Extent

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, the City of Franklin as a whole, by virtue of its geographic location, is highly susceptible to hurricanes and tropical storm-force winds and related flooding.

## Historical Occurrences

*Information in this subsection was collected and adapted from National Hurricane Center, National Climatic Data Center and National Weather Service historical records.*

Since 1850, 71 tropical cyclone storm tracks have passed within 75 miles of the City of Franklin. 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). While none of these storm tracks have passed directly through the City, eight have passed through Southampton County and all 71 storms passing within 75 miles of the City of Franklin could potentially have impacted the community in varying degrees in terms of wind and rain. **Figure 4.3** shows the track of each storm in relation to the City of Franklin and the surrounding area. **Table 4.4** 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.

Of these 71 tropical cyclone events, four are considered to be significant to the City of Franklin's hazard history.

### August 23, 1933: The Chesapeake-Potomac Hurricane

The Chesapeake-Potomac Hurricane of 1933 was the first time the eye of a hurricane had passed over the nearby city of Norfolk since the great hurricane of September 3, 1821. Sustained gales extended well inland over even northern portions of Virginia. Maximum winds were recorded at 70 MPH at Norfolk and 88 MPH at Norfolk Naval Air Station. Areas near the Chesapeake saw more than 10 inches of rain with some areas measuring eight inches of rain in just one day.

### October 15, 1954: Hurricane Hazel

Hurricane Hazel, a fast-moving Category 4 storm at the time of its landfall, was responsible for 95 deaths and $281 million in damage in the United States, 100 deaths and $100 million in damage in Canada, and an estimated 400 to 1,000 deaths in Haiti. In Virginia, Hazel produced record wind gusts over the eastern portion of the state. In the nearby city of Hampton, Virginia in York County, winds gusted to 130 MPH and gusts to around 100 MPH were common east of Richmond. A total of 13 deaths in Virginia were attributed to the storm and statewide damage was conservatively estimated to be approximately $15 million.

### September 16, 1999: Hurricane Floyd

Due to the nature of Hurricane Floyd, this event is discussed in detail with the flood hazard.

### September 18, 2003: Hurricane Isabel

Hurricane Isabel was a long-lived event that reached Category 5 status and made landfall near Drum Inlet on the Outer Banks of North Carolina as a Category 2 storm. Isabel is considered to be one of the most significant tropical cyclones to affect east-central Virginia since Hurricane Hazel in 1954 and the Chesapeake-Potomac Hurricane of 1933. Ten deaths in Virginia are directly attributed to Isabel and another 22 are indirectly linked to the storm. The estimated total for insured property damage in Virginia is $925 million. Estimates available from the National Climatic Data Center show $6 million in property damage, $3.7 million in crop damage and two fatalities for a five-county forecast zone that includes Southampton County and the City of Franklin.

## Probability of Future Occurrences

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 high.

**Table 4.4: Historical Storm Tracks Within 75 Miles of the City of Franklin (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 |
| 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 |
| 10/16/1964 | Isbell | 45 | Extratropical Storm |

**Table 4.4: Historical Storm Tracks Within 75 Miles of the City of Franklin Continued**

| DATE OF OCCURRENCE | STORM NAME | WIND SPEED (MPH) | STORM CATEGORY |
|---|---|---|---|
| 09/01/1964 | Cleo | 40 | Tropical 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*

# Severe Thunderstorm

## 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 4.4** illustrates thunderstorm hazard severity based on the annual average number of thunder events from 1948 to 1977.

### 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.

***Multiple cloud-to-ground and cloud-to-cloud lightning strikes observed during a nighttime thunderstorm. (Photo credit: NOAA Photo Library)***

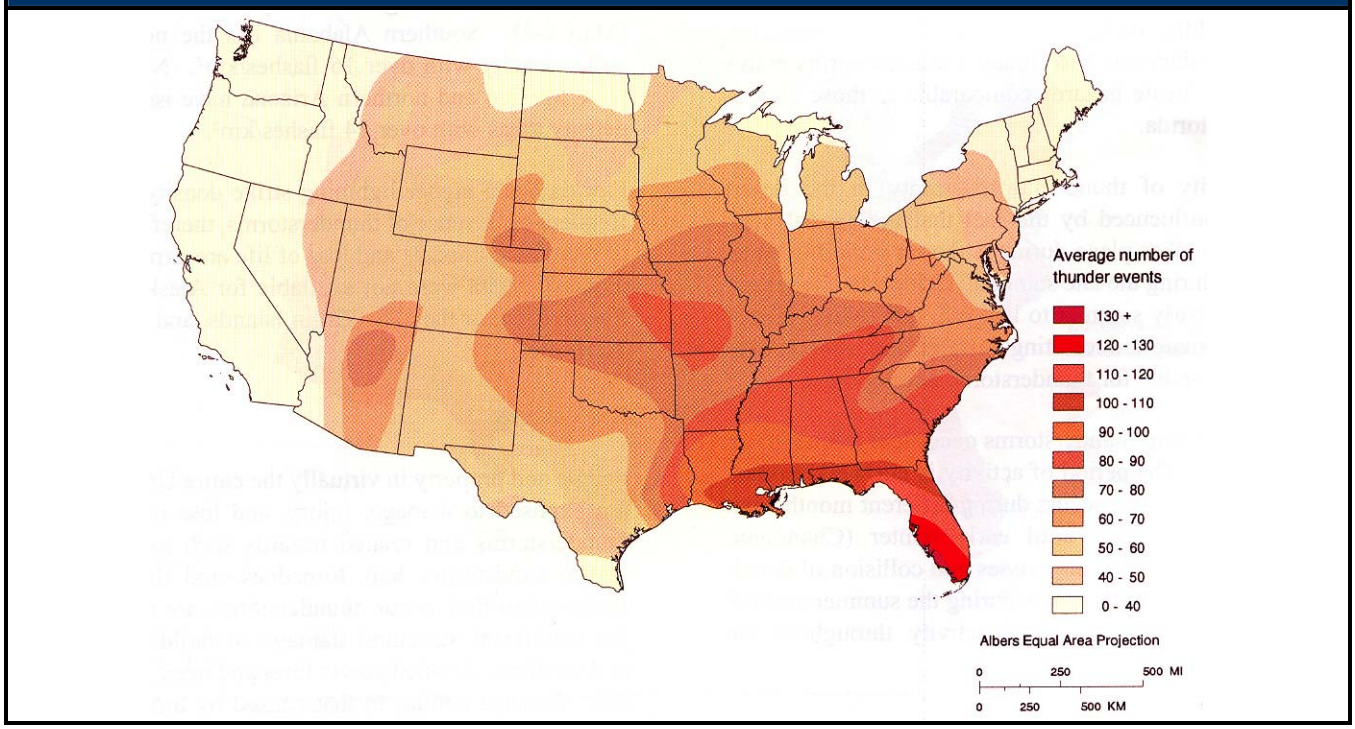
### Hail

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 4.5** shows the annual frequency of hailstorms in the United States.

### Straight-line Wind

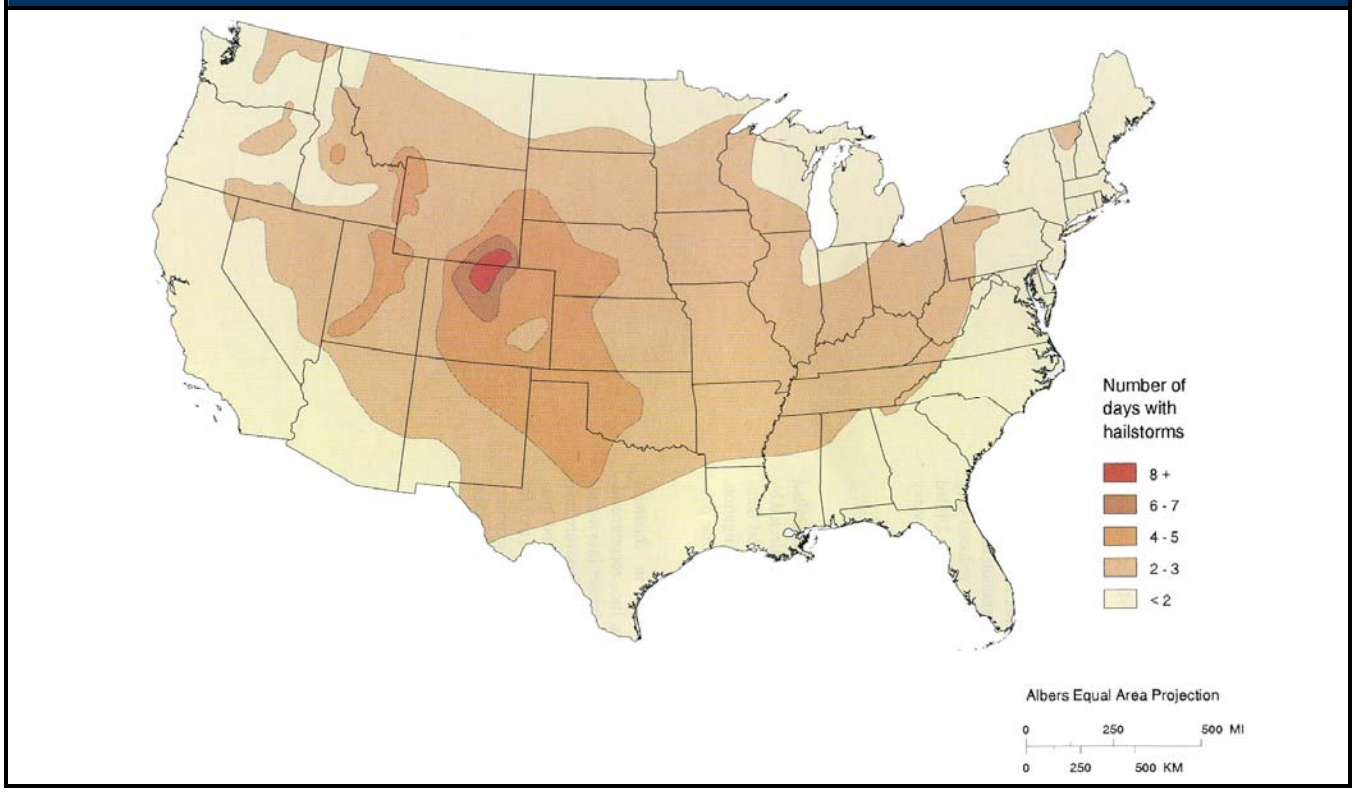
Straight-line winds, which in extreme cases have the potential to cause wind gusts that exceed 100 miles per hour, are responsible for most thunderstorm wind damage. One type of straight-line wind, the downburst, can cause damage equivalent to a strong tornado and can be extremely dangerous to aviation. **Figure 4.6** 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 4.4: Average Annual Number of Thunder Events



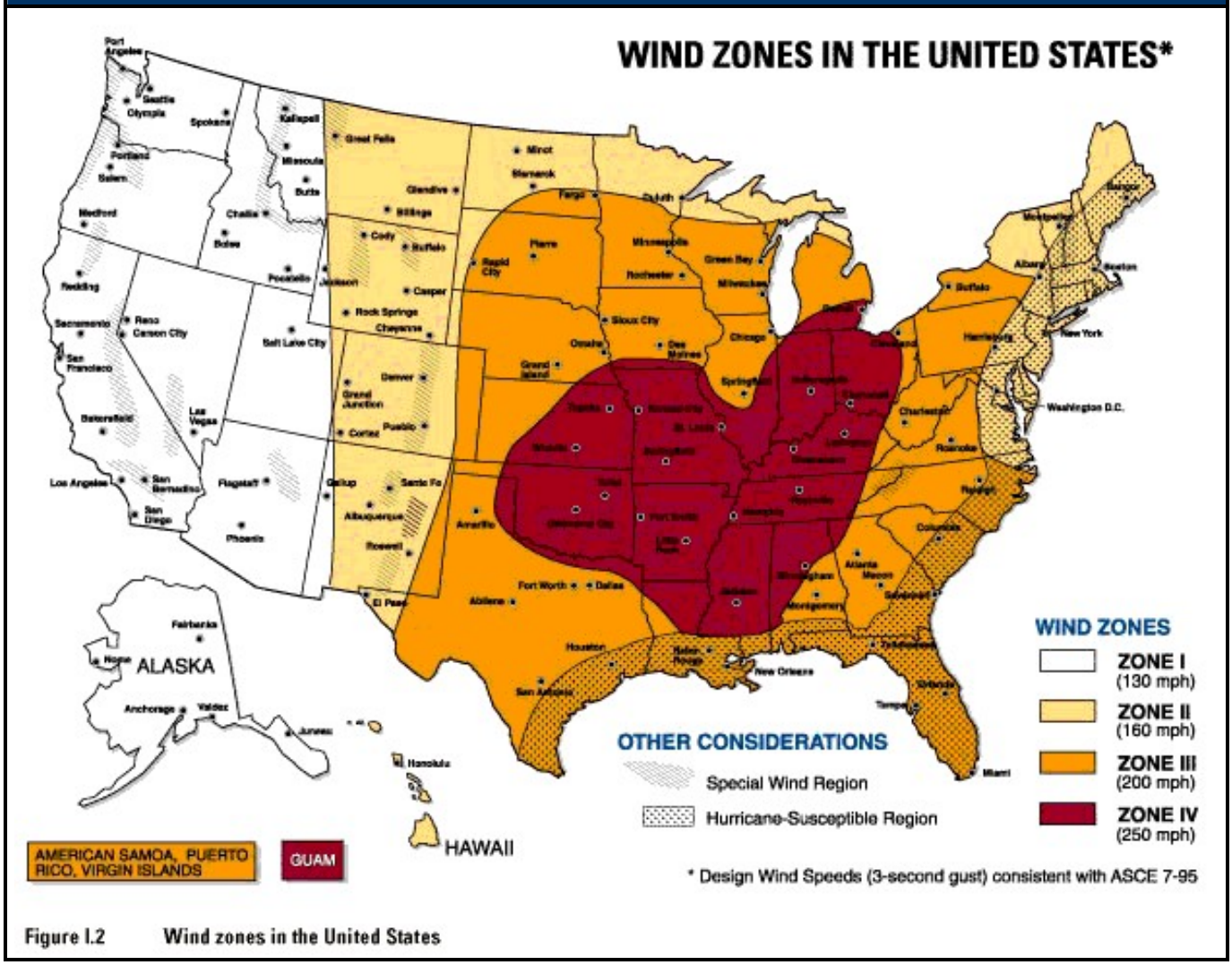

*Source: Federal Emergency Management Agency*

## Figure 4.5: Annual Frequency of Hailstorms in the United States




*Source: Federal Emergency Management Agency*

**Figure 4.6: 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 the City of Franklin would be uniformly exposed to these hazards and that the spatial extent of that impact would potentially be large.

## Historical Occurrences

*Information in this subsection was collected and adapted from National Climatic Data Center historical records.*

According to the National Climatic Data Center (NCDC), 53 severe thunderstorm events[2] have impacted Southampton County (which, in the NCDC database, includes the City of Franklin) since 1950, causing a total of $126,000 in reported property damage and four injuries. While most of these events are considered to have been countywide occurrences and which likely affected all areas of the county (and Franklin) to some extent, three in the database are associated directly with only the City of Franklin.

### November 11, 1995: Thunderstorm Winds

Large tree limbs were downed and limbs on power lines caused power outages within the city. No specific property damages, deaths or injuries were reported to NCDC.

### January 19, 1996: Thunderstorm Winds

Trees were downed from the City of Franklin to the Southampton County community of Sedley just north of Franklin. No specific property damages, deaths or injuries were reported to NCDC.

### April 8, 2000: High Winds

Wind gusts of 58 MPH were reported at the Franklin AWOS (Automated Weather Observation System). These high winds occurred approximately 30 miles ahead of a line of showers. No specific property damages, deaths or injuries were reported to NCDC.

[2] A "severe" thunderstorm event is typically defined by the National Climatic Data Center based on wind magnitude.

**Virginia Thunderstorm History**

The Commonwealth of Virginia averages 35 to 45 thunderstorm days per year. Between1959 and 2003, lightning alone killed 62 people in Virginia and injured at least 252 others (VDEM).

## Probability of Future Occurrences

As indicated by the NCDC storm event data and the FEMA data provided in Figure 4.4, severe thunderstorms are a highly likely occurrence for the City of Franklin. This data is confirmed by local experience and anecdotal data provided by members of the Mitigation Advisory Committee. Lightning and hail may also be regularly experienced in the Franklin area in accompaniment to severe thunderstorms.

# 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.

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 4.5**).

**Table 4.5: 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*

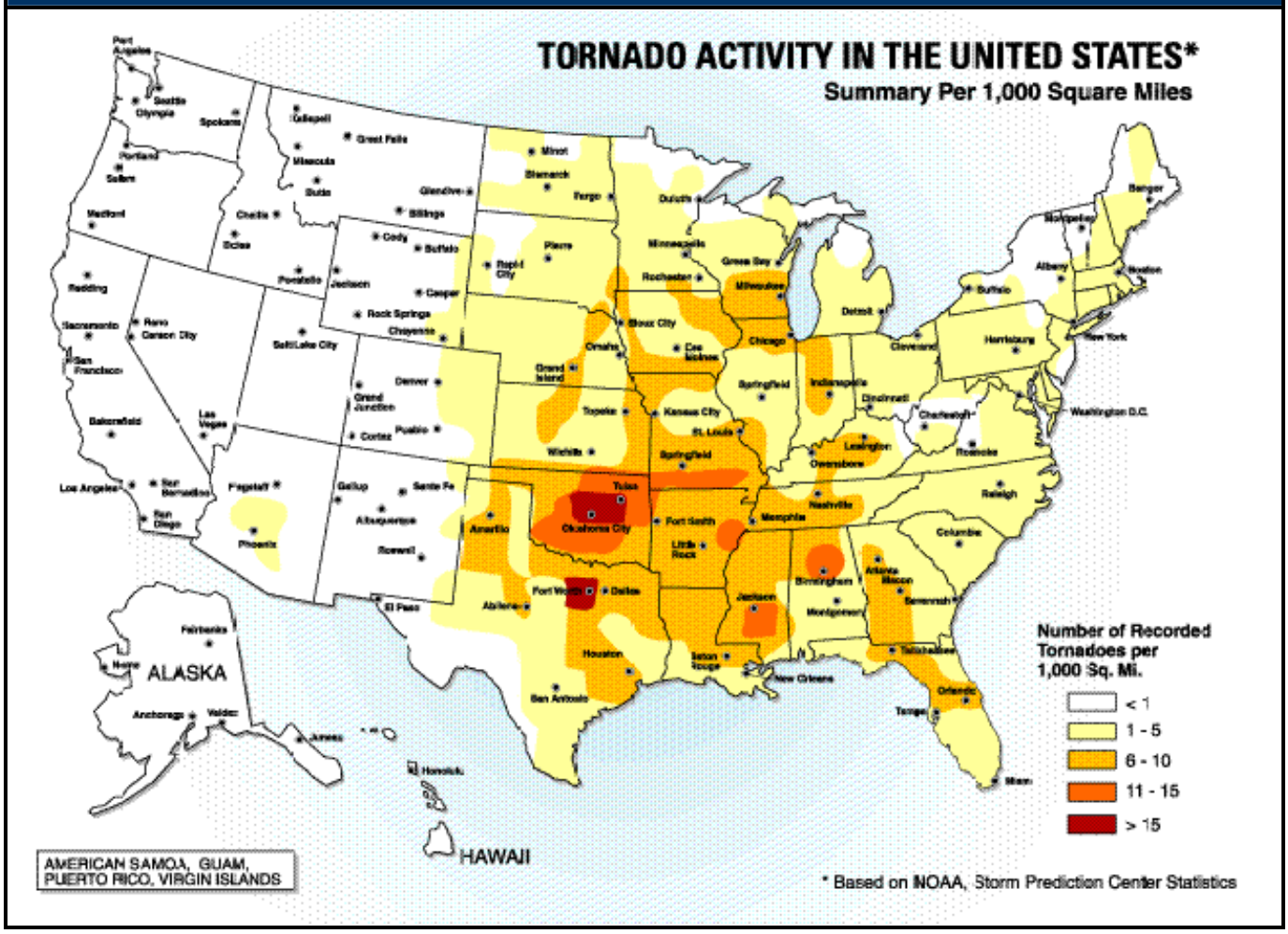
According to the NOAA Storm Prediction Center (SPC), the highest concentration of tornadoes in the United States has been in Oklahoma, Texas, Kansas and Florida respectively. Although the Great Plains region of the Central United States does favor the development of the largest and most dangerous tornadoes (earning the designation of "tornado alley"), Florida experiences the greatest number of tornadoes per square mile of all U.S. states (SPC, 2002). **Figure 4.7** shows tornado activity in the United States based on the number of recorded tornadoes per 1,000 square miles.

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.

**Figure 4.7: Tornado Activity in the United States**




*Source: Federal Emergency Management Agency*

## Location and Spatial Extent

Tornadoes typically impact a relatively small area; however, it is impossible to predict where in the planning area a tornado may strike. Therefore, it is assumed that the City of Franklin would be uniformly exposed to this hazard.

## Historical Occurrences

*Information in this subsection was collected and adapted from National Climatic Data Center historical records and local reports.*

According to the National Climatic Data Center, approximately 15 tornadoes are known to have touched down in the City of Franklin (1), Southampton County (5) and the surrounding counties of Isle of Wight and Suffolk (9) since 1950 as shown along with their respective intensities in **Figure 4.8**. The May 26, 1994 tornado documented in detail below is believed to have caused approximately $500,000 in property damage in the City of Franklin and Isle of Wight County. The five events known to have impacted Southampton County are responsible for an additional $337,000 in property damage. No deaths or injuries have been reported as being caused by a tornado strike in the immediate area.

### May 26, 1994: F1 Tornado

GIS data based on National Climatic Data Center (NCDC) records shows that one tornado of F1 magnitude began its one-mile damage path within the City of Franklin on the west side of the Blackwater River south of downtown Franklin before crossing over into neighboring Isle of Wight County on May 26, 1994. Local reports indicate that this tornado may have actually passed over the sewage treatment plant (located just north of the reported starting point for this tornado). The metal shop reportedly shook and shuttered and once this had passed, the roof on the old Helig-Myers furniture store had been damaged. According to NCDC, the tornado created a damage path 35 yards in width causing $500,000 in reported property damage, a portion of which occurred just outside the city limits when the tornado struck and damaged a barn.

### May 1987: Unconfirmed Tornado

While the May 1994 tornado is the only event recorded by NCDC since 1950, there are unconfirmed reports of a tornado that damaged the peanut shelter in May 1987.

**Virginia Tornado History**

From 1950 through 2001, 376 tornadoes were documented in the Commonwealth of Virginia. Only 25 of these 376 events were reported to be of F3 magnitude or greater (VDEM).

## 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, however relatively unlikely, that the City of Franklin may experience weak to moderately intense tornadoes in the future with very strong tornadoes (F3, F4 or F5) being a more remote possibility.[3]

***The May 26, 1994 tornado event caused significant damage to property in areas surrounding the City of Franklin, such as this warehouse facility south of City limits. (Photo credit: Russell L. Pace, City of Franklin Public Works)***

[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.

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.

***Groundskeepers at Central Missouri State University use heavy equipment to clear access to the campus in the aftermath of a major winter ice storm. (Photo credit: David Stonner/FEMA News Photo)***

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 the City of Franklin would be uniformly exposed to this hazard and that the spatial extent of that impact would potentially be large.

## Historical Occurrences

*Information in this subsection was collected and adapted from National Climatic Data Center historical records and local sources including Franklin Police Department, Franklin Power & Light and Franklin Community Development.*

According to the National Climatic Data Center (NCDC), 24 winter storm events[4] have impacted Southampton County (which, in the NCDC database, includes the City of Franklin) since 1950, causing a total of $20.2 million in reported property damage, one death and six injuries in a forecast zone covering multiple counties and independent cities including Franklin. While most of these events are considered to have been regional or countywide occurrences, one NCDC record contained specific information associated with the City of Franklin.

### December 3, 2000: Winter Storm

A winter storm struck parts of extreme southern and southeastern Virginia December 3, 2000, affecting a relatively small area but leaving significant totals of snowfall in those areas that were affected. The City of Franklin received 10 inches of snow from this event, and local law enforcement agencies reported numerous accidents throughout the area, several of which involved injuries. Schools were closed the following day in Franklin and neighboring areas. A total of $50,000 in property damages were reported for a three-county forecast area that included the City of Franklin.

*In addition to this NCDC-documented winter storm, four other significant events have been identified from local sources:*

### February 14, 1989: Heavy Snow

Eighteen inches of snowfall was recorded in the City of Franklin as a result of this event, followed by an additional 18 inches the following weekend.

[4] A winter storm event is typically defined by the National Climatic Data Center based on snow and ice conditions.

### December 9, 1989: Ice Storm

This ice storm was considered very severe, with major trees downed and loss of power in the City of Franklin for more than a week (in some residential cases, up to two weeks).

### February 22, 1993: Severe Winter Weather

This severe winter event brought with it cold weather and high winds, with a wind chill factor of 25 degrees below zero.

### December 24, 1998: Ice Storm

While this event was relatively small for the City of Franklin in terms of the impact on the city's line system, other companies in the area experienced power outages of a week or more.

Local sources indicate that several roofs are known to have collapsed during past heavy snow events and there is a perception that the snow load specifications in the adopted building code may not be entirely adequate.

## Probability of Future Occurrences

Winter storms will remain a likely occurrence for the City of Franklin. While 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 city.

# Wildfire

## Background

A wildfire is any fire occurring in a wildland area (i.e. grassland, forest, brush land) except for fire under prescription.[5] 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.

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.

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

***Several forest fires converged near Sula, Montana August 6, 2000, forming a firestorm that overran 100,000 acres and destroyed 10 homes. Temperatures in the flame front were estimated at more than 800 degrees. (Photo credit: John McColgan/U.S. Forest Service Firefighter)***

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 the City of Franklin, as shown in **Figure 4.9**. Essentially, potential wildfire risk areas are presented in three categories indicating the relative level of threat to the community: High, Moderate and Low.

There are 11 areas that are classified High wildfire threat areas. When compared with aerial imagery it appears that these areas are lightly developed wooded areas, including some marshland and other forms of undeveloped land. There are three relatively large areas that are classified as Moderate wildfire threat areas. These areas include both undeveloped and developed land. The remainder of the city, classified as Low wildfire threat, includes heavily developed areas including Downtown Franklin and several residential areas. These more

heavily developed areas represent a slightly greater threat with regard to the spread of urban fires.

## Historical Occurrences

*Information in this subsection was collected and adapted from Virginia Department of Forestry records.*

According to the Virginia Department of Forestry, the average yearly number of fires for a 10-year period ranging from 1993 to 2002 is 1,426 statewide, and the number of acres burned during this same period is 9,444.

## Probability of Future Occurrences

Wildfire events that may potentially impact the City of Franklin remain a possible, however relatively unlikely, occurrence within the planning area, though most fires will likely tend to occur in less urban areas and will tend to be small in size before being contained and suppressed.

# Drought

## Background

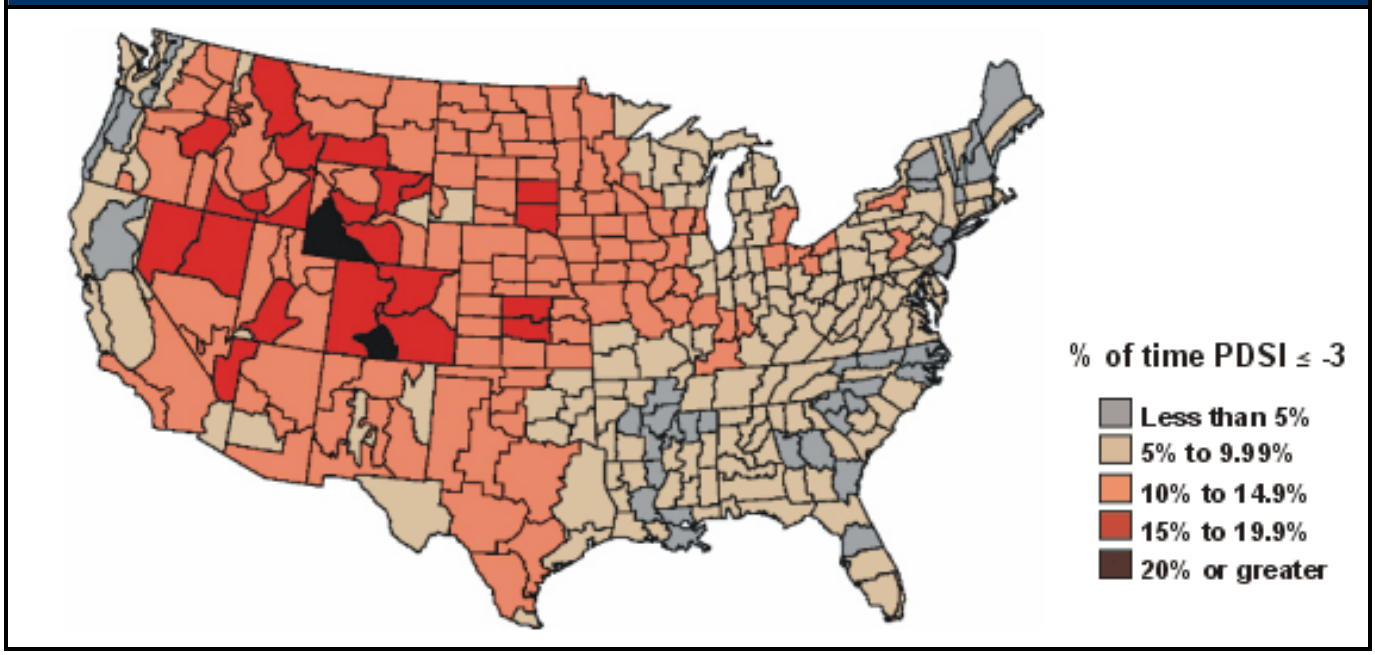
Drought is a natural climatic condition caused by an extended period of limited rainfall beyond that which occurs naturally in a broad geographic area. High temperatures, high winds and low humidity can worsen drought conditions, and can make areas more susceptible to wildfire. Human demands and actions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

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.

***A USGS streamflow gaging station at the Ogeechee River near Eden, Georgia in July 2000 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)***

**Figure 4.10** 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 4.10: 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 the City of Franklin. Furthermore, it is assumed that the City of Franklin 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

*Information in this subsection was collected and adapted from National Climatic Data Center and City of Franklin historical records.*

### October 31, 1993: Drought

According to the National Climatic Data Center (NCDC), one drought event has impacted the City of Franklin 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 the City of Franklin.

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

### Recent Drought Events, 1997–2005

In addition to this official drought record, periods of drought-like conditions are also known to have impacted the city and the surrounding area in 1997, 2002, 2003 and 2005. Water restrictions have been put into place as far back as 1997 and shallow wells are known to have lost water in and around the city.

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 the Franklin area 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 city's past drought event, it remains possible over the long-term that the City of Franklin 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.

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 the City of Franklin. 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

*Information in this subsection was collected and adapted from City of Franklin historical information.*

No historical records or databases of riverine erosion concerns or estimates of historical damages directly associated with riverine erosion are currently available. With regard to localized areas of concern, a ditch on Armory Drive near the Wal-Mart Shopping Plaza is known to cause frequent problems (**Figure 4.11**). The ditch overflows with even small rain events and Armory Drive is the most heavily traveled road in and out of the city. Flooding or erosion that impacts this road can have a major effect on transportation and business. During Hurricane Floyd, 13,000 to 15,000 calls from residents to city officials per day reported problems of this nature on Armory Drive. Other areas of drainage-related concern include the Oakwood Drive area (refer to the Dam Failure subsection for a close-up of this area).

## Probability of Future Occurrences

Given the nature and proximity of the Blackwater River, riverine erosion within the city limits of Franklin is possible, although relatively unlikely; however with no erosion hazard mapping or historical records currently available, it is difficult to estimate the probability of future occurrences. Future problems on Armory Drive (as discussed in detail above) should remain relatively frequent.

# 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.

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.

***Many roads, including bridges and elevated highways, were damaged by the 6.7 magnitude earthquake that impacted the Northridge, California area January 17, 1994. Approximately 114,000 structures were damaged and 72 deaths were attributed to the event. Damage costs were estimated at $25 billion. (Photo credit: FEMA News Photo)***

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 4.6**). 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 4.7**.

**Figure 4.12** 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.

**Table 4.6: 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. |

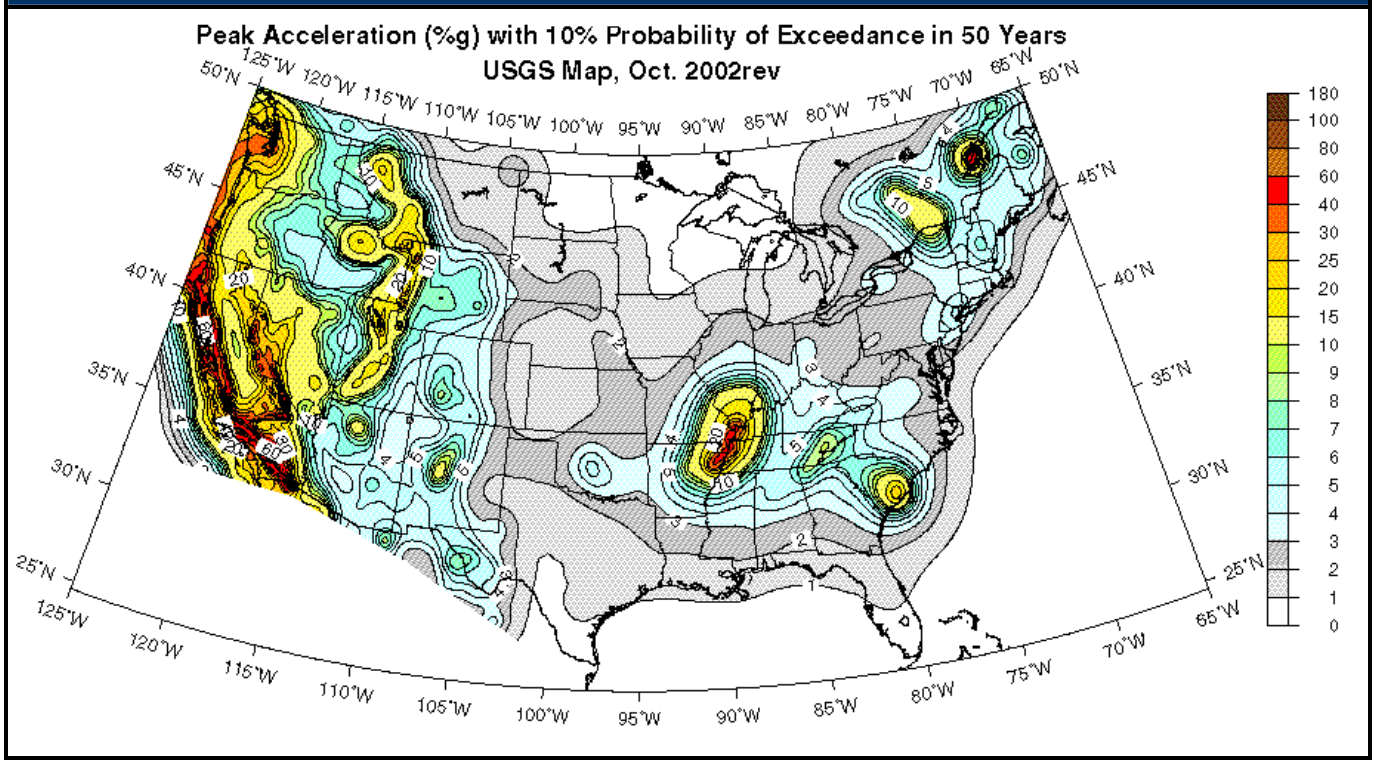
*Source: Federal Emergency Management Agency*

**Table 4.7: 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 4.12: Peak Acceleration with 10 Percent Probability of Exceedance in 50 Years**




*Source: United States Geological Survey*

## Location and Spatial Extent

The City of Franklin, along with Southampton County and other surrounding counties, is located in a zone of 2 percent peak ground acceleration according to the United States Geological Survey (**Figure 4.13**). This indicates that the City of Franklin is uniformly at relatively low risk of seismic activity.

## Historical Occurrences

*Information in this subsection was collected and adapted from National Geophysical Data Center records.*

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

### Virginia Earthquake History

Though not generally in close proximity to the planning area, the Commonwealth of Virginia has experienced more than 160 earthquakes since 1977, of which approximately 16 percent were actually felt. This equates to an average of one earthquake occurring every month with two felt each year (VTSO).

## 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, the City of Franklin 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 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.

## Location and Spatial Extent

Sinkholes are typically relatively small, localized occurrences that cannot be mapped to any specific geographic boundaries.

## Historical Occurrences

*Information in this subsection was collected and adapted from City of Franklin Public Works records.*

One sinkhole is known to have occurred within the City of Franklin in recent history, caused by a broken water main. Specific details of this event are not currently available.

## Probability of Future Occurrences

Sinkholes remain a possible occurrence within the city limits of Franklin, with the most likely causes being ground-water pumping, construction and development practices, and breakages in water lines—not as a direct result of natural or geological features or factors.

# 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.

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.

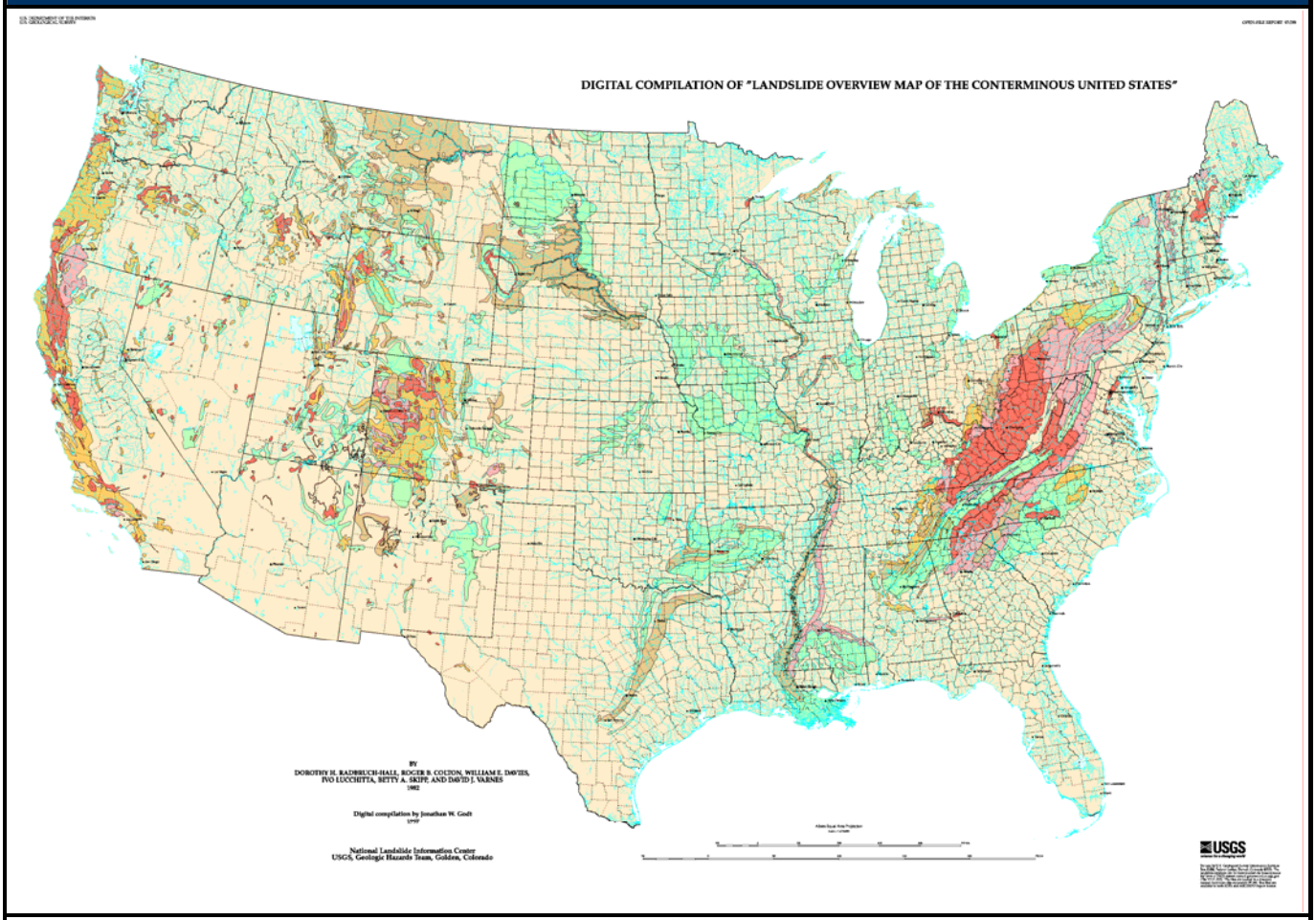
Areas that are generally prone to landslide hazards include previous landslide areas; the bases of steep slopes; the bases of drainage channels; and developed hillsides where leach-field septic systems are used. Areas that are typically considered safe from landslides include areas that have not moved 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.

***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)***

**Figure 4.14** 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 4.14: 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

The City of Franklin, along with Southampton County, is located in a zone of low landslide incidence according to the United States Geological Survey (**Figure 4.15**). This indicates that the City of Franklin 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 area.

## Historical Occurrences

No historical records or databases of landslide concerns currently exist. Additional research may be conducted for a future Plan update.

## Probability of Future Occurrences

Based on the available data from the United States Geological Survey which states that the City of Franklin is located in a zone of low landslide incidence, the city 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.

## Location and Spatial Extent

Extreme temperatures typically impact a large area that cannot be confined to any geographic boundaries. Therefore, it is assumed that the City of Franklin 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

*Information in this subsection was collected and adapted from National Climatic Data Center historical records.*

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

### May 18−21, 1996: Extreme Heat

An early-season, four-day heat wave produced record or near record high temperatures across central and eastern Virginia. High temperatures were in the 80s and low 90s across the region on May 18. Then, on May 19, May 20 and May 21, high temperatures were in the 90s throughout the area. May 20 was the hottest of the four days as readings climbed into the mid- to upper-90s. Also, Norfolk International Airport set a record with 98 degrees and Farmville (co-op observer station) set a record with 96 degrees. The heat wave was responsible for numerous reports of heat exhaustion and forced many non-air conditioned schools to close or have early dismissals.

## Probability of Future Occurrences

The City of Franklin may experience other rare periods of extreme temperatures, but not nearly as severe as other regions of the country.

# Hazardous Material Incident

*Hazardous materials can be found in many forms and quantities that can potentially cause death, serious injury, long-lasting health effects and damage to buildings, homes and other property in varying degrees. Such materials are routinely used and stored in many homes and businesses and are also shipped daily on the Nation's highways, railroads, waterways and pipelines. This subsection on the hazardous material hazard is intended to provide a general overview of the hazard, and the threshold for identifying fixed and mobile sources of hazardous materials is limited to general information on rail, highway and FEMA-identified fixed HAZMAT sites determined to be of greatest significance as appropriate for the purposes of this Plan.*

## 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. There are six types of 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).

## Location and Spatial Extent

Of primary concern to the City of Franklin is the potential for mobile, transportation-related HAZMAT incidents (referring mainly to HAZMAT traffic on the Seaboard System (CSX) Railroad and to a lesser extent the Norfolk Southern Railroad as well as the Route 58 Bypass) and accidents at FEMA-identified fixed sites (such as International Paper). **Figure 4.16** shows the location of each of these infrastructure elements along with linear distance from the railroad at 0.10-mile, 0.25-mile and 1-mile increments and radial distance from International Paper at 0.25-mile and 0.50-mile increments. The Route 58 Bypass is also shown along the southern edge of the city. The Norfolk Southern Railroad is considered to be of lesser concern due to its 50 percent capacity with regard to HAZMAT transport.

A concern expressed by the Mitigation Advisory Committee is that the LP Gas facility is located in close proximity to the railroad within the estimated risk buffer zone.

The extent of threat varies depending on the type(s) and amount of hazardous material released from the accident site or fixed site. **Table 4.8** shows the hazardous materials believed to be prevalent at the International Paper facility according to the Federal Emergency Management Agency and the potential hazard of each. *The information presented in Table 4.8 is for hazard mitigation planning purposes only and is not in any way intended to be used for emergency response. The Office of Hazardous Materials Safety (http://hazmat.dot.gov) offers additional guidance by hazardous material type with regard to public safety and specific response procedures, which is outside the scope of this Hazard Mitigation Plan.*

**Table 4.8: Hazardous Materials Prevalent at the International Paper Facility**

| HAZARDOUS MATERIAL | POTENTIAL HAZARDS | GENERAL IMPACT AREA/ ESTIMATED EVACUATION AND/OR ISOLATION DISTANCES |
|---|---|---|
| Acetaldehyde | Highly Flammable; Fire or Explosion | 0.50 miles in all directions |
| Ammonia | Toxic; Fire or Explosion | 1 mile in all directions |
| Barium Compounds | Toxic; Fire or Explosion | 0.50 miles in all directions |
| Catechol | Information Not Available | Information Not Available |
| Chloroform | Highly Toxic; Fire or Explosion | 0.50 miles in all directions |
| Chloromethane | Information Not Available | Information Not Available |
| Cresol (Mixed Isomer) | Toxic; Fire or Explosion | 0.50 miles in all directions |
| Formaldehyde | Flammable or Combustible; Fire or Explosion | 0.50 miles in all directions |
| Formic Acid | Toxic; Fire or Explosion | 0.50 miles in all directions |
| Hydrochloric Acid | Toxic; Fire or Explosion | 0.50 miles in all directions |
| Manganese Compounds | Fire or Explosion | 0.50 miles in all directions |
| Methanol | Toxic; Highly Flammable; Fire or Explosion | 0.50 miles in all directions |
| Methyl Ethyl Ketone | Highly Flammable; Fire or Explosion | 0.50 miles in all directions |
| Nickel Compounds | Toxic; Highly Flammable | 0.50 miles in all directions |
| Nitrate Compounds | Fire or Explosion | 0.50 miles in all directions |
| Ozone | Information Not Available | Information Not Available |
| Phenol | Toxic; Fire or Explosion | 0.50 miles in all directions |
| Sulfuric Acid | Corrosive; Toxic; Fire or Explosion | 0.50 miles in all directions |
| Vinyl Acetate | Highly Flammable; Fire or Explosion | 0.50 miles in all directions |
| Zinc Compounds | Information Not Available | Information Not Available |

*Sources: Federal Emergency Management Agency; Office of Hazardous Materials Safety*

## Historical Occurrences

*Information in this subsection was collected and adapted from City of Franklin historical records, Toxics Release Inventory (TRI) reports for 2002 and 2003, and the Virginia TRI Report—Summary of Data.*

Hurricane Floyd in September 1999 was the source of several well-documented HAZMAT incidents and issues that highlight hazardous material concerns surrounding rail and the International Paper facility within the City of Franklin. Three such historical occurrences are presented in the photo examples below.

### September 1999: Hurricane Floyd

***HAZMAT workers assess the situation in Franklin where an oil spill has resulted from the Blackwater River jumping its banks after Hurricane Floyd in 1999. (Photo credit: Liz Roll/FEMA News Photo)***

***A HAZMAT team assesses the situation in flooded downtown Franklin where oil contamination has resulted from fuel oil tanks and cars under water from Hurricane Floyd-related flooding in 1999. (Photo credit: Liz Roll/FEMA News Photo)***

***The International Paper Franklin Mill lies under several feet of water. (Photo credit: City of Franklin)***

According to the Virginia TRI Report, since 1988 the amount of TRI chemicals released or otherwise managed has historically decreased. In terms of state-level statistics, Virginia facilities reported a 6.5 percent decrease in the release, transfer or on-site management of TRI chemicals for the calendar year 2003, including a decrease of nearly 9 percent in on-site releases, when compared to similar data reported for 2002. For the reporting years 2000 to 2003, the amount of TRI chemicals released, transferred off-site or managed on-site has decreased by 4.6 percent in the state.

It is difficult to create general comparisons and listings of historical HAZMAT incidents in part because historical trends in the Virginia TRI program with regard to releases from 1988 (the year of the program's inception) to the present are somewhat misleading due to regulatory changes and the addition of 286 chemicals and chemical categories to the TRI list beginning with reporting year 1995. The only TRI release in the City of Franklin for the reporting year 2002 (based on a report issued in 2004) was an air release of Methanol from Nevamar Company, LLC—Franklin Particleboard of 26,272 pounds of stack air. There was no pollution of land or water.

## Probability of Future Occurrences

Future occurrences of HAZMAT incidents, accidents or issues within the City of Franklin 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.

### 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 the City of Franklin, this type of occurrence may be most expected in the residential areas of central Franklin (refer to demographic and residential exposure subsections of Section 5: *Vulnerability Assessment*.)

## Historical Occurrences

*Information in this subsection was collected and adapted from National Park Service historical records.*

### 1881: Downtown Fire

In 1881, a fire destroyed all of the commercial buildings in the community. Following the fire, an ordinance was adopted that allowed only for brick or stone buildings. Today, the downtown area consists almost entirely of rows of brick buildings that post-date the 1881 fire.

## Probability of Future Occurrences

The probability of future occurrences of the urban fire hazard is considered to likely, meaning that there is an estimated 10 to 100 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.*

### 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.

## Historical Occurrences

There are no known occurrences of terrorist attack within the City of Franklin.

## 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.

## 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

*Information in this subsection was adapted from data obtained through the Virginia Department of Emergency Management.*

There are no known instances of a biological incident in or in the area immediately surrounding the City of Franklin. 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. In 1983 a religious cult in Oregon used salmonella to contaminate the salad bars of a series of local restaurants. As a result, 751 people were sickened. 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 the City of Franklin 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. Refer to the City of Franklin Emergency Operations Plan (EOP) for additional information.*

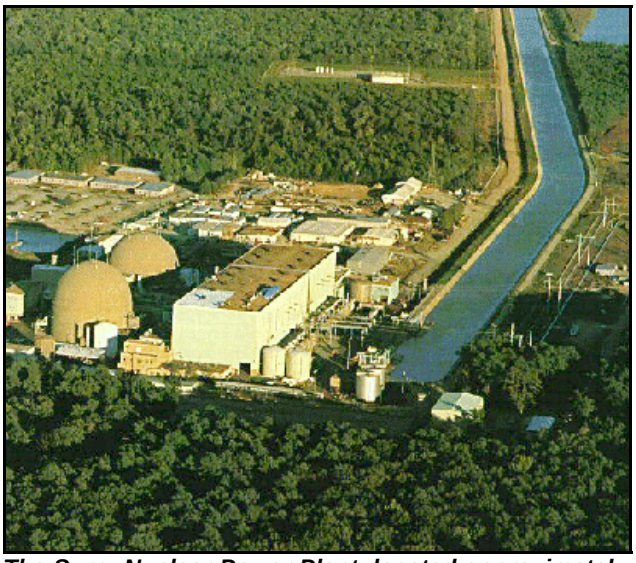
A radiological accident is an event that involves the release of potentially dangerous radioactive materials into the environment. This release is usually in the form of a cloud or "plume" and could affect the health and safety of anyone in its path. Radiological accidents can occur anywhere that radioactive 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.

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 is situated on an 840-acre site near historic Williamsburg, Virginia, on the south bank of the James River across from historic Jamestown, approximately 34 miles north of the City of Franklin (**Figure 4.17**). The Surry power station is operated by Dominion Generation and owned by Dominion Resources, Inc. Every third year the City of Franklin participates in exercises appropriate to the 50-mile Ingestion Exposure Pathway within which the city is located as shown in Figure 4.17. These exercises include information and training on contamination of water, threat to livestock, etc.



***The Surry Nuclear Power Plant, located approximately 34 miles north of the City of Franklin. (Photo credit: Nuclear Tourist)***

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—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 30 minutes 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 approximately two to five miles.

- Ingestion Exposure Pathway—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 the City of Franklin (refer to subsection on Hazardous Material Incident). With regard to radiological dispersion devices, refer to the subsection on Terrorism.

It is also worth noting in this discussion that the Norfolk Naval Base is located approximately 40 miles from the City of Franklin. Some potential concerns expressed by the Mitigation Advisory Committee include the proximity of nuclear naval vessels and nuclear ordinance, the transportation of hazardous materials to or from the base, and the potential for terrorist activity associated with the base.

## Historical Occurrences

There is no history of a radiological accident at the Surry Nuclear Power Plant or anywhere else in the area immediately surrounding the city.

## 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 4.18** shows the location of one dam within the City of Franklin, based on the National Inventory of Dams. This facility, the Ray Development Dam, is listed in the national inventory as a "Significant" hazard dam. This means, by definition of the Department of the Interior, that a failure would cause the deaths of a few persons (rural area) or appreciable economic loss (notable agriculture, industry or structures.)

***The Ray Development Dam, lake and surrounding area as seen from atop the structure. (Photo credit: PBS&J Project Photo)***

***The culverts on the back side of the Ray Development Dam. (Photo credit: PBS&J Project Photo)***

## Historical Occurrences

There have been no known instances of failure at the Ray Development Dam.

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

A ***breach*** is 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

The *Vulnerability Assessment* section builds upon the information provided in the *Hazard Identification and Analysis* by identifying community assets, potentially at-risk populations and development trends in the City of Franklin, 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 the City of Franklin 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

[1] As explained in previous sections and as fully documented in Section 2: *Planning Process*, the City of Franklin 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.

### 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.

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.

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 the City of Franklin 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 the City of Franklin 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**.

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 the City of Franklin, 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.

## 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.

### 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 the City of Franklin'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.

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

**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 | 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 | |

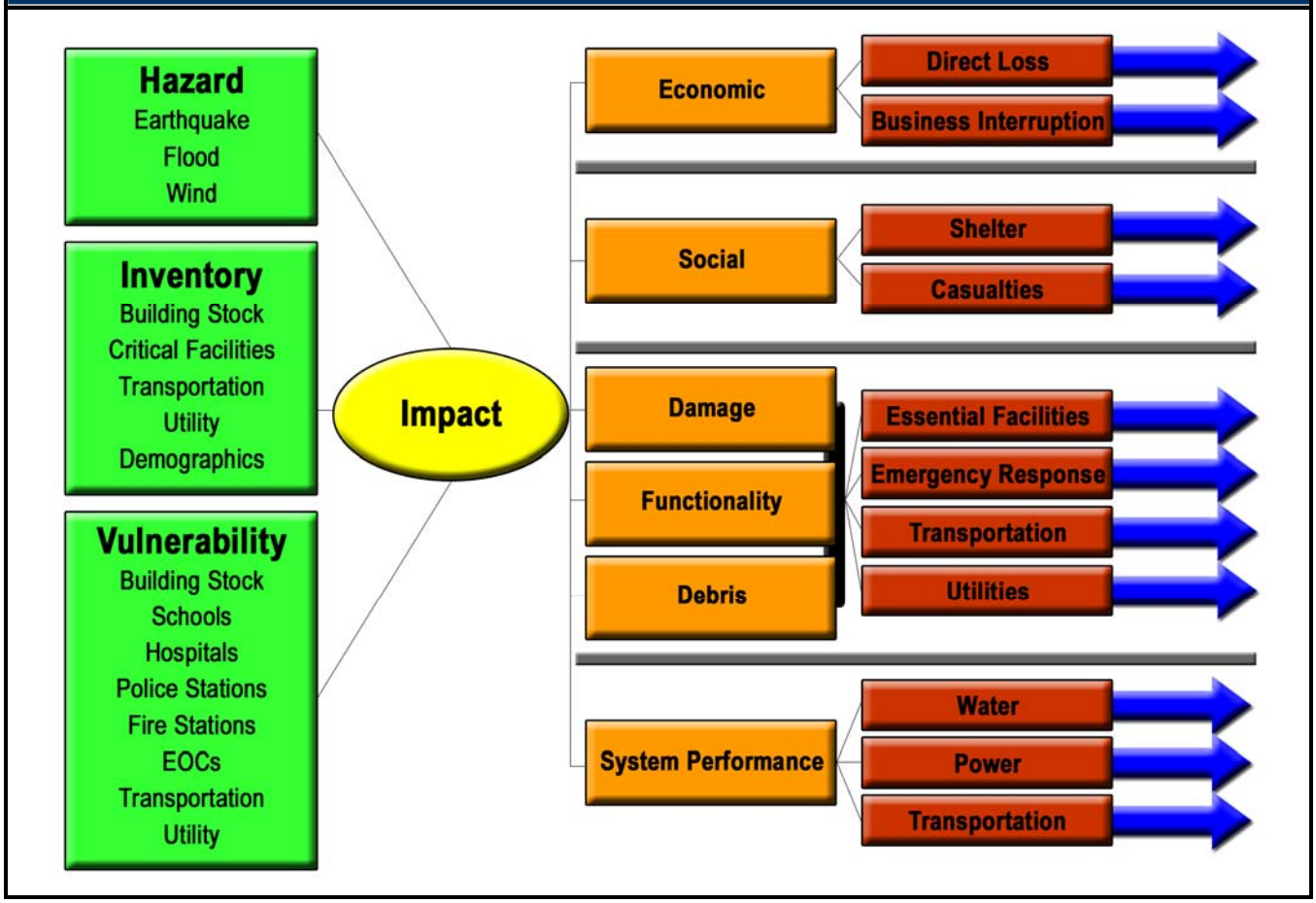
*Source: PBS&J; City of Franklin Mitigation Advisory Committee*

HAZUS$^{MH}$ 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 HAZUS$^{MH}$ 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 HAZUS$^{MH}$ software to determine the impact (damages and losses) on the built environment. **Figure 5.1** shows a conceptual model of HAZUS$^{MH}$ methodology. More information on HAZUS$^{MH}$ loss estimation methodology is available through FEMA at www.fema.gov/hazus.

For hazards outside the scope of HAZUS$^{MH}$, 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 HAZUS$^{MH}$, 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.

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




*Source: Federal Emergency Management Agency*

The use of HAZUS$^{MH}$ software along with the statistical risk assessment methodology provides a determination of estimated annualized loss[3] for the following hazards:

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

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. It is important to note that local data in the NCDC database is structured on the county level and therefore combines the City of Franklin with Southampton County. In cases where the reported damages are listed only for a multi-county/independent city forecast zone, reasonable estimates for the City of Franklin were extracted from the region-wide total by distributing the total dollar amount of property and/or crop damage equally among all impacted counties, and then further extracting a specific share for the city based on population (relative to the other municipalities within Southampton County).

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 the City of Franklin, this includes the following hazards:

- Flood
- Wildfire
- Dam/Levee 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 the City of Franklin, 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 city streets 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)**
HAZUS$^{MH}$ MR1 (HAZUS$^{MH}$ Version 1.1) /
January 2005

## Summary

Using both the qualitative and quantitative analyses to evaluate the hazards that may potentially impact the City of Franklin 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

[3] 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.

much monetary damage, could put a strain on the local resources needed to recover after their impact on the city.

All conclusions of the vulnerability assessment completed for the City of Franklin 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 the City of Franklin.

# Overview of Vulnerability

## General Asset Inventory

The total dollar exposure of buildings within the City of Franklin is estimated to be approximately $740,403,000. This figure is based on an estimated 2,681 residential, commercial, industrial and other buildings located throughout the city, derived from HAZUS$^{MH}$ data (**Table 5.2**). HAZUS$^{MH}$ uses U.S. 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.

The total dollar exposure accounts for both building value and contents value. (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 city's assets.

### Residential Exposure

**Figure 5.2** illustrates graphically the concentration of residential dollar exposure in the City of Franklin based on the HAZUS$^{MH}$ data used in the flood, hurricane and tropical storm, and earthquake subsections of this *Vulnerability Assessment*.

### Commercial Exposure

**Figure 5.3** illustrates graphically the concentration of commercial dollar exposure in the City of Franklin based on the HAZUS$^{MH}$ data used in the flood, hurricane and tropical storm, and earthquake subsections of this *Vulnerability Assessment*.

### Industrial Exposure

**Figure 5.4** illustrates graphically the concentration of industrial dollar exposure in the City of Franklin based on the HAZUS$^{MH}$ data used in the flood, hurricane and tropical storm, and earthquake subsections of this *Vulnerability Assessment*.

**Table 5.2: General Asset Inventory and Total Estimated Exposure**

| OCCUPANCY TYPE | BUILDING COUNT | TOTAL EXPOSURE |
|---|---|---|
| Residential | 2,638 | $556,223,000 |
| Commercial | 35 | $138,247,000 |
| Industrial | 6 | $25,301,000 |
| Agriculture | 0 | $474,000 |
| Religious/Non-profit | 2 | $13,586,000 |
| Government | 0 | $906,000 |
| Education | 0 | $5,666,000 |
| **TOTAL** | **2,681** | **$740,403,000** |

*Source: HAZUS$^{MH}$*

## Critical Facilities

Twenty-two critical facilities within the City of Franklin have been identified and mapped through GIS analysis (**Table 5.3** and **Figure 5.5**).

These facilities include one hospital, three municipal buildings, local law enforcement, fire/rescue, five schools including the community college, one public library, the National Guard Armory and cell towers.

Together, these facilities have a combined estimated assessed value of $49,864,800 (which by design does not include land values).

Vulnerability of critical facilities to specific hazards is discussed in detail in the hazard subsections that follow.

***The Franklin Fire and Rescue facility, located in the 500-year floodplain, flooded extensively during Hurricane Floyd in 1999 and has since been floodproofed to mitigate damages from future flood events. (Photo credit: City of Franklin)***

**Table 5.3: Critical Facilities**

| FACILITY NAME | FACILITY TYPE | ESTIMATED ASSESSED VALUE |
|---|---|---|
| Southampton Memorial Hospital | Hospital | $12,629,200 |
| Medical Arts Building | | $4,536,100 |
| Franklin Police Department | Law Enforcement | $2,325,100 |
| Franklin Fire Department | Fire/Rescue | $1,073,800 |
| Hunterdale Fire Station | Fire/Rescue | $292,000 |
| Light Plant and Fire Department | Fire/Rescue | $71,200 |
| City Hall | Municipal Building | $3,349,900 |
| Public Works/Electrical Department | Municipal Building | $2,827,500 |
| Sewage Treatment Plant | Municipal Building | $450,000 |
| J. P. King Elementary School | School | $2,790,200 |
| S. P. Morton Elementary School | School | $4,584,400 |
| Franklin High School | School | $7,763,800 |
| Hayden Junior High School | School | $10,000 |
| Hayden Middle School | School | $48,800 |
| Paul D. Camp Community College | School | $5,822,300 |
| Ruth Campbell Public Library | Library | $743,600 |
| National Guard Armory | Military Installation | $546,900 |
| Cell Towers | Communications | N/A |

*Source: City of Franklin*

## Demographics

According to the U.S. Census Bureau, the population of the City of Franklin in 2000 was 8,346. 2003 estimates show a slight drop in population to 8,254. Both figures however show an increase from the 1990 population of 7,864. 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.[4] According to U.S. Census 2000, there are a total of 3,767 housing units in the city, 53.7 percent of which (1,818 units) are owner-occupied and 46.3 percent (1,566 units) are renter-occupied. 10.2 percent (383 units) are vacant. Additionally, there are 25 owner-occupied homes and 134 renter-occupied homes with no telephone service, which limits to some extent communication with these residents.

In terms of population segments that may potentially be at higher risk in general, 5.1 percent of the total population of 8,346 are under the age of five (a total of 424 persons) and 18.4 percent are 65 years and over (a total of 1,536 persons). 20.3 percent (896 persons) holds disability status.

Some portions of this section refer to specific census tracts and census blocks by number. **Figure 5.7** is provided as a legend for these references.

## Economic Factors

### Downtown Franklin

Since 1985, the City of Franklin has participated in the Virginia Main Street Program, a program based on the four-point approach to downtown revitalization developed by the National Main Street Center, an affiliate of the National Trust for Historic Preservation. This program, along with the Franklin Downtown Flood Recovery Master Plan and other post-Floyd recovery efforts, has succeeded in creating a thriving business and historic district which is located to a very large extent within the 100-year floodplain (Zone AE) along the Blackwater River. In fact, the entire Historic Downtown District was devastated by the floodwaters of Hurricane Floyd in September 1999. According to some reports, 182 businesses and 100 homes remained in as much as 18 feet of water for up to 10 days. Currently, there are over 130 businesses operating in Downtown Franklin, many of which are dedicated to shopping and dining.

### Industrial Operations

Franklin's industrial base is diversified. The largest employer in the area is International Paper (a Fortune 200 company) which employs over 1,300 people at the Franklin mill site—a part of the commercial printing and imaging papers division. Other local industrial operations include a textile producer, pork processor, cogeneration plant, manufacturer of heavy logging equipment and peanut handlers.

## Zoning Districts and Land Use

**Figure 5.8** shows existing zoning districts for the City of Franklin. In general, the majority of commercial and industrial areas are located in and around the historic downtown district, along the Armory Drive corridor and in the southernmost portion of the city. The majority of the remaining land area is zoned for various types of residential use. Additionally, small areas of land zoned for neighborhood business use are scattered within the residential areas. **Figure 5.9** shows existing zoning districts compared with the flood, wildfire and HAZMAT hazards—those hazards with definable geographic boundaries that present a meaningful depiction of hazard risk when overlaid with zoning designations. For the purposes of this composite hazard map, only the 100-year floodplain, high wildfire hazard threat and close-proximity HAZMAT threat are shown.

**Figure 5.10** and **Figure 5.11** show current land use and current land use compared with the flood, wildfire and HAZMAT hazards. **Figure 5.12** and **Figure 5.13** show future land use and future land use compared with the flood, wildfire and HAZMAT hazards. For all other comparisons, please refer to the base zoning map and the individual hazard maps presented throughout the risk assessment.

## Development Trends

The City of Franklin anticipates continued commercial and industrial development in the Armory Drive corridor, commercial development around Route 58 interchanges, residential development in the northern portion of the city, and establishment of Gateway Corridor overlay districts at the primary entrance corridors to the city. Additional information on development trends is provided in Section 3: *Community Profile*.

[4] 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.

# Flood

**PRI Value:** 3.20
**Annualized Loss Estimate:** $8,687,000

## Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the flood hazard scored a PRI value of 3.20 (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** | Likely |
| **IMPACT** | Catastrophic |
| **SPATIAL EXTENT** | Moderate |
| **WARNING TIME** | More Than 24 Hours |
| **DURATION** | More Than 1 Week |

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

### GIS Analysis

A GIS-based analysis was conducted utilizing aerial imagery provided by the Commonwealth of Virginia (2002), building footprint data, city streets, railroad lines, hydrology, digital flood data (Zone AE and the 0.2% Annual Chance Flood Hazard—FEMA 2002) and critical facility designations (**Figure 5.14**). GIS was used to select those structures, infrastructure elements and critical facilities that intersect with the digital flood data and that may therefore be potentially at-risk from the flood hazard. 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.).

### At-Risk Structures

Through GIS analysis, 490 structures were found to intersect with the 100-year floodplain (Zone AE). Of these 490 structures, 57 have a square footage less than 400 square feet (indicating that they are likely accessory buildings, small storage sheds, etc.) and therefore have been deducted from the total number of structures—producing a total of *433 potentially at-risk structures*. Nineteen of these structures (greater than 400 square feet) are located in the floodway.

A total of 275 structures were found to intersect with what equates to the 500-year floodplain (0.2% Annual Chance Flood Hazard). Of these 275 structures, 57 have a square footage less than 400 square feet and therefore have been deducted from the total number of structures—producing a total of *218 potentially at-risk structures*.

Some of the structures identified above are partially located in the 100-year floodplain (Zone AE) and partially in the 500-year floodplain (0.2% Annual Chance Flood Hazard). The *combined total number of structures in both flood zones is 630* (737 minus 107 that are less than 400 square feet). Many of these structures are located in the Downtown Franklin area and are commercial or industrial in nature.

**Hurricane Floyd**

A total of 372 of these at-risk structures are known to have flooded during Hurricane Floyd in September 1999. Approximately 100 homes and 182 businesses were considered completely destroyed by the flooding. At least six of the structures that flooded during Hurricane Floyd are actually located outside of the floodplain.

### At-Risk Infrastructure Elements

Through GIS analysis, approximately 0.781 miles of city streets intersects with the 100-year floodplain (Zone AE). Approximately 0.36 miles of this intersects the floodway. An additional 0.361 miles of city streets intersects with the 500-year floodplain (0.2% Annual Chance Flood Hazard).

Approximately 0.591 miles of railroad intersects with the 100-year floodplain (Zone AE). In addition, approximately 0.372 miles of railroad intersects with the floodway. Approximately 0.265 miles of railroad intersects with the 500-year floodplain (0.2% Annual Chance Flood Hazard).

### Critical Facilities

GIS analysis reveals three critical facilities that are located in flood hazard areas: City Hall, the Sewage Treatment Plant and the Franklin Fire Department all appear to be located in the 100-year floodplain (Zone AE). However, City Hall is elevated on fill above the Base Flood Elevation and the Franklin Fire Department is dry floodproofed, significantly reducing the vulnerability of these facilities to the 100-year flood level. Most sewage treatment plants are essentially designed to operate in the location they reside and therefore some risk is assumed in the site planning. (The following subsection on the

HAZUS$^{MH}$ analysis performed includes specific details with regard to potential damages at the sewage treatment plant.)

## 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 the City of Franklin. 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 5.11** show annualized losses for the flood hazard and a detailed breakdown of estimated residential building damage by census block. For the return periods analyzed (50, 100, 200 and 500-year), HAZUS$^{MH}$ MR1 did not calculate any damage by building count for commercial, industrial, agriculture, religion/non-profit, government and education occupancies. Therefore, only residential building damage is presented in detail in this vulnerability assessment.

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.

With regard to critical facilities and essential functions, no critical facility losses, transportation losses or utility losses were calculated by the HAZUS$^{MH}$ software with the exception of potential losses for the Franklin Sewage Treatment Plant (**Table 5.5**).

**Table 5.5: Sewage Treatment Plant Potential Losses**

| RETURN EVENT | PERCENT DAMAGE | ESTIMATED LOSSES |
|---|---|---|
| 50-year event | 34.63% | $21,448,140 |
| 100-year event | 40.00% | $24,775,200 |
| 200-year event | 40.00% | $24,775,200 |
| 500-year event | 40.00% | $24,775,200 |

*Source: HAZUS$^{MH}$*

**Table 5.6: HAZUS$^{MH}$ Annualized Losses for Flood**

| BUILDING OCCUPANCY | TOTAL LOSSES | BUILDING LOSSES | CONTENTS LOSSES | OTHER LOSSES |
|---|---|---|---|---|
| Residential | $2,465,000 | $1,394,000 | $1,071,000 | Negligible |
| Commercial | $2,946,000 | $1,477,000 | $1,213,000 | $256,000 |
| Government | $594,000 | $296,000 | $244,000 | $54,000 |
| Industrial | $1,494,000 | $846,000 | $648,000 | Negligible |
| Agriculture | $297,000 | $148,000 | $122,000 | $27,000 |
| Religion/Non-Profit | $297,000 | $148,000 | $122,000 | $27,000 |
| Education | $594,000 | $296,000 | $244,000 | $54,000 |
| **TOTAL ALL OCCUPANCIES** | **$8,687,000** | **$4,605,000** | **$3,664,000** | **$418,000** |

*Source: HAZUS$^{MH}$*

| Table 5.7: HAZUS$^{MH}$ Results for 50-Year Flood Event | | | | |
|---|---|---|---|---|
| **BUILDING OCCUPANCY** | **TOTAL LOSSES** | **BUILDING LOSSES** | **CONTENTS LOSSES** | **OTHER LOSSES*** |
| **Residential** | | | | |
| Pre-FIRM | $4,076,000 | $2,553,000 | $1,523,000 | Negligible |
| Post-FIRM | $46,000 | $29,000 | $17,000 | Negligible |
| **TOTAL** | **$4,122,000** | **$2,582,000** | **$1,540,000** | **Negligible** |
| **Commercial** | | | | |
| Pre-FIRM | $670,000 | $335,000 | $48,000 | $287,000 |
| Post-FIRM | Negligible | Negligible | Negligible | Negligible |
| **TOTAL** | **$670,000** | **$335,000** | **$48,000** | **$287,000** |
| **Government** | | | | |
| Pre-FIRM | $107,000 | $3,000 | $17,000 | $87,000 |
| Post-FIRM | Negligible | Negligible | Negligible | Negligible |
| **TOTAL** | **$107,000** | **$3,000** | **$17,000** | **$87,000** |
| **Industrial** | Negligible | Negligible | Negligible | Negligible |
| **Agriculture** | Negligible | Negligible | Negligible | Negligible |
| **Religion/Non-Profit** | Negligible | Negligible | Negligible | Negligible |
| **Education** | Negligible | Negligible | Negligible | Negligible |
| **TOTAL ALL OCCUPANCIES** | **$4,899,000** | **$2,920,000** | **$1,605,000** | **$374,000** |

*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 | $4,982,000 | $3,119,000 | $1,863,000 | Negligible |
| Post-FIRM | $54,000 | $35,000 | $19,000 | Negligible |
| **TOTAL** | **$5,036,000** | **$3,154,000** | **$1,882,000** | **Negligible** |
| **Commercial** | | | | |
| Pre-FIRM | $326,000 | $81,000 | $245,000 | $239,000 |
| Post-FIRM | Negligible | Negligible | Negligible | Negligible |
| **TOTAL** | **$326,000** | **$81,000** | **$245,000** | **$239,000** |
| **Government** | | | | |
| Pre-FIRM | $52,000 | $7,000 | $45,000 | $283,000 |
| Post-FIRM | Negligible | Negligible | Negligible | Negligible |
| **TOTAL** | **$52,000** | **$7,000** | **$45,000** | **$283,000** |
| **Industrial** | Negligible | Negligible | Negligible | Negligible |
| **Agriculture** | Negligible | Negligible | Negligible | Negligible |
| **Religion/Non-Profit** | Negligible | Negligible | Negligible | Negligible |
| **Education** | Negligible | Negligible | Negligible | Negligible |
| **TOTAL ALL OCCUPANCIES** | **$5,414,000** | **$3,242,000** | **$2,172,000** | **$522,000** |

*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 | $5,540,000 | $3,462,000 | $2,078,000 | Negligible |
| Post-FIRM | $59,000 | $38,000 | $21,000 | Negligible |
| **TOTAL** | **$5,599,000** | **$3,500,000** | **$2,099,000** | **Negligible** |
| **Commercial** | | | | |
| Pre-FIRM | $800,000 | $96,000 | $283,000 | $421,000 |
| Post-FIRM | Negligible | Negligible | Negligible | Negligible |
| **TOTAL** | **$800,000** | **$96,000** | **$283,000** | **$421,000** |
| **Government** | | | | |
| Pre-FIRM | $438,000 | $10,000 | $58,000 | $370,000 |
| Post-FIRM | Negligible | Negligible | Negligible | Negligible |
| **TOTAL** | **$438,000** | **$10,000** | **$58,000** | **$370,000** |
| **Industrial** | Negligible | Negligible | Negligible | Negligible |
| **Agriculture** | Negligible | Negligible | Negligible | Negligible |
| **Religion/Non-Profit** | Negligible | Negligible | Negligible | Negligible |
| **Education** | Negligible | Negligible | Negligible | Negligible |
| **TOTAL ALL OCCUPANCIES** | **$6,837,000** | **$3,606,000** | **$2,440,000** | **$791,000** |

*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 | $6,451,000 | $4,019,000 | $2,430,000 | $2,000 |
| Post-FIRM | $69,000 | $44,000 | $25,000 | Negligible |
| **TOTAL** | **$6,520,000** | **$4,063,000** | **$2,455,000** | **Negligible** |
| **Commercial** | | | | |
| Pre-FIRM | $1,239,000 | $149,000 | $417,000 | $673,000 |
| Post-FIRM | Negligible | Negligible | Negligible | Negligible |
| **TOTAL** | **$1,239,000** | **$149,000** | **$417,000** | **$673,000** |
| **Government** | | | | |
| Pre-FIRM | $645,000 | $16,000 | $87,000 | $542,000 |
| Post-FIRM | Negligible | Negligible | Negligible | Negligible |
| **TOTAL** | **$645,000** | **$16,000** | **$87,000** | **$542,000** |
| **Industrial** | Negligible | Negligible | Negligible | Negligible |
| **Agriculture** | Negligible | Negligible | Negligible | Negligible |
| **Religion/Non-Profit** | Negligible | Negligible | Negligible | Negligible |
| **Education** | Negligible | Negligible | Negligible | Negligible |
| **TOTAL ALL OCCUPANCIES** | **$8,404,000** | **$4,228,000** | **$2,959,000** | **$1,215,000** |

*Source: HAZUS$^{MH}$*

**Table 5.11: Residential Building Damage Estimates for Flood**

| CENSUS BLOCK | TOTAL BUILDINGS | UNDAMAGED BUILDINGS | 1 TO 10% DAMAGE | 11 TO 20% DAMAGE | 21 TO 50% DAMAGE | 51 TO 100% DAMAGE |
|---|---|---|---|---|---|---|
| **50-year Event** | | | | | | |
| 516200901002000 | 8 | 2 | 4 | 2 | 0 | 0 |
| 516200901002026 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001005 | 48 | 0 | 42 | 6 | 0 | 0 |
| 516200902001014 | 1 | 0 | 1 | 0 | 0 | 0 |
| 516200902001032 | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL** | **57** | **2** | **47** | **8** | **0** | **0** |
| **100-year Event** | | | | | | |
| 516200901002000 | 11 | 2 | 9 | 0 | 0 | 0 |
| 516200901002026 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001005 | 50 | 1 | 43 | 6 | 0 | 0 |
| 516200902001006 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001014 | 5 | 0 | 5 | 0 | 0 | 0 |
| 516200902001032 | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL** | **66** | **3** | **57** | **6** | **0** | **0** |
| **200-year Event** | | | | | | |
| 516200901002000 | 11 | 2 | 9 | 0 | 0 | 0 |
| 516200901002026 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001005 | 50 | 2 | 43 | 5 | 0 | 0 |
| 516200902001006 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001010 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001012 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001013 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001014 | 6 | 0 | 6 | 0 | 0 | 0 |
| 516200902001032 | 1 | 0 | 1 | 0 | 0 | 0 |
| **TOTAL** | **68** | **4** | **59** | **5** | **0** | **0** |
| **500-year Event** | | | | | | |
| 516200901002000 | 12 | 2 | 10 | 0 | 0 | 0 |
| 516200901002026 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001005 | 56 | 1 | 55 | 0 | 0 | 0 |
| 516200902001006 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001010 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001012 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001013 | 0 | 0 | 0 | 0 | 0 | 0 |
| 516200902001014 | 9 | 0 | 6 | 3 | 0 | 0 |
| 516200902001032 | 2 | 0 | 2 | 0 | 0 | 0 |
| 516200902002000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL** | **79** | **3** | **73** | **3** | **0** | **0** |

*Source: HAZUS$^{MH}$*

### Repetitive Loss Properties

According to National Flood Insurance Program (NFIP) data provided by the Virginia Department of Emergency Management (current as of April 2005), there are no repetitive loss properties located in the City of Franklin that meet the FEMA/NFIP definition of a repetitive loss property.

### NFIP Flood Insurance Policy Data

According to NFIP records current as of December 31, 2004, the total number of policies in-force in the City of Franklin is 171. The total dollar amount of insurance in-force (whole) is $34,965,700. Total written premiums in-force is $150,901.

## Social Vulnerability

As an indicator of overall social vulnerability, 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 that intersect with known flood hazard areas (**Table 5.12**).

**Table 5.12: Potentially At-risk Population**

| FLOOD HAZARD AREA | GENERAL POPULATION | ELDERLY (65 AND OLDER) | LOW INCOME (< $20,000) |
|---|---|---|---|
| Floodway | 214 | 21 | 27 |
| 100-year Floodplain | 1,907 | 507 | 272 |
| 0.2% Annual Chance Flood Hazard | 3,607 | 763 | 589 |

*Source: GIS Analysis*

## Future Vulnerability and Land Use

**Figure 5.15** is provided as a general comparison of future land use and current flood hazard areas (as presented and explained in the *Hazard Identification and Analysis* section).

# Hurricane and Tropical Storm

**PRI Value:** 3.20
**Annualized Loss Estimate:** $341,000

## Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the hurricane and tropical storm hazard scored a PRI value of 3.20 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.13** summarizes the risk levels assigned to each PRI category.

**Table 5.13: Qualitative Assessment for Hurricane and Tropical Storm**

| | |
|---|---|
| **PROBABILITY** | Likely |
| **IMPACT** | Catastrophic |
| **SPATIAL EXTENT** | Large |
| **WARNING TIME** | More Than 24 Hours |
| **DURATION** | Less Than 24 Hours |

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

The following tables summarize 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 structures. The HAZUSMH software does not count schools as education structures but rather as essential facilities. Education structures in this context may refer to administration buildings, etc. This analysis is consistent with the overall methodology described for the HAZUSMH software presented at the beginning of this section.

**Table 5.14** through **Table 5.22** show annualized losses for the hurricane and tropical storm (wind) hazard and a detailed breakdown of estimated residential building damage by census block. For the return events analyzed (50, 100, 200 and 500-year), HAZUSMH MR1 did not calculate any damage by building count for commercial, industrial, agriculture, religion/non-profit, government and education occupancies. Therefore, only residential building damage is presented in detail in this vulnerability assessment.

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. “Negligible” means less than $1,000 in losses.

**Table 5.14: HAZUSMH Annualized Losses for Hurricane and Tropical Storm (Wind)**

| OCCUPANCY TYPE | TOTAL | BUILDING | CONTENT | OTHER |
|---|---|---|---|---|
| Residential | $307,000 | $209,000 | $59,000 | $0 |
| Commercial | $26,000 | $12,000 | $6,000 | $0 |
| Industrial | $5,000 | $2,000 | $2,000 | $0 |
| Agriculture | $0 | $0 | $0 | $0 |
| Religion/Non-Profit | $2,000 | $1,000 | $0 | $0 |
| Government | $0 | $0 | $0 | $0 |
| Education | $1,000 | $0 | $0 | $0 |
| **TOTAL** | **$341,000** | **$224,000** | **$67,000** | **$0** |

*Source: HAZUSMH*

**Table 5.15: Probabilistic Loss Estimates for Hurricane and Tropical Storm (Wind)**

| | TOTAL LOSSES | BUILDING LOSSES | CONTENT LOSSES | OTHER LOSSES |
|---|---|---|---|---|
| **50-year Event** | | | | |
| Residential | $2,009,000 | $1,592,000 | $280,000 | $137,000 |
| Commercial | $34,000 | $32,000 | $0 | $1,000 |
| Industrial | $6,000 | $4,000 | $0 | $0 |
| Agriculture | $0 | $0 | $0 | $0 |
| Religion/Non-Profit | $5,000 | $5,000 | $0 | $0 |
| Government | $0 | $0 | $0 | $0 |
| Education | $1,000 | $1,000 | $0 | $0 |
| **TOTAL** | **$2,055,000** | **$1,634,000** | **$280,000** | **$138,000** |
| **100-year Event** | | | | |
| Residential | $4,710,000 | $3,649,000 | $663,000 | $398,000 |
| Commercial | $171,000 | $134,000 | $23,000 | $12,000 |
| Industrial | $45,000 | $27,000 | $13,000 | $3,000 |
| Agriculture | $2,000 | $1,000 | $1,000 | $0 |
| Religion/Non-Profit | $20,000 | $16,000 | $2,000 | $1,000 |
| Government | $1,000 | $1,000 | $0 | $0 |
| Education | $6,000 | $6,000 | $0 | $0 |
| **TOTAL** | **$4,955,000** | **$3,834,000** | **$702,000** | **$414,000** |
| **200-year Event** | | | | |
| Residential | $10,623,000 | $7,602,000 | $1,712,000 | $1,308,000 |
| Commercial | $732,000 | $388,000 | $125,000 | $215,000 |
| Industrial | $164,000 | $81,000 | $53,000 | $20,000 |
| Agriculture | $6,000 | $3,000 | $2,000 | $1,000 |
| Religion/Non-Profit | $89,000 | $44,000 | $10,000 | $36,000 |
| Government | $6,000 | $2,000 | $1,000 | $4,000 |
| Education | $32,000 | $16,000 | $5,000 | $11,000 |
| **TOTAL** | **$11,652,000** | **$8,136,000** | **$1,908,000** | **$1,595,000** |
| **500-year Event** | | | | |
| Residential | $29,445,000 | $18,943,000 | $5,633,000 | $4,870,000 |
| Commercial | $2,694,000 | $1,412,000 | $663,000 | $596,000 |
| Industrial | $625,000 | $294,000 | $232,000 | $67,000 |
| Agriculture | $19,000 | $10,000 | $5,000 | $3,000 |
| Religion/Non-Profit | $244,000 | $137,000 | $48,000 | $60,000 |
| Government | $20,000 | $9,000 | $4,000 | $7,000 |
| Education | $111,000 | $59,000 | $25,000 | $26,000 |
| **TOTAL** | **$33,158,000** | **$20,864,000** | **$6,610,000** | **$5,629,000** |
| **1,000-year Event** | | | | |
| Residential | $51,592,000 | $32,059,000 | $10,827,000 | $8,707,000 |
| Commercial | $5,406,000 | $2,619,000 | $1,388,000 | $1,399,000 |
| Industrial | $1,155,000 | $532,000 | $443,000 | $180,000 |
| Agriculture | $31,000 | $16,000 | $9,000 | $7,000 |
| Religion/Non-Profit | $462,000 | $249,000 | $105,000 | $107,000 |
| Government | $38,000 | $17,000 | $8,000 | $13,000 |
| Education | $214,000 | $112,000 | $53,000 | $48,000 |
| **TOTAL** | **$58,898,000** | **$35,604,000** | **$12,833,000** | **$10,461,000** |

*Source: HAZUS$^{MH}$*

**Table 5.16: Estimates of Potential Residential and Commercial Building Damages for Hurricane and Tropical Storm (Wind); Building Count for Probabilistic Storms**

| | NO DAMAGE | MINOR DAMAGE | MODERATE DAMAGE | SEVERE DAMAGE | DESTRUCTION | TOTAL STRUCTURES |
|---|---|---|---|---|---|---|
| **50-year Storm** | | | | | | |
| Residential | 2,532 | 99 | 7 | 0 | 0 | 2,638 |
| Commercial | 34 | 1 | 0 | 0 | 0 | 35 |
| Other | 8 | 0 | 0 | 0 | 0 | 8 |
| **TOTAL** | **2,574** | **100** | **7** | **0** | **0** | **2,681** |
| **100-year Storm** | | | | | | |
| Residential | 2,284 | 314 | 39 | 1 | 0 | 2,638 |
| Commercial | 32 | 3 | 0 | 0 | 0 | 35 |
| Other | 7 | 1 | 0 | 0 | 0 | 8 |
| **TOTAL** | **2,323** | **318** | **39** | **1** | **0** | **2,681** |
| **200-year Storm** | | | | | | |
| Residential | 1,905 | 603 | 120 | 5 | 5 | 2,638 |
| Commercial | 28 | 5 | 1 | 1 | 0 | 35 |
| Other | 7 | 1 | 0 | 0 | 0 | 8 |
| **TOTAL** | **1,940** | **609** | **121** | **6** | **5** | **2,681** |
| **500-year Storm** | | | | | | |
| Residential | 1,330 | 927 | 320 | 34 | 27 | 2,638 |
| Commercial | 20 | 9 | 5 | 1 | 0 | 35 |
| Other | 5 | 2 | 1 | 0 | 0 | 8 |
| **TOTAL** | **1,355** | **938** | **326** | **35** | **27** | **2,681** |
| **1,000-year Storm** | | | | | | |
| Residential | 989 | 1,028 | 478 | 80 | 63 | 2,638 |
| Commercial | 15 | 9 | 8 | 3 | 0 | 35 |
| Other | 4 | 2 | 1 | 1 | 0 | 8 |
| **TOTAL** | **1,008** | **1,039** | **487** | **84** | **63** | **2,681** |

*Source: HAZUS$^{MH}$*

**Table 5.17: Probability of Damage by Damage State for 50-year Wind Event**

| OCCUPANCY TYPE | CENSUS TRACT | NO DAMAGE | MINOR | AT LEAST MINOR | MODERATE | AT LEAST MODERATE | SEVERE | AT LEAST SEVERE | DESTRUCTION |
|---|---|---|---|---|---|---|---|---|---|
| Residential | 51620090100 | 96% | 4% | 4% | 0% | 0% | 0% | 0% | 0% |
| | 51620090200 | 96% | 4% | 4% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **96%** | **4%** | **4%** | **0%** | **0%** | **0%** | **0%** | **0%** |
| Commercial | 51620090100 | 98% | 2% | 2% | 0% | 0% | 0% | 0% | 0% |
| | 51620090200 | 97% | 3% | 3% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **97.5%** | **2.5%** | **2.5%** | **0%** | **0%** | **0%** | **0%** | **0%** |
| Industrial | 51620090100 | 98% | 2% | 2% | 0% | 0% | 0% | 0% | 0% |
| | 51620090200 | 97% | 3% | 3% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **97.5%** | **3%** | **2.5%** | **0%** | **0%** | **0%** | **0%** | **0%** |
| Agriculture | 51620090100 | 97% | 3% | 3% | 0% | 0% | 0% | 0% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **98.5%** | **1.5%** | **1.5%** | **0%** | **0%** | **0%** | **0%** | **0%** |
| Religious/ Non-Profit | 51620090100 | 98% | 2% | 2% | 0% | 0% | 0% | 0% | 0% |
| | 51620090200 | 98% | 2% | 3% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **98%** | **2%** | **2.5%** | **0%** | **0%** | **0%** | **0%** | **0%** |
| Government | 51620090100 | 98% | 2% | 2% | 0% | 0% | 0% | 0% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **99%** | **1.0%** | **1.0%** | **0%** | **0%** | **0%** | **0%** | **0%** |
| Education | 51620090100 | 98% | 2% | 2% | 0% | 0% | 0% | 0% | 0% |
| | 51620090200 | 97% | 2% | 3% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **97.5%** | **2%** | **2.5%** | **0%** | **0%** | **0%** | **0%** | **0%** |

**Table 5.18: Probability of Damage by Damage State for 100-year Wind Event**

| OCCUPANCY TYPE | CENSUS TRACT | NO DAMAGE | MINOR | AT LEAST MINOR | MODERATE | AT LEAST MODERATE | SEVERE | AT LEAST SEVERE | DESTRUCTION |
|---|---|---|---|---|---|---|---|---|---|
| Residential | 51620090100 | 86% | 12% | 14% | 2% | 2% | 0% | 0% | 0% |
| | 51620090200 | 87% | 11% | 13% | 1% | 1% | 0% | 0% | 0% |
| | **City Average** | **86.5%** | **11.5%** | **13.5%** | **1.5%** | **1.5%** | **0%** | **0%** | **0%** |
| Commercial | 51620090100 | 91% | 8% | 9% | 1% | 1% | 0% | 0% | 0% |
| | 51620090200 | 92% | 7% | 8% | 1% | 1% | 0% | 0% | 0% |
| | **City Average** | **91.5%** | **7.5%** | **8.5%** | **1%** | **1%** | **0%** | **0%** | **0%** |
| Industrial | 51620090100 | 91% | 7% | 9% | 1% | 2% | 0% | 0% | 0% |
| | 51620090200 | 92% | 7% | 8% | 1% | 1% | 0% | 0% | 0% |
| | **City Average** | **91.5%** | **7%** | **8.5%** | **1%** | **1.5%** | **0%** | **0%** | **0%** |
| Agriculture | 51620090100 | 88% | 9% | 12% | 2% | 3% | 1% | 1% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **94%** | **4.5%** | **6%** | **1.0%** | **1.5%** | **0.5%** | **0.5%** | **0%** |
| Religious/ Non-Profit | 51620090100 | 91% | 8% | 9% | 1% | 1% | 0% | 0% | 0% |
| | 51620090200 | 92% | 7% | 8% | 1% | 1% | 0% | 0% | 0% |
| | **City Average** | **91.5%** | **7.5%** | **8.5%** | **1%** | **1%** | **0%** | **0%** | **0%** |
| Government | 51620090100 | 92% | 7% | 8% | 1% | 1% | 0% | 0% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **96.0%** | **3.5%** | **4%** | **0.5%** | **0.5%** | **0%** | **0%** | **0%** |
| Education | 51620090100 | 92% | 8% | 9% | 1% | 1% | 0% | 0% | 0% |
| | 51620090200 | 92% | 7% | 8% | 1% | 1% | 0% | 0% | 0% |
| | **City Average** | **92%** | **7.5%** | **8.5%** | **1%** | **1%** | **0%** | **0%** | **0%** |

*Source: HAZUS$^{MH}$*

**Table 5.19: Probability of Damage by Damage State for 200-year Wind Event**

| OCCUPANCY TYPE | CENSUS TRACT | NO DAMAGE | MINOR | AT LEAST MINOR | MODERATE | AT LEAST MODERATE | SEVERE | AT LEAST SEVERE | DESTRUCTION |
|---|---|---|---|---|---|---|---|---|---|
| Residential | 51620090100 | 73% | 22% | 27% | 4% | 5% | 0% | 0% | 0% |
| | 51620090200 | 71% | 24% | 29% | 5% | 5% | 0% | 0% | 0% |
| | **City Average** | **72%** | **23%** | **28%** | **4.5%** | **5%** | **0%** | **0%** | **0%** |
| Commercial | 51620090100 | 81% | 15% | 19% | 4% | 5% | 0% | 0% | 0% |
| | 51620090200 | 77% | 17% | 23% | 5% | 6% | 1% | 1% | 0% |
| | **City Average** | **79%** | **16%** | **21%** | **4.5%** | **5.5%** | **0.5%** | **1%** | **0%** |
| Industrial | 51620090100 | 81% | 13% | 19% | 5% | 6% | 1% | 1% | 0% |
| | 51620090200 | 77% | 16% | 23% | 6% | 7% | 1% | 1% | 0% |
| | **City Average** | **79%** | **14.5%** | **21%** | **5.5%** | **6.5%** | **1%** | **1%** | **0%** |
| Agriculture | 51620090100 | 76% | 17% | 24% | 5% | 7% | 2% | 3% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **88%** | **8.5%** | **12%** | **2.5%** | **3.5%** | **1%** | **1.5%** | **0%** |
| Religious/ Non-Profit | 51620090100 | 81% | 16% | 19% | 3% | 3% | 0% | 0% | 0% |
| | 51620090200 | 77% | 18% | 23% | 4% | 5% | 0% | 0% | 0% |
| | **City Average** | **79%** | **17%** | **21%** | **3.5%** | **4%** | **0%** | **0%** | **0%** |
| Government | 51620090100 | 82% | 14% | 18% | 4% | 4% | 0% | 0% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **91%** | **7%** | **9%** | **2%** | **2%** | **0%** | **0%** | **0%** |
| Education | 51620090100 | 82% | 14% | 18% | 4% | 4% | 0% | 0% | 0% |
| | 51620090200 | 78% | 16% | 22% | 5% | 5% | 0% | 0% | 0% |
| | **City Average** | **80%** | **15%** | **20%** | **4.5%** | **4.5%** | **0%** | **0%** | **0%** |

**Table 5.20: Probability of Damage by Damage State for 500-year Wind Event**

| OCCUPANCY TYPE | CENSUS TRACT | NO DAMAGE | MINOR | AT LEAST MINOR | MODERATE | AT LEAST MODERATE | SEVERE | AT LEAST SEVERE | DESTRUCTION |
|---|---|---|---|---|---|---|---|---|---|
| Residential | 51620090100 | 50% | 35% | 50% | 12% | 15% | 1% | 2% | 1% |
| | 51620090200 | 51% | 35% | 49% | 12% | 14% | 1% | 2% | 1% |
| | **City Average** | **50.5%** | **35%** | **49.5%** | **12%** | **14.5%** | **1%** | **2%** | **1%** |
| Commercial | 51620090100 | 58% | 25% | 42% | 15% | 18% | 3% | 3% | 0% |
| | 51620090200 | 57% | 25% | 43% | 15% | 18% | 3% | 3% | 0% |
| | **City Average** | **57.5%** | **25%** | **42.5%** | **15%** | **18%** | **3%** | **3%** | **0%** |
| Industrial | 51620090100 | 58% | 22% | 42% | 15% | 20% | 5% | 5% | 0% |
| | 51620090200 | 57% | 23% | 43% | 15% | 20% | 5% | 5% | 0% |
| | **City Average** | **57.5%** | **22.5%** | **42.5%** | **15%** | **20%** | **5%** | **5%** | **0%** |
| Agriculture | 51620090100 | 52% | 28% | 48% | 12% | 20% | 6% | 7% | 1% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **76%** | **14%** | **24%** | **6%** | **10%** | **3%** | **3.5%** | **0.5%** |
| Religious/ Non-Profit | 51620090100 | 58% | 28% | 42% | 12% | 14% | 2% | 2% | 0% |
| | 51620090200 | 57% | 28% | 43% | 13% | 15% | 2% | 2% | 0% |
| | **City Average** | **57.5%** | **28%** | **42.5%** | **12.5%** | **14.5%** | **2%** | **2%** | **0%** |
| Government | 51620090100 | 59% | 24% | 41% | 14% | 17% | 3% | 3% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **79.5%** | **12%** | **20.5%** | **7%** | **8.5%** | **1.5%** | **1.5%** | **0%** |
| Education | 51620090100 | 59% | 25% | 41% | 14% | 17% | 3% | 3% | 0% |
| | 51620090200 | 58% | 24% | 42% | 15% | 18% | 3% | 3% | 0% |
| | **City Average** | **58.5%** | **24.5%** | **41.5%** | **14.5%** | **17.5%** | **3%** | **3%** | **0%** |

*Source: HAZUS$^{MH}$*

**Table 5.21: Probability of Damage by Damage State for 1,000-year Wind Event**

| OCCUPANCY TYPE | CENSUS TRACT | NO DAMAGE | MINOR | AT LEAST MINOR | MODERATE | AT LEAST MODERATE | SEVERE | AT LEAST SEVERE | DESTRUCTION |
|---|---|---|---|---|---|---|---|---|---|
| **Residential** | 51620090100 | 38% | 39% | 62% | 18% | 24% | 3% | 5% | 2% |
| | 51620090200 | 37% | 40% | 63% | 18% | 23% | 3% | 5% | 2% |
| | **City Average** | **37.5%** | **39.5%** | **62.5%** | **18%** | **23.5%** | **3%** | **5%** | **2%** |
| **Commercial** | 51620090100 | 44% | 27% | 56% | 22% | 29% | 7% | 7% | 0% |
| | 51620090200 | 43% | 27% | 57% | 22% | 30% | 8% | 8% | 0% |
| | **City Average** | **43.5%** | **27%** | **56.5%** | **22%** | **29.5%** | **7.5%** | **7.5%** | **0%** |
| **Industrial** | 51620090100 | 45% | 24% | 55% | 22% | 32% | 10% | 10% | 0% |
| | 51620090200 | 42% | 25% | 58% | 22% | 33% | 10% | 10% | 1% |
| | **City Average** | **43.5%** | **24.5%** | **56.5%** | **22%** | **32.5%** | **10%** | **10%** | **0.5%** |
| **Agriculture** | 51620090100 | 39% | 32% | 61% | 18% | 29% | 10% | 12% | 2% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **69.5%** | **16%** | **30.5%** | **9%** | **14.5%** | **5%** | **6%** | **1%** |
| **Religious/ Non-Profit** | 51620090100 | 44% | 32% | 56% | 19% | 24% | 5% | 5% | 0% |
| | 51620090200 | 42% | 32% | 58% | 20% | 26% | 6% | 6% | 0% |
| | **City Average** | **43%** | **32%** | **57%** | **19.5%** | **25%** | **5.5%** | **5.5%** | **0%** |
| **Government** | 51620090100 | 45% | 26% | 55% | 22% | 29% | 8% | 8% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | **72.5%** | **13%** | **27.5%** | **11%** | **14.5%** | **4%** | **4%** | **0%** |
| **Education** | 51620090100 | 45% | 27% | 55% | 21% | 28% | 7% | 7% | 0% |
| | 51620090200 | 43% | 27% | 57% | 22% | 30% | 8% | 8% | 0% |
| | **City Average** | **44%** | **27%** | **56%** | **21.5%** | **29%** | **7.5%** | **7.5%** | **0%** |

*Source: HAZUS$^{MH}$*

**Table 5.22: Essential Facilities—Damage State Probability and Loss of Use (Wind Event)**

| | FACILITY NAME | LOSS OF USE | PROBABILITY OF BUILDING DAMAGE | | | |
|---|---|---|---|---|---|---|
| **50-year Event** | | DAYS | MINOR | MODERATE | SEVERE | DESTRUCTION |
| **Medical** | Southampton Memorial Hospital | 0 | 3% | 0% | 0% | 0% |
| **Fire** | Franklin Fire & Rescue | 0 | 3% | 0% | 0% | 0% |
| | Hunterdale Volunteer Fire Dept | 0 | 2% | 0% | 0% | 0% |
| **Police** | Franklin Police Dept | 0 | 3% | 0% | 0% | 0% |
| | Franklin Criminal Court | 0 | 2% | 0% | 0% | 0% |
| **Schools** | Paul D Camp Community College | 0 | 2% | 0% | 0% | 0% |
| | Hayden High School | 0 | 3% | 0% | 0% | 0% |
| | Rock Church School | 0 | 2% | 0% | 0% | 0% |
| | Franklin High School | 0 | 2% | 0% | 0% | 0% |
| | Joseph P. King Jr. Elementary School | 0 | 2% | 0% | 0% | 0% |
| | S.P. Morton Elementary School | 0 | 3% | 0% | 0% | 0% |
| **100-year Event** | | | | | | |
| **Medical** | Southampton Memorial Hospital | 0 | 9% | 2% | 0% | 0% |
| **Fire** | Franklin Fire & Rescue | 0 | 7% | 1% | 0% | 0% |
| | Hunterdale Volunteer Fire Dept | 0 | 8% | 1% | 0% | 0% |
| **Police** | Franklin Police Dept | 0 | 7% | 1% | 0% | 0% |
| | Franklin Criminal Court | 0 | 8% | 1% | 0% | 0% |
| **Schools** | Paul D Camp Community College | 0 | 8% | 1% | 0% | 0% |
| | Hayden High School | 0 | 7% | 1% | 0% | 0% |
| | Rock Church School | 0 | 8% | 1% | 0% | 0% |
| | Franklin High School | 0 | 8% | 1% | 0% | 0% |
| | Joseph P. King Jr. Elementary School | 0 | 8% | 1% | 0% | 0% |
| | S.P. Morton Elementary School | 0 | 7% | 1% | 0% | 0% |
| **200-year Event** | | | | | | |
| **Medical** | Southampton Memorial Hospital | 2 | 16% | 6% | 0% | 0% |
| **Fire** | Franklin Fire & Rescue | 2 | 16% | 5% | 0% | 0% |
| | Hunterdale Volunteer Fire Dept | 2 | 14% | 4% | 0% | 0% |
| **Police** | Franklin Police Dept | 2 | 16% | 5% | 0% | 0% |
| | Franklin Criminal Court | 2 | 14% | 4% | 0% | 0% |
| **Schools** | Paul D Camp Community College | 2 | 15% | 4% | 0% | 0% |
| | Hayden High School | 3 | 17% | 5% | 0% | 0% |
| | Rock Church School | 2 | 15% | 4% | 0% | 0% |
| | Franklin High School | 2 | 15% | 4% | 0% | 0% |
| | Joseph P. King Jr. Elementary School | 2 | 15% | 4% | 0% | 0% |
| | S.P. Morton Elementary School | 3 | 17% | 5% | 0% | 0% |
| **500-year Event** | | | | | | |
| **Medical** | Southampton Memorial Hospital | 9 | 24% | 19% | 3% | 0% |
| **Fire** | Franklin Fire & Rescue | 10 | 24% | 15% | 3% | 0% |
| | Hunterdale Volunteer Fire Dept | 10 | 24% | 15% | 3% | 0% |
| **Police** | Franklin Police Dept | 10 | 24% | 15% | 3% | 0% |
| | Franklin Criminal Court | 10 | 24% | 15% | 3% | 0% |
| **Schools** | Paul D Camp Community College | 11 | 25% | 14% | 3% | 0% |
| | Hayden High School | 11 | 25% | 15% | 3% | 0% |
| | Rock Church School | 11 | 25% | 14% | 3% | 0% |
| | Franklin High School | 11 | 25% | 14% | 3% | 0% |
| | Joseph P. King Jr. Elementary School | 11 | 25% | 14% | 3% | 0% |
| | S.P. Morton Elementary School | 11 | 25% | 15% | 3% | 0% |
| **1,000-year Event** | | | | | | |
| **Medical** | Southampton Memorial Hospital | 20 | 25% | 27% | 7% | 0% |
| **Fire** | Franklin Fire & Rescue | 24 | 26% | 23% | 9% | 0% |
| | Hunterdale Volunteer Fire Dept | 22 | 26% | 22% | 8% | 0% |
| **Police** | Franklin Police Dept | 24 | 26% | 23% | 9% | 0% |
| | Franklin Criminal Court | 22 | 26% | 22% | 8% | 0% |
| **Schools** | Paul D Camp Community College | 24 | 27% | 21% | 7% | 0% |
| | Hayden High School | 25 | 27% | 22% | 8% | 0% |
| | Rock Church School | 24 | 27% | 21% | 7% | 0% |
| | Franklin High School | 24 | 27% | 21% | 7% | 0% |
| | Joseph P. King Jr. Elementary School | 24 | 27% | 21% | 7% | 0% |
| | S.P. Morton Elementary School | 25 | 27% | 22% | 8% | 0% |

*Source: HAZUS[MH]*

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## If Hurricane Hazel (1954) Were to Hit the City of Franklin Today...

| OCCUPANCY TYPE | TOTAL LOSSES | BUILDING LOSSES | CONTENT LOSSES | OTHER LOSSES |
|---|---|---|---|---|
| Residential | $5,107,000 | $3,936,000 | $736,000 | $435,000 |
| Commercial | $183,000 | $143,000 | $24,000 | $14,000 |
| Industrial | $48,000 | $27,000 | $15,000 | $5,000 |
| Agriculture | $2,000 | $1,000 | $1,000 | $0 |
| Religion/Non-Profit | $21,000 | $17,000 | $2,000 | $1,000 |
| Government | $1,000 | $1,000 | $0 | $0 |
| Education | $6,000 | $6,000 | $0 | $0 |
| TOTAL | $5,368,000 | $4,131,000 | $778,000 | $455,000 |

## Estimates of Potential Residential and Commercial Building Damages

| | NO DAMAGE | MINOR DAMAGE | MODERATE DAMAGE | SEVERE DAMAGE | DESTRUCTION | TOTAL STRUCTURES |
|---|---|---|---|---|---|---|
| Residential | 2,251 | 341 | 44 | 1 | 1 | 2,638 |
| Commercial | 32 | 3 | 0 | 0 | 0 | 35 |
| Other | 7 | 0 | 0 | 0 | 0 | 8 |
| TOTAL | 2,290 | 344 | 44 | 1 | 1 | 2,681 |

## Probability of Damage by Damage State

| | CENSUS TRACT | NO DAMAGE | MINOR | AT LEAST MINOR | MODERATE | AT LEAST MODERATE | SEVERE | AT LEAST SEVERE | DESTRUCTION |
|---|---|---|---|---|---|---|---|---|---|
| Residential | 51620090100 | 86% | 13% | 14% | 2% | 2% | 0% | 0% | 0% |
| | 51620090200 | 85% | 13% | 15% | 2% | 2% | 0% | 0% | 0% |
| | **City Average** | 85.5% | 13% | 14.5% | 2% | 2% | 0% | 0% | 0% |
| Commercial | 51620090100 | 91% | 8% | 9% | 1% | 1% | 0% | 0% | 0% |
| | 51620090200 | 90% | 9% | 10% | 2% | 2% | 0% | 0% | 0% |
| | **City Average** | 90.5% | 8.5% | 9.5% | 1.5% | 1.5% | 0% | 0% | 0% |
| Industrial | 51620090100 | 91% | 7% | 9% | 1% | 2% | 0% | 0% | 0% |
| | 51620090200 | 89% | 8% | 11% | 2% | 2% | 0% | 0% | 0% |
| | **City Average** | 90.0% | 7.5% | 10% | 1.5% | 2% | 0% | 0% | 0% |
| Agriculture | 51620090100 | 88% | 9% | 12% | 2% | 3% | 1% | 1% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | 94.0% | 4.5% | 6% | 1.0% | 1.5% | 0.5% | 0.5% | 0% |
| Religious/ Non-Profit | 51620090100 | 91% | 8% | 9% | 1% | 1% | 0% | 0% | 0% |
| | 51620090200 | 90% | 9% | 10% | 1% | 1% | 0% | 0% | 0% |
| | **City Average** | 90.5% | 8.5% | 9.5% | 1% | 1% | 0% | 0% | 0% |
| Government | 51620090100 | 91% | 8% | 9% | 1% | 1% | 0% | 0% | 0% |
| | 51620090200 | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| | **City Average** | 95.5% | 4% | 4.5% | 0.5% | 0.5% | 0% | 0% | 0% |
| Education | 51620090100 | 91% | 8% | 9% | 1% | 1% | 0% | 0% | 0% |
| | 51620090200 | 90% | 8% | 10% | 1% | 1% | 0% | 0% | 0% |
| | **City Average** | 90.5% | 8% | 9.5% | 1% | 1% | 0% | 0% | 0% |

## Essential Facilities—Damage State Probability and Loss of Use

| | | | PROBABILITY OF BUILDING DAMAGE | | | |
|---|---|---|---|---|---|---|
| TYPE | FACILITY NAME | LOSS OF USE (DAYS) | MINOR | MODERATE | SEVERE | DESTRUCTION |
| Medical | Southampton Memorial Hospital | 0 | 9% | 2% | 0% | 0% |
| Fire | Franklin Fire & Rescue | 0 | 8% | 1% | 0% | 0% |
| | Hunterdale Volunteer Fire Dept | 0 | 8% | 1% | 0% | 0% |
| Police | Franklin Police Dept | 0 | 8% | 1% | 0% | 0% |
| | Franklin Criminal Court | 0 | 8% | 1% | 0% | 0% |
| Schools | Paul D Camp Community College | 0 | 8% | 1% | 0% | 0% |
| | Hayden High School | 0 | 9% | 1% | 0% | 0% |
| | Rock Church School | 0 | 8% | 1% | 0% | 0% |
| | Franklin High School | 0 | 8% | 1% | 0% | 0% |
| | Joseph P. King Jr. Elementary School | 0 | 8% | 1% | 0% | 0% |
| | S.P. Morton Elementary School | 0 | 9% | 1% | 0% | 0% |

*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 city would be uniformly at-risk to varying degrees.

## Future Vulnerability and Land Use

All future structures built in the City of Franklin will likely be exposed to hurricane and tropical storm-force winds 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.

# Severe Thunderstorm

**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 severe thunderstorm hazard scored a PRI value of 2.80 (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 Severe Thunderstorm**

| | |
|---|---|
| **PROBABILITY** | Highly Likely |
| **IMPACT** | Minor |
| **SPATIAL EXTENT** | Large |
| **WARNING TIME** | Less Than 6 Hours |
| **DURATION** | Less Than 6 Hours |

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

As stated in the *Hazard Identification and Analysis* section, the City of Franklin has experienced three severe thunderstorm events since 1950 (according to the National Climatic Data Center). These events resulted in no reported property or crop damage. Therefore, while it is assumed that all assets within the City of Franklin are exposed to this hazard, there is no historical evidence upon which to base an annualized loss estimate and so the annualized loss estimate for this hazard is considered to be negligible (less than $1,000). Furthermore, thunderstorms and their associated hazardous elements (lightning, hail and straight-line wind) are not confined to any geographic boundaries, and therefore no determinations of that nature 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 high wind may be addressed in detail in future versions of this section.

## 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 city would be uniformly at-risk to varying degrees.

## Future Vulnerability and Land Use

All future structures built in the City of Franklin 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:** 2.10
**Annualized Loss Estimate:** $9,091

## Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the tornado hazard scored a PRI value of 2.10 (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 Tornado**

| | |
|---|---|
| **PROBABILITY** | Unlikely |
| **IMPACT** | Critical |
| **SPATIAL EXTENT** | Small |
| **WARNING TIME** | Less Than 6 Hours |
| **DURATION** | Less Than 6 Hours |

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

As stated in the *Hazard Identification and Analysis* section, one recorded tornado is reported to have impacted the City of Franklin since 1950. This event caused an estimated $500,000 in damage, a portion of which may have been located just outside city limits. An annualized loss estimate of $9,091 was derived based on 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 future versions of 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 city would be uniformly at-risk to varying degrees.

## Future Vulnerability and Land Use

All future structures built in the City of Franklin 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:**
Negligible (Less than $1,000)

## Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the winter storm hazard scored a PRI value of 2.60 (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 Winter Storm**

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

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

As stated in the *Hazard Identification and Analysis* section, one notable severe winter storm has impacted the City of Franklin in the past 14 years (according to the National Climatic Data Center). This event caused a total of $50,000 in property damages for a three-county forecast area that included the City of Franklin. A reasonable division of this total amongst the three-county area and the other towns within Southampton County was used to arrive at a negligible annualized loss estimate (less than $1,000) for this hazard.

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 for hurricane and tropical storm events.

## 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 city would be uniformly at-risk to varying degrees.

## Future Vulnerability and Land Use

All future structures built in the City of Franklin 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:** 1.60
**Annualized Loss Estimate:**
Negligible (Less than $1,000)

## Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the wildfire hazard scored a PRI value of 1.60 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.26** summarizes the risk levels assigned to each PRI category.

**Table 5.26: Qualitative Assessment for Wildfire**

| | |
|---|---|
| **PROBABILITY** | Unlikely |
| **IMPACT** | Minor |
| **SPATIAL EXTENT** | Small |
| **WARNING TIME** | Less Than 6 Hours |
| **DURATION** | Less Than 24 Hours |

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

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 the City of Franklin. The data was also compared with aerial imagery and building footprint data to produce an estimate of the number of structures potentially at a higher relative level of risk to the wildfire hazard (**Table 5.27**).

**Table 5.27: Potentially At-risk Structures**

| WILDFIRE THREAT | STRUCTURES |
|---|---|
| High | 307 |
| Moderate | 1,379 |
| Low | 4,244 |

*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.

Due to a lack of extensive history of wildfire occurrences within the city limits of Franklin, the annualized loss estimate for this hazard is considered to be negligible (less than $1,000).

## 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 5.28**).

**Table 5.28: Potentially At-risk Population**

| POPULATION | HIGH WILDFIRE THREAT | MODERATE WILDFIRE THREAT |
|---|---|---|
| General Population | 3,904 | 4,362 |
| Elderly Persons | 854 | 967 |
| Low Income Persons | 452 | 555 |

*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. However, **Figure 5.16** is provided as a general comparison of areas of high wildfire potential (as presented and explained in the *Hazard Identification and Analysis* section) and citywide zoning designations.

# Drought

**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 drought hazard scored a PRI value of 2.20 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.29** summarizes the risk levels assigned to each PRI category.

**Table 5.29: Qualitative Assessment for Drought**

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

*Source: City of Franklin 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).

## 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.

## Future Vulnerability and Land Use

All future structures built in the City of Franklin will be exposed to drought conditions on a comparable level to existing structures; however, this 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.

# 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 5.30** summarizes the risk levels assigned to each PRI category.

**Table 5.30: Qualitative Assessment for Erosion**

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

*Source: City of Franklin 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 the City of Franklin, 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 proper site planning and local permitting.

# Earthquake

**PRI Value:** 1.90
**Annualized Loss Estimate:**
Negligible (Less than $1,000)

## 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 5.31** summarizes the risk levels assigned to each PRI category.

**Table 5.31: Qualitative Assessment for Earthquake**

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

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

HAZUS$^{MH}$ was used to analyze potential losses for the 100, 500, 1,000 and 2,500-year return periods at magnitudes of 5.5, 5.5, 6.5 and 7.0 respectively. Results for each return period for each occupancy class indicated no expected building damage, all essential facilities and functions working, and negligible losses (less than $1,000).

## Social Vulnerability

The entire City of Franklin is located in the same zone of peak ground acceleration, as discussed in the *Hazard Identification and Analysis* section; therefore 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 city would be uniformly at-risk but to a relatively limited degree.

## Future Vulnerability and Land Use

All future structures built in the City of Franklin 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 5.32** summarizes the risk levels assigned to each PRI category.

**Table 5.32: Qualitative Assessment for Sinkhole**

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

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

Due to the minor potential impact and highly localized nature of this hazard in the City of Franklin, 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 city 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:** 1.50
**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 1.50 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.33** summarizes the risk levels assigned to each PRI category.

**Table 5.33: Qualitative Assessment for Landslide**

| | |
|---|---|
| **PROBABILITY** | Unlikely |
| **IMPACT** | Minor |
| **SPATIAL EXTENT** | Small |
| **WARNING TIME** | Less Than 6 Hours |
| **DURATION** | Less Than 6 Hours |

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

Due to the low probability and small potential impact area of this hazard in the City of Franklin, 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 City of Franklin 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 city 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 5.34** summarizes the risk levels assigned to each PRI category.

**Table 5.34: Qualitative Assessment for Extreme Temperature**

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

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

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. Therefore the annualized loss estimate for this hazard is assumed 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 city would be uniformly at-risk to varying degrees.

## Future Vulnerability and Land Use

All future structures built in the City of Franklin 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:** 2.70
**Annualized Loss Estimate:**
Negligible (Less than $1,000)

## Priority Risk Index

According to the qualitative assessment performed using the PRI tool, the hazardous material hazard scored a PRI value of 2.70 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.35** summarizes the risk levels assigned to each PRI category.

**Table 5.35: Qualitative Assessment for Hazardous Material**

| | |
|---|---|
| **PROBABILITY** | Possible |
| **IMPACT** | Critical |
| **SPATIAL EXTENT** | Moderate |
| **WARNING TIME** | Less Than 6 Hours |
| **DURATION** | Less Than 24 Hours |

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

**Table 5.36** 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 and one mile from railroad and 0.25-mile and 0.50-mile radii from the identified fixed HAZMAT site. It is important to note that the categories are not mutually exclusive. In other words, structures estimated to be within 0.10 miles of the railroad are also counted as being within 0.25 miles of the railroad, and so forth.

**Table 5.36: Potentially At-risk Structures**

| PROXIMITY | STRUCTURES |
|---|---|
| 0.10 Mile from Railroad | 1,312 |
| 0.25 Mile from Railroad | 2,993 |
| 1 Mile from Railroad | 5,805 |
| 0.25 Mile from Fixed HAZMAT Site | 31 |
| 0.50 Mile from Fixed HAZMAT Site | 563 |

*Source: GIS Analysis*

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 HAZMAT incidents.

## 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 5.37**, 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 5.37: Potentially At-risk Populations**

| PROXIMITY | GENERAL POPULATION | ELDERLY PERSONS | LOW INCOME PERSONS |
|---|---|---|---|
| 0.10 Mile from Railroad | 3,157 | 492 | 378 |
| 0.25 Mile from Railroad | 5,877 | 1,136 | 604 |
| 1 Mile from Railroad | 8,346 | 1,536 | 1,155 |
| 0.25 Mile from Fixed Site | 147 | 10 | 25 |
| 0.50 Mile from Fixed Site | 726 | 61 | 106 |

*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:** 2.70
**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 2.70 (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 Urban Fire**

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

*Source(s): City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

Given the lack of historical data on major urban fire occurrences in the City of Franklin, 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 5.39** shows the total number of residents of the City of Franklin within those population groups that most apply to the city.

**Table 5.39: Potentially At-risk Populations**

| POPULATION GROUP | NUMBER |
|---|---|
| Children (Ages 5 and Under) | 424 |
| Elderly (Ages 65 and Over) | 1,536 |
| Disabled Status | 896 |

*Source: GIS Analysis*

## Future Vulnerability and Land Use

*[This section is currently under development pending detailed input from the City of Franklin Fire and Rescue Department.]*

# Terrorism

**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 terrorism 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 Terrorism**

| | |
|---|---|
| **PROBABILITY** | Unlikely |
| **IMPACT** | Critical |
| **SPATIAL EXTENT** | Small |
| **WARNING TIME** | Less Than 6 Hours |
| **DURATION** | Less Than 6 Hours |

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

Given the lack of historical occurrences of terrorism in the City of Franklin, 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 threat hazard scored a PRI value of 2.40 (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 Biological Threat**

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

*Source: City of Franklin 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 threat hazard scored a PRI value of 2.30 (from a scale of 0 to 4, with 4 being the highest risk level). **Table 5.42** summarizes the risk levels assigned to each PRI category.

**Table 5.42: Qualitative Assessment for Radiological Threat**

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

*Source: City of Franklin 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. The City of Franklin is located outside of the 10-mile radius known as the Protective Action Zone; however, the area within 50 miles of the station, which would include all of the City of Franklin, 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 5.43** summarizes the risk levels assigned to each PRI category.

**Table 5.43: Qualitative Assessment for Dam Failure**

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

*Source: City of Franklin Mitigation Advisory Committee*

## Estimates of Potential Losses

Given the lack of historical data on dam failure occurrences in the City of Franklin, as well as the classification of the one dam located within city limits, 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 the 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 attempt to address dam failure vulnerability in greater detail, if warranted. This may include a detailed analysis of properties directly downstream of Ray Development Dam 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 the City of Franklin 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 5.44** summarizes the degree of risk assigned to each category for all identified hazards in the City of Franklin 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 5.44: Summary of Qualitative Assessment**

| HAZARD | CATEGORY/DEGREE OF RISK | | | | | |
|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | PRI SCORE |
| **Natural Hazards** | | | | | | |
| Flood | Likely | Catastrophic | Moderate | More Than 24 Hours | More Than 1 Week | **3.20** |
| Hurricane and Tropical Storm | Likely | Catastrophic | Large | More Than 24 Hours | Less Than 24 Hours | **3.20** |
| Severe Thunderstorm | Highly Likely | Minor | Large | Less Than 6 Hours | Less Than 6 Hours | **2.80** |
| Tornado | Unlikely | Critical | Small | Less Than 6 Hours | Less Than 6 Hours | **2.10** |
| Winter Storm | Likely | Limited | Large | More Than 24 Hours | Less Than 24 Hours | **2.60** |
| Wildfire | Unlikely | Minor | Small | Less Than 6 Hours | Less Than 24 Hours | **1.60** |
| Drought | Possible | Minor | Large | More Than 24 Hours | More Than 1 Week | **2.20** |
| 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 | **1.50** |
| Extreme Temperature | Possible | Minor | Large | More Than 24 Hours | Less Than 1 Week | **2.10** |
| **Manmade Hazards** | | | | | | |
| Hazardous Material Incident | Possible | Critical | Moderate | Less Than 6 Hours | Less Than 24 Hours | **2.70** |
| Urban Fire | Likely | Critical | Small | Less Than 6 Hours | Less Than 6 Hours | **2.70** |
| Terrorism | Unlikely | Critical | Small | Less Than 6 Hours | Less Than 6 Hours | **2.10** |
| 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: City of Franklin Mitigation Advisory Committee*

## Annualized Loss Estimates (Quantitative Assessment)

**Table 5.45** 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 the City of Franklin.

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

**Table 5.45: 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** | | | |
| Flood | **$8,687,000** | Flood | **3.20** |
| Hurricane and Tropical Storm | **$341,000** | Hurricane and Tropical Storm | **3.20** |
| Tornado | **$9,091** | Severe Thunderstorm | **2.80** |
| Severe Thunderstorm | **Negligible** | Winter Storm | **2.60** |
| Winter Storm | **Negligible** | Drought | **2.20** |
| Wildfire | **Negligible** | Extreme Temperature | **2.10** |
| Drought | **Negligible** | Tornado | **2.10** |
| Erosion | **Negligible** | Earthquake | **1.90** |
| Earthquake | **Negligible** | Sinkhole | **1.80** |
| Sinkhole | **Negligible** | Wildfire | **1.60** |
| Landslide | **Negligible** | Erosion | **1.50** |
| Extreme Temperature | **Negligible** | Landslide | **1.50** |
| **Manmade Hazards** | | | |
| Hazardous Material (HAZMAT) Incident | **Negligible** | Hazardous Material (HAZMAT) Incident | **2.70** |
| Urban Fire | **Negligible** | Urban Fire | **2.70** |
| Terrorism | **Negligible** | Biological Threat | **2.40** |
| Biological Threat | **Negligible** | Radiological Threat | **2.30** |
| Radiological Threat | **Negligible** | Dam Failure | **2.20** |
| Dam Failure | **Negligible** | Terrorism | **2.10** |

## 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 for a final summary of hazard risk for the City of Franklin based on High, Moderate or Low designations (**Table 5.46**).

It should be noted that although some hazards are classified as posing Low risk, their occurrence of varying or unprecedented magnitudes is still possible and will continue to be reevaluated during future updates of this Plan.

**Table 5.46: Conclusions on Hazard Risk for the City of Franklin**

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

*Source: City of Franklin Mitigation Advisory Committee*

# Capability Assessment

This section of the Plan discusses the capability of the City of Franklin 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

## 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 through future mitigation efforts.

The capability assessment completed for the City of Franklin serves as a critical planning step and an integral part of the foundation for designing an effective 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 of the All-Hazards Mitigation Plan. It not only helps establish the goals and objectives for the City 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 for the City of Franklin, a detailed Capability Assessment Survey[2] was distributed to members of the Mitigation Advisory Committee at the project kickoff meeting. The survey questionnaire requested information on a variety of "capability indicators" such as existing local plans, policies, programs or ordinances that contribute to and/or hinder the City's ability to implement hazard mitigation actions. Other indicators included information related to the City'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 with respect to hazard mitigation, 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 the City's specific capabilities. The

[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 in developing 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)).

[2] The Capability Assessment Survey instrument is available through the City of Franklin upon request.

survey instrument thereby not only helps accurately assess the degree of local capability, but also serves as a good source of introspection for City departments and agencies that want to improve their capabilities as identified gaps, weaknesses or conflicts can be recast as opportunities for specific actions to be proposed as part of the hazard mitigation strategy.

The information provided in response to the survey questionnaire was incorporated into a database for further analysis. A general scoring methodology[3] was then applied to quantify the City of Franklin's overall capability. 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 the City's self-assessment of their own planning and regulatory capability, administrative and technical capability, fiscal capability and political capability.

Using this scoring methodology, a total score and general capability rating of "High," "Moderate" or "Limited" could be determined according to the total number of points received. These classifications are designed to provide nothing more than a general assessment of local government capability. In combination with the narrative responses provided by local officials, the results of this capability assessment lend critical information for developing an effective and meaningful mitigation strategy.

# Capability Assessment Findings

The findings of the capability assessment are summarized in this Plan to provide insight into the relevant capacity of the City of Franklin to implement hazard mitigation activities. All information is based upon the input provided by local government officials through the Capability Assessment Survey and during meetings of the Mitigation Advisory Committee.

## 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 the City of Franklin, 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 the City of Franklin. A checkmark (✓) indicates that the given item is currently in place and being implemented, or that it is currently being developed for future implementation. Each of these other local plans, ordinances and programs should be considered available mechanisms for incorporating the requirements of the All-Hazards Mitigation Plan.

[3] The scoring methodology used to quantify and rank the City of Franklin's capability is fully described later in this section of the Plan under *Conclusions on Local Capability*.

**Table 6.1: Relevant Plans, Ordinances and Programs**

| PLANNING / REGULATORY TOOL | IN PLACE / UNDER DEVELOPMENT | DEPARTMENT RESPONSIBLE | EFFECT ON LOSS REDUCTION | | |
|---|---|---|---|---|---|
| | | | Strongly Supports | Helps Facilitate | Hinders |
| Hazard Mitigation Plan | ✓ | Fire and Rescue | ✓ | | |
| Comprehensive Land Use Plan | ✓ | Community Development | | ✓ | |
| Floodplain Management Plan | ✓ | Community Development | ✓ | | |
| Open Space Management Plan | ✓ | Community Development | | ✓ | |
| Stormwater Management Plan | ✓ | Public Works | ✓ | | |
| Flood Response Plan | ✓ | Fire and Rescue | ✓ | | |
| Emergency Operations Plan | ✓ | Fire and Rescue | ✓ | | |
| SARA Title III Plan | ✓ | LEPC | | | |
| Radiological Emergency Plan | | | | | |
| Continuity of Operations Plan | | | | | |
| Evacuation Plan | ✓ | Fire and Rescue; Police | ✓ | | |
| Disaster Recovery Plan | ✓ | Community Development | | ✓ | |
| Capital Improvements Plan | ✓ | City Manager; Finance | | ✓ | |
| Economic Development Plan | ✓ | Franklin/Southampton Alliance | | | |
| Historic Preservation Plan | ✓ | Community Development | | | |
| Flood Damage Prevention Ordinance | ✓ | Community Development | ✓ | | |
| Zoning Ordinance | ✓ | Community Development | ✓ | | |
| Subdivision Ordinance | ✓ | Community Development | | ✓ | |
| Unified Development Ordinance | | | | | |
| Post-disaster Red/Rec. Ordinance | | | | | |
| Building Code | ✓ | Community Development | ✓ | | |
| Fire Code | ✓ | Community Development | ✓ | | |
| National Flood Insurance Program | ✓ | | ✓ | | |
| NFIP Community Rating System | | | | | |

A more detailed discussion on the City of Franklin'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.

## 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 6.1** 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 policies that prevent and regulate development that is vulnerable to hazards because of its location, design or other characteristics. 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 6.1: 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 City of Franklin'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 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.

- The City of Franklin has not adopted a local hazard mitigation plan prior to the development of this All-Hazards Mitigation Plan.

*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.

- In January 2001, the City of Franklin released the Downtown Flood Recovery Master Plan, which describes in detail the flood event, resulting damage, and plans for redevelopment.

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

- The City of Franklin's Fire and Rescue Department has prepared an Emergency Operations Plan to address the City's response to a variety of disasters and emergencies.

*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.

- The City of Franklin does not currently have a Continuity of Operations Plan in place.

*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.

- The City of Franklin does not currently have a Radiological Emergency Plan in place, but

regularly trains and exercises in coordination with the Dominion Generation and the Nuclear Regulatory Commission for potential emergency events at the Surry Nuclear Power Plant.

*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).

- The City of Franklin 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. 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 the City of Franklin's general planning capabilities and to the degree to which 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 serves as a guide to future governmental decision making. Typically a comprehensive plan contains sections on 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.

- The City of Franklin has prepared a draft Comprehensive Plan in cooperation with the Hampton Roads Planning District Commission. It is expected to be finalized and adopted in late 2005, and has been regularly referred to throughout the City's mitigation planning process.

- The Comprehensive Plan addresses Franklin's environmental characteristics including known hazard areas and the appropriate development or design measures for accommodating future growth.

- The Comprehensive Plan does not focus on specific hazard mitigation strategies, though is a very appropriate mechanism to incorporate such measures as recommended by the All-Hazards Mitigation Plan. For example, in the Housing section, strategies to eliminate future hazard risk to residential properties (particularly to flooding) would support the City's goal of promoting of "safe" housing, as well as its plans to improve housing through zoning, subdivision, building code and related ordinances. Recommendations to identify the City's most flood prone buildings for purposes of applying acceptable mitigation techniques should be considered.

*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 for guiding 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.

- The City of Franklin updates their Capital Improvements Plan (CIP) on an annual basis to include improvement projects such as equipment and vehicle purchases, public school maintenance, facility upgrades or modifications and drainage enhancements.

- The CIP provides an excellent vehicle to plan and budget for structural mitigation projects (i.e. box culverts, retention ponds, etc.) as well as equipment or facility upgrades. It should be considered a local funding source for mitigation actions recommended as part of the All-Hazards Mitigation Plan.

*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, and the identification of ways to reduce future damages. 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.

- The City of Franklin maintains a historic preservation plan, though it has little effect on loss reduction measures.

- Mitigation strategies such applying for federal grant funds (i.e., PDM, FMA, HMGP) to protect identified at-risk historic structures in Franklin should be considered in the City's future historic planning efforts.

*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 municipal governments to limit the type and density of development, it can serve as a powerful tool when applied in identified hazard areas.

- The City of Franklin has adopted a zoning ordinance to regulate new development and to guide local decisions for residential, commercial and industrial growth. Unwise development patterns in hazardous areas is prohibited or discouraged through floodplain, conservation and forest/open space districts.

*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.

- The City of Franklin enforces subdivision regulations by ordinance and includes the consideration of natural hazards as part of their application (i.e., buffer zones and setbacks against flood hazards areas).

*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.

- The City of Franklin has adopted and enforces the Virginia Uniform Statewide Building Code (USBC).

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).[4] 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 experience fewer disaster-related losses, and as a result should have lower insurance rates.

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 better. A BCEGS grade of 1 represents exemplary commitment to building code enforcement, and a grade of 10 indicates less than minimum recognized protection.

- The City of Franklin received a BCEGS grade of four (4) in the year 2002.

### 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

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

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 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 community 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.

- The City of Franklin joined the NFIP in 1980. The current effective map date for the City's FIRMs is September 2, 2002 (the City was scheduled for remapping following the flooding caused by Hurricane Floyd in 1999). The City is committed to maintaining its continued compliance with the NFIP.

- As of December 2004, there were 171 NFIP policies in force in the City of Franklin providing approximately $35 million in flood insurance coverage.[5] To date, there have been approximately $1.5 million paid in insurance claims (this figure would likely be much higher if more NFIP policies were in place prior to Hurricane Floyd in 1999. The majority of flood damages caused by this event were determined to be uninsured losses).

[5] General NFIP policy data (participation and coverage) is current as of December 2004 as provided by the Federal Emergency Management Agency.

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 6.2**. As class ratings improve (decrease), the percent reduction in flood insurance premiums for NFIP policy holders in that community increases.

**Table 6.2: CRS Premium Discounts**

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

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 feedback to make the CRS more user-friendly. Extensive technical assistance is also available for communities who request it.

- The City of Franklin does not currently participate in the CRS program, but is considering it as a potential future mitigation action. It is believed that the City would receive a number of credit points based on past and 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.

- The City of Franklin's Floodplain Management Plan is implemented through goals set forth in the Comprehensive Plan and the enforcement of the local zoning, subdivision 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.

- The City of Franklin Parks, Recreation, and Open Space Plan, completed in 2003, outlines the need for additional facilities within the City limits and the numerous potential areas which deserve attention and evaluation, including the public open space along the Blackwater River.

*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.

- The City of Franklin completed a master drainage study in 1988 which made recommendations for improvements to the existing system based on the assumption that all land in the city would be developed to the fullest extent allowed by zoning classifications. In April 1989, as a result of this study, City Council adopted a Stormwater Management Ordinance that impacts most new development. In addition, a program of public drainage facility improvements was adopted which has continued to present.

## 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 if there are adequate personnel resources to complete these activities.

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 6.3** provides a summary of the results for the City of Franklin with regard to relevant staff and personnel resources. A checkmark (✓) indicates that the given local staff member(s) is maintained through the City's local government resources.

## 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. 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 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 the City of Franklin's fiscal capability through the identification of locally available financial resources.

**Table 6.4** provides a summary of the results for the City of Franklin with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds).

**Table 6.3: Relevant Staff / Personnel Resources**

| STAFF / PERSONNEL RESOURCES | IN PLACE | DEPARTMENT | COMMENTS |
|---|---|---|---|
| Planners with knowledge of land development and land management practices | ✓ | Community Development | |
| Engineers or professionals trained in construction practices related to buildings and/or infrastructure | ✓ | Community Development / Public Works | |
| Planners or engineers with an understanding of natural and/or human-caused hazards | ✓ | Community Development / Fire and Rescue/ Electric | Staff have gone through a number of hazard events |
| Emergency manager | ✓ | Fire and Rescue | |
| Floodplain manager | ✓ | Community Development | |
| Land surveyors | | | |
| Scientist familiar with the hazards of the community | | | |
| Staff with education or expertise to assess the community's vulnerability to hazards | ✓ | Fire and Rescue / Community Development / | |
| Personnel skilled in Geographic Information Systems (GIS) and/or FEMA's HAZUS program | ✓ | Police / Fire and Rescue / Community Development / | Minimal knowledge – training needed |
| Resource development staff or grant writers | | | |

**Table 6.4: Relevant Fiscal Resources**

| FISCAL RESOURCES | AVAILABLE | DEPARTMENT | COMMENTS |
|---|---|---|---|
| Capital Improvement Programming | ✓ | Finance | Regularly funds drainage projects |
| Community Development Block Grants (CDBG) | ✓ | Community Development | Available for residential mitigation projects |
| Special Purpose Taxes (or taxing districts) | ✓ | Commissioner of the Revenue | |
| Gas / Electric Utility Fees | ✓ | Finance | City-owned electric utility |
| Water / Sewer Fees | ✓ | Finance | |
| Stormwater Utility Fees | | | |
| Development Impact Fees | | Community Development | Program under development |
| General Obligation, Revenue and/or Special Tax Bonds | | | |
| Partnering arrangements or intergovernmental agreements | | | |
| 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, or may conflict with or 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 and implementation.

The Capability Assessment Survey was used to capture information on the City of Franklin's political capability. Survey respondents were asked to identify some general examples of local political capability, 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 indicate that there is a strong local commitment to mitigation the effects of natural and manmade hazards in the City of Franklin. These findings are further confirmed through the City's past mitigation activities as described in the next section under *Previously Implemented Mitigation Measures*.

## Local Self Assessment

In addition to the inventory and analysis of specific local capabilities, the Capability Assessment Survey required the City of Franklin to conduct its own self assessment of its capability to implement hazard mitigation activities. As part of this process, local 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 6.5** summarizes the results of the self assessment process for the City of Franklin.

**Table 6.5: Self Assessment of Capability**

| | |
|---|---|
| Planning and Regulatory Capability | **Moderate** |
| Administrative and Technical Capability | **Moderate** |
| Fiscal Capability | **Limited** |
| Political Capability | **Moderate** |
| Overall Capability | **Moderate** |

# 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.

The City of Franklin has implemented a wide range of hazard mitigation measures, particularly as it relates to the flood hazard. Following Hurricane Floyd in 1999, the City acquired and relocated flood damaged structures, elevated homes above base flood elevations, installed flood gates in the City's Public Safety building, elevated a new City Hall building on earthen fill above base flood elevation, built a new Police Department Headquarters building outside of the identified floodplain, constructed or expanded existing stormwater retention and detention basins, widened drainage ditches and relocated, retrofitted or elevated at-risk critical facilities.

***Following Hurricane Floyd in 1999, the City of Franklin used federal hazard mitigation funds to elevate phone and electrical utility boxes throughout downtown. (Photo credit: PBS&J Project Photo)***

Following Hurricane Floyd, the City estimates that it spent approximately $325,000 to mitigate future flood damage to downtown businesses, including the acquisition and demolition of seven commercial structures destroyed by the flood waters. In order to guide long-term redevelopment efforts the City also worked to prepare a Downtown Flood Recovery Master Plan as referenced earlier in this section.

***The City of Franklin capitalized on opportunities to incorporate hazard mitigation into downtown redevelopment efforts following hurricane Floyd. (Photo credit: City of Franklin)***

The City of Franklin continues to implement a variety of hazard mitigation measures through the enforcement of building codes and development regulations that discourage the construction of any structures at risk to potential hazards.

## American Red Cross

The American Red Cross of Southeastern Virginia has been significantly involved in disaster awareness and education activities for the City of Franklin, 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:

<u>Emergency Services Committee:</u>

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.

<u>Finance Committee:</u>

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 overall level of capability for the City of Franklin to implement hazard mitigation actions.

## 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 = 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

## Capability Score

According to the capability assessment, the capability score for the City of Franklin is **54** which indicates an overall **"high"** level of local capability.

The capability score is based solely on the information provided by local officials in response to the Capability Assessment Survey. The survey instrument was designed to measure local capability based on those indicators determined to be most relevant for mitigation purposes and referenced in FEMA's "How-to" series planning guidance.

Perhaps the most significant finding of the capability assessment is the widespread existence of mechanisms already in place to help support future mitigation efforts in Franklin. Combined with a well-thought out local mitigation strategy, these mechanisms provide the City of Franklin with a tremendous opportunity to reduce the effects of future hazard events.

## Linking the Capability Assessment with the Risk Assessment and the Mitigation Strategy

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, the City of Franklin must consider not only its level of hazard risk but also the existing capability to minimize or eliminate that risk.

**Figure 6.2** shows a *Risk vs. Capability Matrix* that is used to illustrate Franklin's overall hazard risk[6] in comparison to overall capability. Based on the assessments completed for the City of Franklin, hazard risk was determined to be MODERATE while the overall capability is HIGH. This means that while Franklin does face some significant potential hazards, it also has significant capacity to implement mitigation measures to eliminate, reduce or manage those hazards.

**Figure 6.2: Risk vs. Capability Matrix**

| | | HAZARD RISK | | |
|---|---|---|---|---|
| | | Limited | Moderate | High |
| OVERALL CAPABILITY | High | | ✓ | |
| | Moderate | | | |
| | Limited | | | |

[6] Overall hazard risk was determined using the results of the risk assessment combined with information on the following factors: total population, population growth rate, land area, historical disaster declarations, unique hazard risks, NFIP participation and the value of existing Pre-FIRM structures.

# Mitigation Strategy

This section of the Plan provides the blueprint for the City of Franklin 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 for the City of Franklin

## Introduction

The intent of the Mitigation Strategy is to provide the City of Franklin with the goals that will serve as guiding principles for future mitigation policy and project administration, along with an analysis of mitigation techniques deemed available to meet those goals and reduce the impact of identified 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 the City 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 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 citywide mitigation goals. Mitigation goals represent broad statements that are achieved through the implementation of more specific, action-oriented objectives. 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 the City of Franklin (provided separately in Section 8: *Mitigation Action Plan*). The Mitigation Action Plan, or MAP, represents an unambiguous and functional plan for action and is considered to be the most essential outcome of the mitigation planning process.

The MAP includes a prioritized listing of proposed hazard mitigation actions (policies and projects) for the City of Franklin to carry out with accompanying information such as those departments or individuals assigned responsibility for their implementation, potential funding sources and an estimated target date for completion. The MAP 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 the MAP can also serve as an easily understood menu of mitigation policies and projects for those local decision makers who want to quickly review the recommendations and proposed actions of the All-Hazards Mitigation Plan.

In preparing the City of Franklin's Mitigation Action Plan, the Mitigation Advisory Committee considered

the City's 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 citywide mitigation goals and unique needs of the community. Prioritizing the proposed mitigation actions 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.

## Mitigation Goals

**44 CFR Requirement**

***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.

The goals of the City of Franklin'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 goal statements represent a broad target for the City of Franklin to achieve through the implementation of its more detailed Mitigation Action Plan provided in Section 8.

### Goal #1

**Improve the City of Franklin's internal communication and coordination capabilities to better prepare for, mitigate against and respond to hazard events.**

### Goal #2

**Enhance local emergency preparedness and hazard mitigation efforts to protect lives and property through continuous planning, training and exercising activities.**

### Goal #3

**Identify and acquire necessary mitigation capital improvements to reduce losses and minimize economic disruption following hazard events.**

### Goal #4

**Design and implement mitigation measures to protect public property and infrastructure from high risk hazards.**

### Goal #5

**Increase public education efforts to ensure the residents and business owners of Franklin know how to best prepare for and mitigate against high risk hazards.**

### Goal #6

**Update and enhance the City of Franklin's stormwater management efforts to reduce the potential for small and large drainage problems, and maintain continued compliance with the National Flood Insurance Program (NFIP).**

## Identification and Analysis of Mitigation Techniques

**44 CFR Requirement**

***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.

In formulating the City of Franklin's Mitigation Strategy, 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.

**1. Prevention**

Preventative activities are intended to keep hazard problems from getting worse, and are typically administered through government programs or

[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.

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 the City of Franklin, 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 City's Mitigation Action Plan.

[2] The *Mitigation Techniques Menu* is available through the City of Franklin upon request.

# Selection of Mitigation Techniques for the City of Franklin

In order to determine the most appropriate mitigation techniques for the City of Franklin, local government officials 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).

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, the City of Franklin'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 the City of Franklin's Mitigation Action Plan includes an array of actions targeting multiple hazards, and is not necessarily limited to only those classified as high risk.

**Figure 7.1: Mitigation Techniques Matrix for the City of Franklin**

| MITIGATION TECHNIQUE | HIGH RISK HAZARDS | | | |
|---|---|---|---|---|
| | FLOOD | HURRICANE AND TROPICAL STORM | SEVERE THUNDERSTORM | HAZMAT INCIDENT |
| Prevention | ✓ | ✓ | ✓ | ✓ |
| Property Protection | ✓ | ✓ | | |
| Natural Resource Protection | ✓ | | | |
| Structural Projects | ✓ | ✓ | | |
| Emergency Services | ✓ | ✓ | ✓ | ✓ |
| Public Education And Awareness | ✓ | ✓ | ✓ | ✓ |

# Mitigation Action Plan

This section of the Plan includes the listing of the mitigation actions proposed by the City of Franklin. It has been designed to achieve the mitigation goals and objectives established in the City's Mitigation Strategy, and will be maintained on a regular basis according to the plan maintenance procedures established in Section 9: *Plan Maintenance Procedures*.

As described in the previous section, the Mitigation Action Plan, or 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 for the City of Franklin. 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).

## 44 CFR Requirement

***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.

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 City of Franklin All-Hazards Mitigation Plan remains a functional document that can be monitored for progress over time. 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 Section 7.

**Table 8.1** describes the key elements of the Mitigation Action Plan.

**Table 8.1: 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. See key to potential funding sources below. |
| **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** 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 8.3: 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.

**MITIGATION ACTION 1**

**Revise the City's local flood damage prevention ordinance to require all new construction (including all critical electrical installations) to be elevated or flood-proofed at or above the level of the one-hundred-year flood plus one (1) foot in compliance with the National Flood Insurance Program.**

**BACKGROUND INFORMATION**

| | |
|---|---|
| **Site and Location:** | Designated flood hazard areas |
| **History of Damages:** | Hurricane Floyd, 1999 |

**MITIGATION ACTION DETAILS**

| | |
|---|---|
| **Hazard(s) Addressed:** | Flood |
| **Goal(s) Addressed:** | #2, #4 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | Staff time |
| **Potential Funding Sources:** | N/A |
| **Lead Agency/Department Responsible:** | Community Development |
| **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**

NFIP "freeboard" provisions allow for added protection against events that exceed the 1 percent annual flood or any future increases in determined base flood elevations.

**MITIGATION ACTION 2**

**Conduct a detailed stormwater management study along Armory Drive to recommend drainage improvement projects deemed necessary to minimize future flooding.**

| **BACKGROUND INFORMATION** | |
|---|---|
| **Site and Location:** | Armory Drive, particularly in the 1500 block area |
| **History of Damages:** | Multiple road closures<br>Minimal damage to commercial structures<br>Unknown damages to vehicles |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | Flood |
| **Goal(s) Addressed:** | #6, #3 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | $200,000 |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, FMA; **ACE:** SFCP |
| **Lead Agency/Department Responsible:** | Public Works |
| **Implementation Schedule:** | December 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**

| MITIGATION ACTION 3 | |
|---|---|
| | **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:** | Citywide |
| **History of Damages:** | Hurricane Floyd, 1999 |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | Flood |
| **Goal(s) Addressed:** | #2, #5 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | Staff time |
| **Potential Funding Sources:** | N/A |
| **Lead Agency/Department Responsible:** | Community Development |
| **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 City to receive premium rate reductions.

**MITIGATION ACTION 4**

**Develop and implement a City flood fighting exercise to include preparedness and response efforts, as well as protocols for implementing hazard mitigation techniques during the long-term flood recovery process.**

| BACKGROUND INFORMATION | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | Hurricane Floyd, 1999 |

| MITIGATION ACTION DETAILS | |
|---|---|
| **Hazard(s) Addressed:** | Flood |
| **Goal(s) Addressed:** | #1, #2 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | $20,000; staff time |
| **Potential Funding Sources:** | **DHS:** HSGP, AFGP |
| **Lead Agency/Department Responsible:** | Fire and Rescue |
| **Implementation Schedule:** | Biannually beginning in 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**

Preparedness and response measures should be all inclusive to cover activities from sandbagging to coordinating with downtown businesses on evacuation of employees and contents. Mitigation opportunities should be identified early in the simulated flood scenario, and proposed protocols should be documented in an after action report.

**MITIGATION ACTION 5**

**Coordinate with the USGS to add a local stream gauge along the Blackwater River that can be used by the City of Franklin to determine river levels in real time.**

| **BACKGROUND INFORMATION** | |
|---|---|
| **Site and Location:** | To be determined along Blackwater River, Franklin |
| **History of Damages:** | Hurricane Floyd, 1999 |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | Flood |
| **Goal(s) Addressed:** | #1, #2, #3, #4 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | To be determined |
| **Potential Funding Sources:** | USGS |
| **Lead Agency/Department Responsible:** | Fire and Rescue |
| **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**

Real time stream gauge data will be integrated with the City of Franklin's GIS system and existing data on finished floor elevations to determine which structures are at-risk to flooding prior to the flood event occurring.

**MITIGATION ACTION 6**

**Work with the Downtown Franklin Association and local business owners to identify and implement wet floodproofing projects to protect structures from future flood events.**

| BACKGROUND INFORMATION | |
|---|---|
| **Site and Location:** | Downtown Franklin |
| **History of Damages:** | Hurricane Floyd, 1999 |

| MITIGATION ACTION DETAILS | |
|---|---|
| **Hazard(s) Addressed:** | Flood |
| **Goal(s) Addressed:** | #2, #3, #4, #5 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | Staff time |
| **Potential Funding Sources:** | N/A (projects could be funded through DHS) |
| **Lead Agency/Department Responsible:** | Community Development |
| **Implementation Schedule:** | Begin outreach efforts in 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**

Investigate the potential for “peer-to-peer” mentoring with other communities to implement downtown floodproofing projects, such as Darlington, Wisconsin.

| MITIGATION ACTION 7 | |
|---|---|
| | **Coordinate with the American Red Cross and Southampton County to develop and execute a community disaster awareness campaign focused on "what to do if" scenarios, as well as the individual mitigation actions that citizens may implement themselves to reduce or eliminate the impact of hazards on their property.** |
| **BACKGROUND INFORMATION** | |
| **Site and Location:** | Citywide |
| **History of Damages:** | Hurricane Isabel, 2003<br>Hurricane Floyd, 1999<br>Multiple smaller incidents (see Section 4) |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | All |
| **Goal(s) Addressed:** | #5 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | To be determined |
| **Potential Funding Sources:** | Volunteer time; FEMA materials available at no cost. |
| **Lead Agency/Department Responsible:** | Fire and Rescue, American Red Cross |
| **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**

Individual mitigation actions may include strengthening buildings to withstand high winds, creating defensible space from areas at risk to wildfire or coordinating with the City of Franklin to apply for grant funding for flood mitigation assistance on private property (i.e., FMA, PDM or HMGP).

**MITIGATION ACTION 8**

**Protect at-risk critical facilities in identified flood hazard areas through appropriate floodproofing or elevation techniques.**

**BACKGROUND INFORMATION**

| | |
|---|---|
| **Site and Location:** | Designated flood hazard areas |
| **History of Damages:** | Hurricane Floyd, 1999 |

**MITIGATION ACTION DETAILS**

| | |
|---|---|
| **Hazard(s) Addressed:** | Flood |
| **Goal(s) Addressed:** | #4 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | To be determined |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, FMA |
| **Lead Agency/Department Responsible:** | Community Development |
| **Implementation Schedule:** | June 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**

**MITIGATION ACTION 9**

**Establish pre-event contracts for debris management following major disaster events.**

| **BACKGROUND INFORMATION** | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | Hurricane Isabel, 2003<br>Hurricane Floyd, 1999 |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | All |
| **Goal(s) Addressed:** | #2, #3 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | To be determined |
| **Potential Funding Sources:** | To be determined |
| **Lead Agency/Department Responsible:** | Public Works |
| **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**

**MITIGATION ACTION 10**

**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:** | Citywide |
| **History of Damages:** | Hurricane Isabel, 2003<br>Ice storms |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | Hurricane and Tropical Storm, Winter Storm |
| **Goal(s) Addressed:** | #5 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | $1,000 / year |
| **Potential Funding Sources:** | To be determined |
| **Lead Agency/Department Responsible:** | Public Works |
| **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.

**MITIGATION ACTION 11**

**Develop agreements for secondary water sources to minimize local water supply problems associated with drought conditions.**

| **BACKGROUND INFORMATION** | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | Drought |
| **Goal(s) Addressed:** | #1, #2 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | To be determined |
| **Potential Funding Sources:** | To be determined |
| **Lead Agency/Department Responsible:** | Public Works |
| **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**

**MITIGATION ACTION 12**

**Develop a comprehensive hazardous materials preparedness program to include plans for training and exercising as well as enhancements to warning and notification systems for potential hazardous material incidents in Franklin.**

**BACKGROUND INFORMATION**

| | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | |

**MITIGATION ACTION DETAILS**

| | |
|---|---|
| **Hazard(s) Addressed:** | Hazardous Material Incidents |
| **Goal(s) Addressed:** | #2 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | To be determined |
| **Potential Funding Sources:** | **DHS:** HSGP, AFGP |
| **Lead Agency/Department Responsible:** | Fire and Rescue |
| **Implementation Schedule:** | September 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**

As a result of this action, it is anticipated that potential mitigation opportunities for hazardous materials events will be more easily identified. Mitigation techniques for hazardous materials emergencies should be more fully addressed during the five-year update to this Plan.

**MITIGATION ACTION 13**

**Coordinate with CSX and Norfolk-Southern to better regulate and manage the amount, types and times of hazardous materials transport through Franklin, and in preparing for potential hazardous material accidents.**

| **BACKGROUND INFORMATION** | |
|---|---|
| **Site and Location:** | CSX and Norfolk Southern rail lines |
| **History of Damages:** | N/A |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | Hazardous Material Incidents |
| **Goal(s) Addressed:** | #1, #2 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | To be determined |
| **Potential Funding Sources:** | **DHS:** HSGP, AFGP |
| **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**

**MITIGATION ACTION 14**

**Upgrade radio system to provide interoperability between inter-departments and surrounding agencies for safety of users.**

| **BACKGROUND INFORMATION** | |
|---|---|
| **Site and Location:** | Citywide and Neighboring Agencies |
| **History of Damages:** | Hurricane Isabel, 2003<br>Hurricane Floyd, 1999 |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | All |
| **Goal(s) Addressed:** | #2, #3 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | $250,000 |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, HSGP |
| **Lead Agency/Department Responsible:** | Police; Fire and Rescue |
| **Implementation Schedule:** | First Quarter of 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**

Upgrade conventional radio communications system with a VHF Trunking Radio System. To include remote receiver site for optimum safety of users, ability to provide interoperability between city departments and neighboring agencies. In building amplifiers to allow use of radios inside hospital.

**MITIGATION ACTION 15**

**Install wireless network citywide that will allow users to have access to computer network in a mobile environment.**

## BACKGROUND INFORMATION

| | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | Hurricane Isabel, 2003<br>Hurricane Floyd, 1999 |

## MITIGATION ACTION DETAILS

| | |
|---|---|
| **Hazard(s) Addressed:** | All |
| **Goal(s) Addressed:** | #2, #3 |
| **Priority (High, Moderate, Low):** | High |
| **Estimated Cost:** | $250,000 |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, HSGP |
| **Lead Agency/Department Responsible:** | Police |
| **Implementation Schedule:** | Begin in 2005, to continue until built out |

## 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

Install a wireless network citywide that will allow emergency responders to access internet, street level maps of city, hazmat information, pre-fire plans, and access to VCIN and NCIC for law enforcement. Interoperable communications of information exchanged via secure instant messaging. Allows interoperability of outside agencies responding to an incident within the City of Franklin.

**MITIGATION ACTION 16**

**Investigate the potential for increasing snow load requirements for residential and commercial roofs to minimize the potential for future collapses.**

| BACKGROUND INFORMATION | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | Historical roof collapses in and around Franklin |

| MITIGATION ACTION DETAILS | |
|---|---|
| **Hazard(s) Addressed:** | Winter Storm |
| **Goal(s) Addressed:** | #2, #4 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | Staff time |
| **Potential Funding Sources:** | N/A |
| **Lead Agency/Department Responsible:** | Community Development |
| **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**

| MITIGATION ACTION 17 | |
|---|---|
| | **Coordinate with the Virginia Department of Forestry and targeted neighborhoods in Franklin to join the Firewise Communities/USA program.** |

| BACKGROUND INFORMATION | |
|---|---|
| **Site and Location:** | To be determined |
| **History of Damages:** | N/A |

| MITIGATION ACTION DETAILS | |
|---|---|
| **Hazard(s) Addressed:** | Wildfire |
| **Goal(s) Addressed:** | #2, #5 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | Staff and volunteer time; projects are TBD |
| **Potential Funding Sources:** | VDOF |
| **Lead Agency/Department Responsible:** | Fire and Rescue |
| **Implementation Schedule:** | September 2006 |

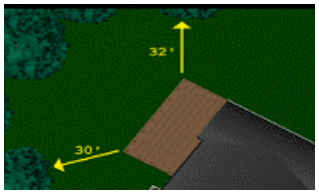
**ADDITIONAL CONSIDERATIONS**

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**

More information on joining Virginia's Firewise Communities/USA program can be found online at: http://www.dof.virginia.gov/fire/firewise-community.shtml.

| MITIGATION ACTION 18 | |
|---|---|
|   | **Coordinate with the County Forester, Virginia Department of Forestry and local developers to incorporate appropriate setbacks, buffer zones or other means of defensible space into new subdivisions potentially at risk to wildfire.** |

| BACKGROUND INFORMATION | |
|---|---|
| **Site and Location:** | To be determined |
| **History of Damages:** | N/A |

| MITIGATION ACTION DETAILS | |
|---|---|
| **Hazard(s) Addressed:** | Wildfire |
| **Goal(s) Addressed:** | #2 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | Staff time |
| **Potential Funding Sources:** | N/A |
| **Lead Agency/Department Responsible:** | Community Development |
| **Implementation Schedule:** | September 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**

Wildfire hazard areas are identified in Section 5 based on VDOF's statewide wildfire risk assessment. More local studies should be considered to help better understand wildfire risks on a site-by-site basis prior to determining appropriate measures.

**MITIGATION ACTION 19**

**Coordinate with the Virginia Department of Emergency Management, the Franklin/Southampton Chamber of Commerce, the Downtown Franklin Association and local businesses to develop a disaster recovery plan for all potential disasters in Franklin to minimize or eliminate disruptions to the local economy.**

| BACKGROUND INFORMATION | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | Hurricane Isabel, 2003<br>Hurricane Floyd, 1999 |

| MITIGATION ACTION DETAILS | |
|---|---|
| **Hazard(s) Addressed:** | All |
| **Goal(s) Addressed:** | #2, #5 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | $30,000 |
| **Potential Funding Sources:** | **DHS:** HSGP |
| **Lead Agency/Department Responsible:** | Community Development |
| **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**

Businesses that have disaster recovery plan in place will reduce or eliminate the impact of future disasters on themselves and Franklin's local economy. The identification of potential hazard mitigation measures (i.e., building retrofits, secondary storage facilities, backup systems, etc.) should be encouraged and considered an important element of any disaster recovery plan, whether they are to be executed before or after the next disaster strikes.

**MITIGATION ACTION 20**

**Coordinate with the American Red Cross on continuing evaluations of local schools for purposes of serving as evacuation shelters and seek funding for potential upgrades or retrofit projects.**

| **BACKGROUND INFORMATION** | |
|---|---|
| **Site and Location:** | Local schools |
| **History of Damages:** | N/A |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | All |
| **Goal(s) Addressed:** | #2, #3 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | To be determined |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, HSGP |
| **Lead Agency/Department Responsible:** | Social Services |
| **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**

Initial evaluations already complete.

**MITIGATION ACTION 21**

**Establish a Citywide alarm or siren system for all hazards, along with a dedicated phone number for citizens to call for public information.**

| BACKGROUND INFORMATION | |
|---|---|
| **Site and Location:** | To be determined |
| **History of Damages:** | N/A |

| MITIGATION ACTION DETAILS | |
|---|---|
| **Hazard(s) Addressed:** | All |
| **Goal(s) Addressed:** | #1 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | $15,000 |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, HSGP |
| **Lead Agency/Department Responsible:** | Fire and Rescue |
| **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**

Siren would be used to alert citizen of imminent hazard threats such as severe thunderstorms, tornadoes and hazardous materials incidents. Dedicated phone line would be able to accept multiple calls at one time and inform callers of protective actions relating to the hazard threat through pre-recorded messages.

**MITIGATION ACTION 22**

**Update the City's Stormwater Management Plan.**

| **BACKGROUND INFORMATION** | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | Multiple events of local flooding |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | Flood |
| **Goal(s) Addressed:** | #6 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | $100,000 |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, HSGP; **USDA:** WPFP |
| **Lead Agency/Department Responsible:** | Public Works; Finance |
| **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**

Contract and complete an updated stormwater drainage study for known problem areas. The plan should include maps of all storm water structures, piping, elevations and inverts and the creation of GIS data layers with notable attribute data. Outcomes of the plan will be focused on a repair and implementation plan for the City's existing stormwater management system.

**MITIGATION ACTION 23**

**Acquire sand bags, large pumps and flood gates necessary for emergency protective measures during imminent flood events.**

**BACKGROUND INFORMATION**

| | |
|---|---|
| **Site and Location:** | Designated flood hazard areas |
| **History of Damages:** | Hurricane Floyd, 1999 |

**MITIGATION ACTION DETAILS**

| | |
|---|---|
| **Hazard(s) Addressed:** | Flood |
| **Goal(s) Addressed:** | #3 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | To be determined |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, HSGP |
| **Lead Agency/Department Responsible:** | Public Works |
| **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**

**MITIGATION ACTION 24**

**Complete a study to assess local capabilities for removing snow and ice, and develop an enhancement/coordination plan that can also lead to identifying equipment needs through capital improvements programming.**

| BACKGROUND INFORMATION | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | Multiple winter storms |

| MITIGATION ACTION DETAILS | |
|---|---|
| **Hazard(s) Addressed:** | Winter Storms |
| **Goal(s) Addressed:** | #2, #3 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | $20,000 |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, HSGP |
| **Lead Agency/Department Responsible:** | Public Works |
| **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**

**MITIGATION ACTION 25**

**Apply for grants and/or establish local funding sources for snow/ice and storm debris removal equipment.**

**BACKGROUND INFORMATION**

| | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | Auto accidents and disruption of traffic flow to customers, visitors and emergency personnel. |

**MITIGATION ACTION DETAILS**

| | |
|---|---|
| **Hazard(s) Addressed:** | Hurricanes and Tropical Storms; Severe Thunderstorms; Winter Storms |
| **Goal(s) Addressed:** | #3 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | $100,000 |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, HSGP; Capital Improvement Plan |
| **Lead Agency/Department Responsible:** | Public Works |
| **Implementation Schedule:** | July 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**

Acquire funding and purchase two dump trucks with snow plow and spreader equipment for the removal of debris and/or snow and ice. Equipment will be used for first local response measures by the City to clear streets and roadways of hazardous conditions.

**MITIGATION ACTION 26**

**Develop a response plan for street clearing and tree/debris removal for small scale wind and ice storms.**

| **BACKGROUND INFORMATION** | |
|---|---|
| **Site and Location:** | Citywide |
| **History of Damages:** | Hurricane Isabel, 2003<br>Multiple ice storms, multiple severe thunderstorms |

| **MITIGATION ACTION DETAILS** | |
|---|---|
| **Hazard(s) Addressed:** | Severe Thunderstorms; Winter Storms; Tornadoes |
| **Goal(s) Addressed:** | #2 |
| **Priority (High, Moderate, Low):** | Moderate |
| **Estimated Cost:** | $20,000 |
| **Potential Funding Sources:** | **DHS:** PDM, HMGP, HSGP |
| **Lead Agency/Department Responsible:** | Public Works |
| **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**

# Plan Maintenance Procedures

This section discusses how the City of Franklin's Mitigation Strategy and Mitigation Action Plan will be implemented 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

## Implementation

Each agency or department participating with an active role under the City of Franklin's All-Hazards Mitigation Plan is responsible for implementing specific mitigation actions as prescribed in the Mitigation Action Plan (MAP) provided in Section 8. Every proposed action listed within the MAP includes a designated "lead" agency or department in order to assign responsibility and accountability and increase the likelihood of subsequent implementation.

In addition to the assignment of a local lead agency or department, 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. The City of Franklin 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 and listed within the MAP.

The City of Franklin will integrate this All-Hazards Mitigation Plan into relevant local government decision making processes or mechanisms. 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 agencies or departments are consistent or do not conflict with the goals and actions of the All-Hazards Mitigation Plan, and will not contribute to increased hazard vulnerability in Franklin.

[1] A listing of key federal hazard mitigation funding sources is provided in Appendix C.

### 44 CFR Requirement

***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.*

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 deemed by the City of Franklin 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 the implementation assignments in the MAP.

The City of Franklin 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 for future implementation. This will ensure that the Plan is continuously updated to reflect changing conditions and needs within Franklin. If determined appropriate or as requested, an annual report on the Plan will be developed and presented to the City Manager's office and/or City Council 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 the City of Franklin 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 City's Emergency Management Coordinator 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 identified City departments, 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 City of Franklin 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 City of Franklin 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 City's Emergency Management Coordinator 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 Plan elements must follow the plan amendment process outlined herein. For changes and updates to proposed mitigation actions, appropriate local designees will assign responsibility for the completion of the task.

## Plan Amendment Process

Upon the initiation of the amendment process, the City of Franklin will forward information on the proposed change(s) to all interested parties

including, but not limited to, all directly affected City departments, 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 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 City Council.

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 amendment(s), the City will hold a public hearing if deemed necessary. City Council 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, City Council 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 Requirement

***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 City 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 City of Franklin's Web site to advertise any maintenance and/or periodic review activities taking place; and
- Keeping copies of the Plan in public libraries.

# APPENDIX A:
## PLAN ADOPTION

This section of the Plan includes a copy of the local resolution adopting the City of Franklin All-Hazards Mitigation Plan.

**44 CFR Requirement**

***44 CFR Part 201.6(c)(5):*** The plan shall include documentation that the plan has been formally adopted by the local governing body of the jurisdiction requesting approval of the plan. For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

# RESOLUTION TO ADOPT THE CITY OF FRANKLIN, VIRGINIA ALL-HAZARDS MITIGATION PLAN

WHEREAS, the City of Franklin (City) is vulnerable to an array of natural and manmade hazards that can cause loss of life and damages to public and private property; and

WHEREAS, the City desires to seek ways to mitigate situations that may aggravate such circumstances; and

WHEREAS, the development and implementation of an all-hazards mitigation plan can result in actions that reduce the long-term risk to life and property from natural and manmade hazards; and

WHEREAS, it is the intent of the City to protect its citizens and property from the effects of natural and manmade hazards by preparing and maintaining a local all-hazards mitigation plan; and

WHEREAS, it is also the intent of the City to fulfill its obligation under 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) to remain eligible to receive state and federal assistance in the event of a declared disaster affecting the County; and

WHEREAS, the City has prepared a multi-jurisdictional all-hazards mitigation plan with input from the appropriate local and state officials;

WHEREAS, the Virginia Department of Emergency Management has reviewed the all-hazards mitigation plan prepared for the City for compliance and has approved the plan pending the completion of local adoption procedures;

WHEREAS, the Federal Emergency Management Agency has reviewed the all-hazards mitigation plan prepared for the City for compliance and has approved the plan pending the completion of local adoption procedures;

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Franklin, Virginia does hereby:

1. Adopts the City of Franklin, Virginia All-Hazards Mitigation Plan; and

2. Agrees to take such other official action as may be reasonably necessary to carry out the proposed actions of the Plan.

Adopted on April 24, 2006

James P. Councill, III, Mayor

ATTEST:

Rowland L. Taylor, Clerk

# APPENDIX B:

## PUBLIC PARTICIPATION SURVEY RESULTS

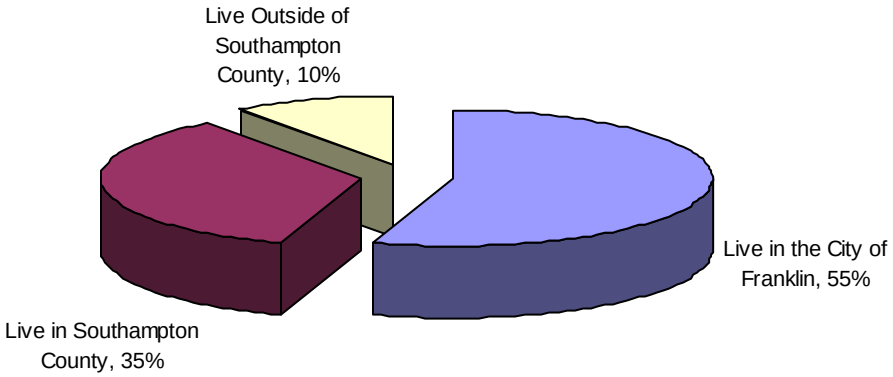
This section of the Plan includes a general summary of the results and findings of the Public Participation Survey, along with a copy of the survey instrument used to collect the data. A total of 90 persons responded to the survey during the development of the City of Franklin's All-Hazards Mitigation Plan, and the results provided an added measure of public input during the local planning process.

Copies of the completed survey instruments and all raw data results are available through the City of Franklin upon request.

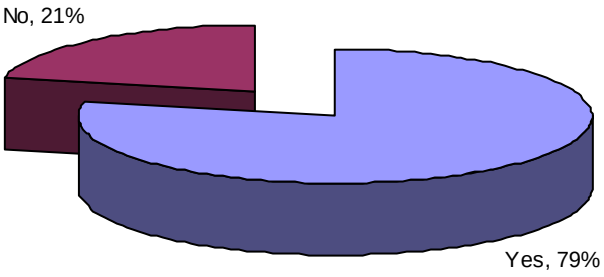
# Public Participation Survey Results

**Total number of surveys received: 90**

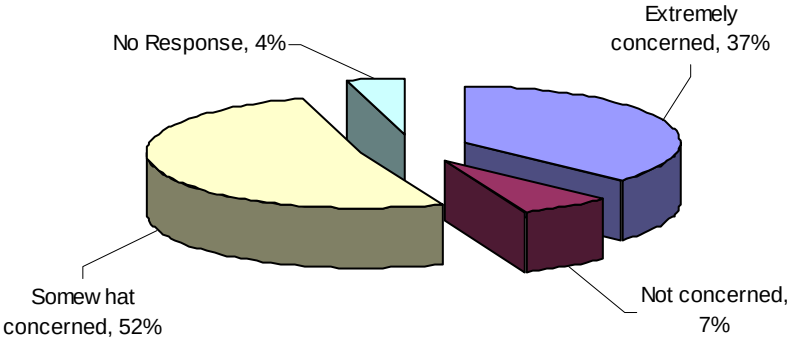
## 1. Do you live in the City of Franklin?




## 2. Have you ever experienced or been impacted by a disaster?




## 3. How concerned are you about the possibility of our community being impacted by a disaster?



**4. Please select the hazard you think is the highest threat to your neighborhood:**

**Natural Hazards**

| | |
|---|---|
| Hurricanes/Tropical Storms | 56% |
| Flooding | 11% |
| Severe Thunderstorms | 10% |
| Winter Storms (Ice, Snow) | 2% |
| Extreme Temperature | 2% |
| Tornadoes | 2% |
| Hazardous Material Incidents | 1% |
| Earthquake | 1% |
| No Response | 13% |

**Manmade Hazards**

| | |
|---|---|
| Fire | 20% |
| Hazardous material Incidents | 16% |
| Utility Failure | 12% |
| Transportation Accident | 7% |
| Terrorism | 4% |
| Biological Hazard | 2% |
| Building/Structure Collapse | 2% |
| Communication Disruption | 3% |
| No Response | 33% |

**5. Please select the hazard you think is the second highest to your neighborhood:**

**Natural Hazards**

| | |
|---|---|
| Winter Storms (Ice, Snow) | 23% |
| Severe Thunderstorms | 22% |
| Flooding | 13% |
| Hurricanes/Tropical Storms | 14% |
| Tornadoes | 8% |
| Drought | 4% |
| Erosion | 2% |
| Wildfires | 1% |
| No Response | 19% |

**Manmade Hazards**

| | |
|---|---|
| Fire | 18% |
| Utility Failure | 11% |
| Terrorism | 7% |
| Transportation Accident | 8% |
| Communication Disruption | 6% |
| Hazardous Material Incidents | 7% |
| Biological Hazard | 4% |
| Civil Disruption | 4% |

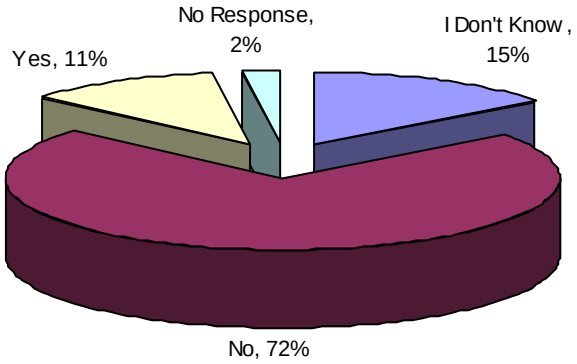
| | |
|---|---|
| Building/Structure Collapse | 2% |
| Explosion | 2% |
| Radiological Accident | 2% |
| Dam Failure | 1% |
| No Response | 34% |

**6. Is there another hazard not listed in this survey that you think is a wide-scale threat to your neighborhood:**

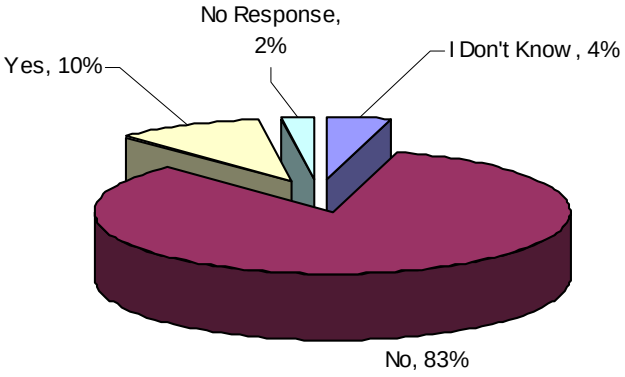
**Other Hazards**

- *Asteroids*
- *Community overgrowth*
- *Criminal activity*
- *Farm chemicals*
- *Nuclear power plant accidents*
- *Riot*
- *Chemical spraying (crops)*

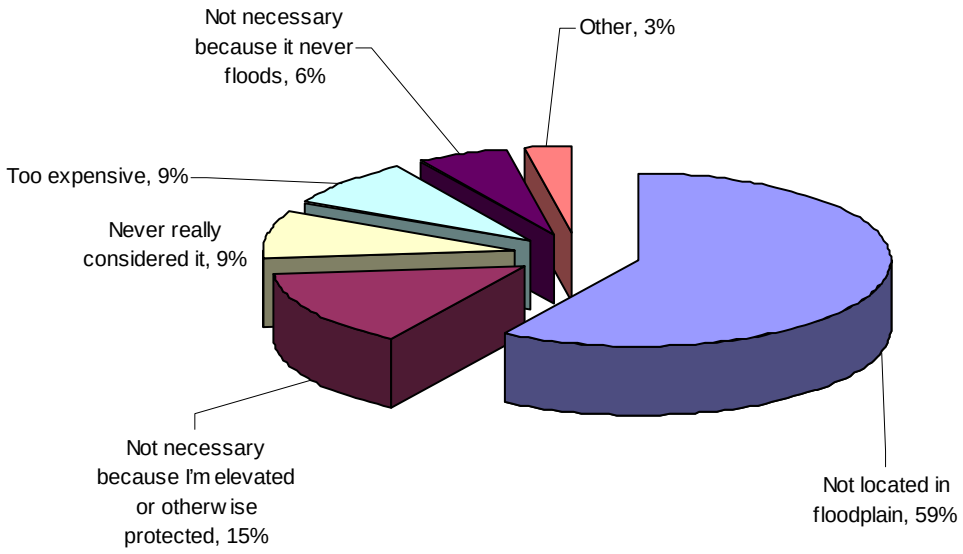
**7. Is your home located in a floodplain?**



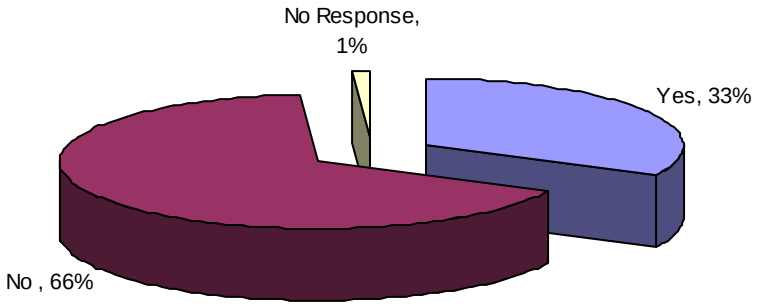

**8. Do you have flood insurance?**



**a. If "No," why not?**



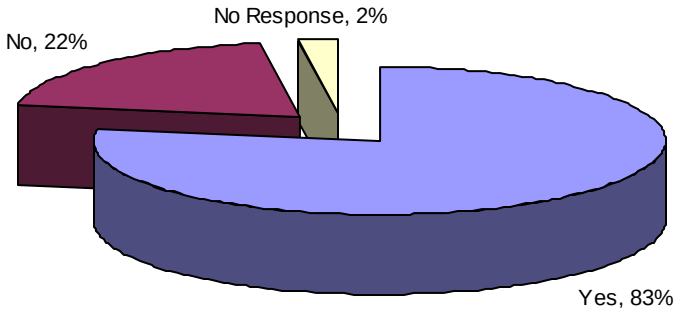

**9. Have you taken any actions to make your home or neighborhood more resistant to hazards?**



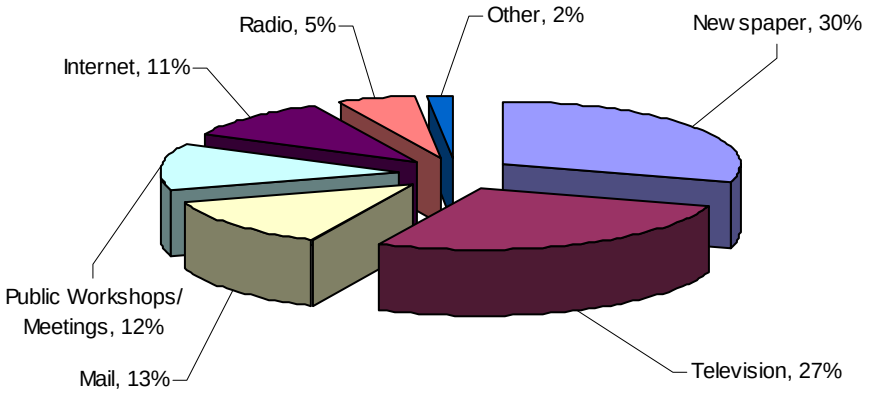

**a. If "Yes," explain:**

- *Built house on higher ground*
- *Installed concrete floor, purchased more portable equipments and moved paper works upstairs*
- *Disaster plan and exercise*
- *Elevated house*
- *Installed fire alarms and extinguisher*
- *Installed a residential stand-by generator*
- *Installed new roof*
- *Secure wiring*
- *Participated in public meeting on flooding*
- *Removed trees and tree limbs*
- *Repaired cracks in walls and chimney*
- *Replaced drainage pipes*
- *Clearing ditch of debris and keeping roof clear of debris*

**10. Are you interested in making your home or neighborhood more resistant to hazards?**




**11. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?**
**(***Survey participants answered multiple answers for this question.)*




**Other (explain):**

- *Fire Department Meetings*

**12. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?**

- *Increase staffing for the fire, EMS and police department including career firefighters, police officers and dispatchers*
- *Install a generator to run drinking water pump*
- *Improve planning of mitigation projects*
- *Remove the trees or tree limbs that could fall on utility lines or put the lines underground*
- *Have the electric companies furnishing Franklin with electric power upgrade their systems in order to supply electricity with out interruption*
- *Public education and hazard information dissemination*
- *More interaction with citizens via public forums*
- *Check dams in rivers and study HAZMAT tracks and paths*
- *Emergency plan exercise and public education*
- *Improve public awareness and preparedness*
- *Minimize urban development*

- *Fight terrorism*
- *Demolish abandoned school buildings*
- *Develop a disaster preparedness and response plan*
- *Develop a good evacuation plan and evacuation routes and designate public shelters*
- *Debris clearance before/after flooding*
- *Conduct disaster drills with citizen*
- *Monitor emergency management practices in hazardous facilities and hazardous material shipment via railroad*
- *Be resilient*
- *Drainage maintenance and keep right of way for utilities*
- *Building code enforcement*
- *Organize volunteer groups and train for disaster response and recovery*
- *By making sure they have a plan and keep up to date with drills and practices*
- *To help with flooding issues, limit development in lower lying areas that were, more or less, for years considered swamp land. That is nature's way of helping with flooding issues. When we allowed the area on Armory Drive to be expanded the way it has been, we created a lot of the flooding issues we have today. Holding ponds are not the answer - they only create mosquito breeding areas which lead to increased health risks. As for man made issues, we need to be more aware of the hazardous surroundings we have and need to make sure they have significant policies in place to not only prevent possible terrorist attacks, but how to handle any problems or failures that may occur. Thorough training of our first response teams is also necessary to reduce the risks if the community in the event of a failure. Keep the staff informed and in turn keep the citizens informed of the immediate hazards.*

**13. Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?**

- *Secure reliable funding for mitigation projects*
- *Make more information on hazardous material shipments via railroad and their contents available for the community*
- *The Hunderdale Road should be expanded with a bike lane at least to the city limits to relive traffic congestion in case of disasters.*
- *Middle to lower income population can not afford to implement risk reduction measures*
- *Move wastewater treatment to higher ground*
- *My community does not have a secured town hall and a back-up well connection*
- *Develop an early warning system*
- *Emphasize to have a family emergency plan and prepare survival kits*
- *Evacuees from North Carolina via RT 58*
- *Highway congestion*
- *Build rapid response capabilities*
- *Has the city considered an old fashioned "town hall" type setting to inform and train the public on what they can do to help? The biggest thing to remember is that the city really needs to fix what's currently not working (or not working well) before they try to delve into other areas. There have been instances where the city has spent money on short term fixes several times over (like the drainage issue on 2nd Ave/Armory drive), only to still have drainage issues in the same area today.*

**14. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.**

| Category | Very Important | Somewhat Important | Not Important | No Response |
|---|---|---|---|---|
| Prevention | 77% | 17% | 3% | 3% |
| Property Protection | 53% | 37% | 6% | 4% |
| Natural Resource Protection | 57% | 37% | 2% | 4% |
| Structural Projects | 56% | 27% | 13% | 4% |
| Emergency Services | 90% | 6% | 2% | 2% |
| Public Education and Awareness | 73% | 21% | 3% | 3% |

# PUBLIC PARTICIPATION SURVEY
# FOR HAZARD MITIGATION PLANNING

**We need your help!**

Our community is currently engaged in a planning process to become less vulnerable to disasters, and your participation is important to us!

The City of Franklin is now working to prepare an *All-Hazards Mitigation Plan*. The purpose of this Plan is to identify and assess our community's natural and manmade hazard risks (such as floods, hurricanes or hazardous material events), and determine how to best minimize or manage those risks. Upon completion, the Plan will become presented to the City Council for adoption and submitted to the Virginia Division of Emergency Management and Federal Emergency Management Agency for review and approval.

This survey questionnaire provides an opportunity for you to share your opinions and participate in the mitigation planning process. The information you provide will help us better understand your hazard concerns and can lead to mitigation activities that should help lessen the impact of future hazard events.

**Please help us by completing this survey and returning it to:**

Vince Holt, Director of Emergency Services
City of Franklin
100 S. Main Street
Franklin, VA 23851

Surveys can also be faxed to: (757) 562-6340 or completed
on the City of Franklin's website at www.ci.franklin.va.us/survey

If you have any questions regarding this survey, or would like to learn about more ways you can participate in the development of our All-Hazards Mitigation Plan, please contact Vince Holt at (757) 562-8581 or by e-mail at vholt@franklinva.com.

**1. Do you live in the City of Franklin?**

- ❑ Yes
- ❑ No, but I do live in Southampton County
- ❑ No, I live outside of Southampton County

**2. Have you ever experienced or been impacted by a disaster?**

- ❑ Yes
- ❑ No

**a. If "Yes", please explain:**

3. **How concerned are you about the possibility of our community being impacted by a disaster?**
   - ❑ Extremely concerned
   - ❑ Somewhat concerned
   - ❑ Not concerned

4. **Please select the <u>one</u> hazard you think is the *highest threat* to your neighborhood:**

| Natural Hazards | Manmade Hazards |
|---|---|
| ☐ Drought | ☐ Biological Hazards |
| ☐ Earthquake | ☐ Building/Structure Collapse |
| ☐ Erosion | ☐ Civil Disruption |
| ☐ Extreme Temperatures | ☐ Communication Disruption |
| ☐ Flooding | ☐ Dam Failure |
| ☐ Hurricanes/Tropical Storms | ☐ Explosion |
| ☐ Landslides | ☐ Fire |
| ☐ Sinkholes | ☐ Hazardous Material Incidents |
| ☐ Severe Thunderstorms | ☐ Radiological Accident |
| ☐ Tornadoes | ☐ Terrorism |
| ☐ Wildfires | ☐ Transportation Accident |
| ☐ Winter Storms (Ice, Snow) | ☐ Utility Failure |

5. **Please select the <u>one</u> hazard you think is the *second highest threat* to your neighborhood:**

| Natural Hazards | Manmade Hazards |
|---|---|
| ☐ Drought | ☐ Biological Hazards |
| ☐ Earthquake | ☐ Building/Structure Collapse |
| ☐ Erosion | ☐ Civil Disruption |
| ☐ Extreme Temperatures | ☐ Communication Disruption |
| ☐ Flooding | ☐ Dam Failure |
| ☐ Hurricanes/Tropical Storms | ☐ Explosion |
| ☐ Landslides | ☐ Fire |
| ☐ Sinkholes | ☐ Hazardous Material Incidents |
| ☐ Severe Thunderstorms | ☐ Radiological Accident |
| ☐ Tornadoes | ☐ Terrorism |
| ☐ Wildfires | ☐ Transportation Accident |
| ☐ Winter Storms (Ice, Snow) | ☐ Utility Failure |

6. **Is there another hazard not listed above that you think is a wide-scale threat to your neighborhood?**
   - ❑ Yes (please explain): _____
   - ❑ No

7. **Is your home located in a floodplain?**

- ❑ Yes
- ❑ No
- ❑ I don't know

8. **Do you have flood insurance?**

- ❑ Yes
- ❑ No
- ❑ I don't know

   a. **If "No", why not?**

   - ❑ Not located in floodplain
   - ❑ Too expensive
   - ❑ Not necessary because it never floods
   - ❑ Not necessary because I'm elevated or otherwise protected
   - ❑ Never really considered it
   - ❑ Other (please explain): _____

9. **Have you taken any actions to make your home or neighborhood more resistant to hazards?**

- ❑ Yes
- ❑ No

   b. **If "Yes", please explain:**

10. **Are you interested in making your home or neighborhood more resistant to hazards?**

- ❑ Yes
- ❑ No

**11. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?**

- ❑ Newspaper
- ❑ Television
- ❑ Radio
- ❑ Internet
- ❑ Mail
- ❑ Public workshops/meetings
- ❑ Other (please explain): _____

**12. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?**

**13. Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?**

14. **A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.**

| Category | Very Important | Somewhat Important | Not Important |
|---|---|---|---|
| **1. Prevention**<br>Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations. | ❑ | ❑ | ❑ |
| **2. Property Protection**<br>Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters. | ❑ | ❑ | ❑ |
| **3. Natural Resource Protection**<br>Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples include: floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management. | ❑ | ❑ | ❑ |
| **4. Structural Projects**<br>Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, seawalls, detention/retention basins, channel modification, retaining walls and storm sewers. | ❑ | ❑ | ❑ |
| **5. Emergency Services**<br>Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems. | ❑ | ❑ | ❑ |
| **6. Public Education and Awareness**<br>Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials and demonstration events. | ❑ | ❑ | ❑ |

## THANK YOU FOR YOUR PARTICIPATION!

*This survey may be submitted anonymously, however if you provide us with your name and contact information below we will have the ability to follow up with you to learn more about your ideas or concerns (optional):*

**Name:** _____

**Address:** _____

_____

**Phone:** _____

# APPENDIX C:

## KEY FEDERAL HAZARD MITIGATION FUNDING PROGRAMS

This section of the Plan includes a listing of some of the key, well-established federal hazard mitigation funding programs available to implement future mitigation projects. Additional sources of mitigation funding are routinely made available through a variety state and federal agencies though the program names, funding amounts and eligibility criteria will vary over time.

# KEY FEDERAL HAZARD MITIGATION FUNDING PROGRAMS

| Grant Name | Agency | Purpose | Contact |
|---|---|---|---|
| Pre-Disaster Mitigation Program (PDM) | U.S. Department of Homeland Security, Federal Emergency Management Agency | To provide funding for States and communities for cost-effective hazard mitigation activities which complement a comprehensive hazard mitigation program and reduce injuries, loss of life, and damage and destruction of property. | FEMA<br>500 C Street, S.W.<br>Washington, DC 20472<br>Phone: (202) 646-4621<br>www.fema.gov |
| Hazard Mitigation Grant Program (HMGP) | U.S. Department of Homeland Security, Federal Emergency Management Agency | Provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster declaration. | FEMA<br>500 C Street, S.W.<br>Washington, DC 20472<br>Phone: (202) 646-4621<br>www.fema.gov |
| Flood Mitigation Assistance Program (FMA) | U.S. Department of Homeland Security, Federal Emergency Management Agency | To help States and communities plan and carry out activities designed to reduce the risk of flood damage to structures insurable under the NFIP. | FEMA<br>500 C Street, S.W.<br>Washington, DC 20472<br>Phone: (202) 646-4621<br>www.fema.gov |
| Homeland Security Grant Program (HSGP) | U.S. Department of Homeland Security, Office of Domestic Preparedness | To enhance the ability of states, territories, urban areas, and local agencies to prevent, deter, respond to, and recover from threats and incidents of terrorism. The HSGP integrates the State Homeland Security Program (SHSP), the Urban Areas Security Initiative (UASI), the Law Enforcement Terrorism Prevention Program (LETPP), the Citizen Corps Program (CCP), the Emergency Management Performance Grants (EMPG), and the Metropolitan Medical Response System (MMRS) Program Grants into a single funding program. | ODP<br>810 Seventh Street, N.W.<br>Washington, DC 20531<br>Phone: (800) 368-6498<br>www.ojp.usdoj.gov/odp/ |

| Grant Name | Agency | Purpose | Contact |
|---|---|---|---|
| Buffer Zone Protection Program (BZPP) | U.S. Department of Homeland Security, Office of Domestic Preparedness | To provide funding for the equipment, management, and administration of actions, to protect, secure, and reduce the vulnerabilities of identified critical infrastructure and key resource (CI/KR) sites. | ODP<br>810 Seventh Street, N.W.<br>Washington, DC 20531<br>Phone: (800) 368-6498<br>www.ojp.usdoj.gov/odp/ |
| Transit Security Grant Program (TSGP) | U.S. Department of Homeland Security, Office of Domestic Preparedness | To provide funding for security and preparedness enhancements for designated transit systems. Funding is allowed for planning, organizational activities, equipment acquisitions, training, exercises, and management and administrative costs | ODP<br>810 Seventh Street, N.W.<br>Washington, DC 20531<br>Phone: (800) 368-6498<br>www.ojp.usdoj.gov/odp/ |
| Public Assistance Program (PA) | U.S. Department of Homeland Security, Federal Emergency Management Agency | To provide supplemental assistance to States, local governments, and certain private nonprofit organizations to alleviate suffering and hardship resulting from major disasters or emergencies declared by the President. Under Section 406, Public Assistance funds may be used to mitigate the impact of future disasters. | FEMA<br>500 C Street, S.W.<br>Washington, DC 20472<br>Phone: (202) 646-4621<br>www.fema.gov |
| Flood Control Works / Emergency Rehabilitation | U.S. Department of Defense, Army Corps of Engineers | To assist in the repair and restoration of public works damaged by flood, extraordinary wind, wave, or water action. | USACE<br>20 Massachusetts Avenue, N.W.<br>Washington, DC 20314<br>Phone: (202) 761-0001<br>www.usace.army.mil |
| Community Development Grant Program (CDBG) | U.S. Department of Housing and Urban Development | To develop viable urban communities by providing decent housing, a suitable living environment, expanding economic opportunities or meeting other community development needs having a particular urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community where other financial resources are not available. Principally for persons of low and moderate income. | HUD<br>451 7th Street, S.W.<br>Washington, DC 20410-7000<br>Phone: (202) 708-3587<br>www.hud.gov |

| Grant Name | Agency | Purpose | Contact |
|---|---|---|---|
| Emergency Watershed Protection | U.S. Department of Agriculture, Natural Resource Conservation Service | To provide emergency technical and financial assistance to install or repair structures that reduces runoff and prevents soil erosion to safeguard life and property. | NRCS<br>PO Box 2890<br>Washington, DC 20013<br>Phone: (202) 720-3527<br>www.nrcs.usda.gov |
| Watershed Protection and Flood Prevention | U.S. Department of Agriculture, Natural Resource Conservation Service | To provide technical and financial assistance in planning and executing works of improvement to protect, develop, and use land and water resources in small watersheds. | NRCS<br>PO Box 2890<br>Washington, DC 20013<br>Phone: (202) 720-3527<br>www.nrcs.usda.gov |
| Land and Water Conservation Fund Grants | U.S. Department of the Interior, National Park Service | To acquire and develop outdoor recreation areas and facilities for the general public, to meet current and future needs. | NPS<br>PO Box 37127<br>Washington, DC 20013-7127<br>Phone: (202) 565-1200<br>www.nps.gov |
| Disaster Mitigation and Technical Assistance Grants | U.S. Department of Commerce, Economic Development Administration | To help States and localities to develop and/or implement a variety of disaster mitigation strategies. | EDA<br>Herbert C. Hoover Building<br>Washington DC, 20230<br>Phone: (800) 345-1222<br>www.eda.gov |
| Pre-Disaster Mitigation Loan Program | U.S. Small Business Administration | To make low-interest; fixed-rate loans to eligible small businesses for the purpose of implementing mitigation measures to protect business property from damage that may be caused by future disasters. | SBA<br>1110 Vermont Avenue, N.W., 9th Floor<br>Washington, DC 20005<br>Phone: (202) 606-4000<br>www.sba.gov |
| Watershed Surveys and Planning | U.S. Department of Agriculture, Natural Resource Conservation Service | To provide planning assistance to Federal, State, and local agencies for the development of coordinated water and related land resources programs in watersheds and river basins. | NRCS<br>PO Box 2890<br>Washington, DC 20013<br>Phone: (202) 720-3527<br>www.nrcs.usda.gov |

| Grant Name | Agency | Purpose | Contact |
|---|---|---|---|
| National Earthquake Hazards Reduction Program (NEHRP) | U.S. Department of Homeland Security, Federal Emergency Management Agency | To mitigate earthquake losses that can occur in many parts of the nation providing earth science data and assessments essential for warning of imminent damaging earthquakes, land-use planning, engineering design, and emergency preparedness decisions. | FEMA<br>500 C Street, S.W.<br>Washington, DC 20472<br>Phone: (202) 646-4621<br>www.fema.gov |
| Assistance to Firefighters Grant Program | U.S. Department of Homeland Security, Federal Emergency Management Agency, U.S. Fire Administration | Competitively awarded project grants to provide direct assistance, on a competitive basis, to fire departments for the purpose of protecting the health and safety of the public and firefighting personnel against fire and fire-related hazards. | FEMA<br>500 C Street, S.W.<br>Washington, DC 20472<br>Phone: (202) 646-4621<br>www.fema.gov |
| Fire Management Assistance Grants | U.S. Department of Homeland Security, Federal Emergency Management Agency, U.S. Fire Administration | To provide project grants and the provision of specialized services for the mitigation, management, and control of fires that threatens such destruction as would constitute a major disaster. | FEMA<br>500 C Street, S.W.<br>Washington, DC 20472<br>Phone: (202) 646-4621<br>www.fema.gov |
| Emergency Streambank and Shoreline Protection | U.S. Department of Defense, Army Corps of Engineers | To prevent erosion damages to public facilities by the emergency construction or repair of streambank and shoreline protection works. | USACE<br>20 Massachusetts Avenue, N.W.<br>Washington, DC 20314<br>Phone: (202) 761-0001<br>www.usace.army.mil |
| Small Flood Control Projects | U.S. Department of Defense, Army Corps of Engineers | To reduce flood damages through small flood control projects not specifically authorized by Congress. | USACE<br>20 Massachusetts Avenue, N.W.<br>Washington, DC 20314<br>Phone: (202) 761-0001<br>www.usace.army.mil |
| Clean Water Act Section 319 Grants | U.S. Environmental Protection Agency | To implement non-point source programs, including support for non-structural watershed resource restoration activities. | EPA<br>Ariel Rios Building<br>1200 Pennsylvania Avenue, N.W.<br>Washington, DC 20460<br>Phone: (202) 272-0167<br>www.epa.gov |

# APPENDIX D:
# LOCAL MITIGATION PLAN CROSSWALK

This section of the Plan includes a completed copy of the Local Mitigation Plan Crosswalk.

## Local Mitigation Plan Review and Approval Status

| | | |
|---|---|---|
| **Jurisdiction:**<br>City of Franklin | **Title of Plan:**<br>All-Hazards Mitigation Plan | **Date of Plan:**<br>October 2005 |
| **Local Point of Contact:**<br>Vince Holt | **Address:**<br><br>Franklin Fire and Rescue Department<br>100 S. Main Street<br>Franklin, VA 23851 | |
| **Title:**<br>Director, Emergency Services | | |
| **Agency:**<br>Franklin Fire and Rescue Department | | |
| **Phone Number:**<br>(757) 562-8581 | **E-Mail:**<br>vholt@franklinva.com | |

| | | |
|---|---|---|
| **State Reviewer:** | **Title:** | **Date:** |

| | | |
|---|---|---|
| **FEMA Requirement:** | | |
| **Contractor Reviewer:** | **Title:** | **Date:** |
| **Contractor QA/QC:** | **Title:** | **Date:** |
| **FEMA Reviewer:** | **Title:** | **Date:** |
| **FEMA QA/QC:** | **Title:** | **Date:** |
| **Date Received in FEMA Region III** | | |
| **Plan Not Approved** | | |
| **Plan Approved** | | |
| **Date Approved** | | |

| Jurisdiction: | NFIP Status* | | | |
|---|---|---|---|---|
| | Y | N | N/A | CRS Class |
| 1. Arlington County | ✓ | | | 9 |
| 2. Fairfax County | ✓ | | | 8 |
| 3. Loudoun County | ✓ | | | 10 |
| 4. Prince William County | ✓ | | | 8 |
| 5. Alexandria | ✓ | | | 8 |
| 6. Fairfax | ✓ | | | N/A |
| 7. Falls Church | ✓ | | | N/A |
| 8. Manassas | ✓ | | | N/A |
| 9. Manassas Park | ✓ | | | N/A |
| 10. Dumfries | ✓ | | | N/A |
| 11. Herndon | ✓ | | | N/A |
| 12. Leesburg | ✓ | | | N/A |
| 13. Purcellville | ✓ | | | N/A |
| 14. Vienna | ✓ | | | 9 |
| 15. Northern Virginia Regional Commission | N/A | N/A | N/A | N/A |

*** Notes:** **Y = Participating** **N = Not Participating** **N/A = Not Mapped**

## LOCAL MITIGATION PLAN REVIEW SUMMARY

The plan cannot be approved if the plan has not been formally adopted.

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

**SCORING SYSTEM**

Please check one of the following for each requirement.

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

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

| **Prerequisite(s) (Check Applicable Box)** | **NOT MET** | **MET** |
|---|---|---|
| Adoption by the Local Governing Body: §201.6(c)(5) **OR** | | |
| Multi-Jurisdictional Plan Adoption: §201.6(c)(5) **AND** | | |
| Multi-Jurisdictional Planning Participation: §201.6(a)(3) | | |

| **Planning Process** | **N** | **S** |
|---|---|---|
| Documentation of the Planning Process: §201.6(b) and §201.6(c)(1) | | |

| **Risk Assessment** | **N** | **S** |
|---|---|---|
| Identifying Hazards: §201.6(c)(2)(i) | | |
| Profiling Hazards: §201.6(c)(2)(i) | | |
| Assessing Vulnerability: Overview: §201.6(c)(2)(ii) | | |
| Assessing Vulnerability: Identifying Structures: §201.6(c)(2)(ii)(A) | | |
| Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B) | | |
| Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C) | | |
| Multi-Jurisdictional Risk Assessment: §201.6(c)(2)(iii) | | |

| **Mitigation Strategy** | **N** | **S** |
|---|---|---|
| Local Hazard Mitigation Goals: §201.6(c)(3)(i) | | |
| Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii) | | |
| Implementation of Mitigation Actions: §201.6(c)(3)(iii) | | |
| Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv) | | |

| **Plan Maintenance Process** | **N** | **S** |
|---|---|---|
| Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(i) | | |
| Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii) | | |
| Continued Public Involvement: §201.6(c)(4)(iii) | | |

| **Additional State Requirements*** | **N** | **S** |
|---|---|---|
| Insert State Requirement | | |
| Insert State Requirement | | |
| Insert State Requirement | | |

**LOCAL MITIGATION PLAN APPROVAL STATUS**

**PLAN NOT APPROVED** ☐

**PLAN APPROVED** ☐

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

**See Reviewer's Comments**

PREREQUISITE(S)

Adoption by the Local Governing Body

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE NOT MET | SCORE MET |
|---|---|---|---|---|
| A. Has the local governing body adopted the plan? | The plan will be adopted once VDEM and FEMA approval is granted. | | | |
| B. Is supporting documentation, such as a resolution, included? | The adoption resolution will be included after adoption upon FEMA approval. | | | |
| | | SUMMARY SCORE | | |

Multi-Jurisdictional Plan Adoption

***Requirement §201.6I(5):*** *For multi-jurisdictional plans, each jurisdiction requesting approval of the plan **must** document that it has been formally adopted.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE NOT MET | SCORE MET |
|---|---|---|---|---|
| A. Does the plan indicate the specific jurisdictions represented in the plan? | N/A | | | |
| B. For each jurisdiction, has the local governing body adopted the plan? | N/A | | | |
| C. Is supporting documentation, such as a resolution, included for each participating jurisdiction? | N/A | | | |
| | | SUMMARY SCORE | | |

Multi-Jurisdictional Planning Participation

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE NOT MET | SCORE MET |
|---|---|---|---|---|
| A. Does the plan describe **how** each jurisdiction participated in the plan's development? | N/A | | | |
| | | SUMMARY SCORE | | |

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

Documentation of the Planning Process

***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*
*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
*(2) An opportunity for neighboring jurisdictions, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| C. Does the plan provide a narrative description of the process followed to prepare the plan? | Section 2 | | | |
| B. Does the plan indicate who was involved in the planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, etc.?) | Section 2 | | | |
| C. Does the plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?) | Section 2 | | | |
| D. Was there an opportunity for neighboring jurisdictions, | Section 2 | | | |

| | | | | |
|---|---|---|---|---|
| agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process? | | | | |
| E. Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information? | Section 6 | | | |
| | | SUMMARY SCORE | | |

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

Identifying Hazards

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the plan include **a description** of the types of **all natural hazards** that affect the jurisdiction? | Section 4 | | | |
| | | SUMMARY SCORE | | |

Profiling Hazards

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the risk assessment identify the **location** (i.e., geographic area affected) of each natural hazard addressed in the plan? | Sections 4 and 5 | | | |
| B. Does the risk assessment identify the **extent** (i.e., magnitude or severity) of each hazard addressed in the plan? | Sections 4 and 5 | | | |
| C. Does the plan provide information on **previous** | Section 4 and 5 | | | |

| | | | | |
|---|---|---|---|---|
| **occurrences** of each hazard addressed in the plan? | | | | |
| D. Does the plan include the **probability of future events** (i.e., chance of occurrence) for each hazard addressed in the plan? | Sections and 5 | | | |
| | | SUMMARY SCORE | | |

Assessing Vulnerability: Overview

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the plan include an **overall summary** description of the jurisdiction's **vulnerability** to each hazard? | Section 5 | | | |
| B. Does the plan address the **impact** of each hazard on the jurisdiction? | Section 5 | | | |
| | | SUMMARY SCORE | | |

Assessing Vulnerability: Identifying Structures

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the plan describe vulnerability in terms of the **types and numbers** of **existing** buildings, infrastructure, and critical facilities located in the identified hazard areas? | Section 5 | | | |
| B. Does the plan describe vulnerability in terms of the **types and numbers** of **future** buildings, infrastructure, and critical facilities located in the identified hazard areas? | Section 5 | | | |
| | | SUMMARY SCORE | | |

Assessing Vulnerability: Estimating Potential Losses

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

| | Location in the | SCORE |
|---|---|---|

| Element | Plan (section or annex and page #) | Reviewer's Comments | N | S |
|---|---|---|---|---|
| A. Does the plan estimate **potential dollar losses** to vulnerable structures? | Section 5 | | | |
| B. Does the plan describe the **methodology** used to prepare the estimate? | Section 5 | | | |
| | | SUMMARY SCORE | | |

Assessing Vulnerability: Analyzing Development Trends

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the plan describe land uses and development trends? | Sections 3 and 5 | | | |
| | | SUMMARY SCORE | | |

Multi-Jurisdictional Risk Assessment

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the plan include a risk assessment for each participating jurisdiction as needed to reflect unique or varied risks? | N/A | | | |
| | | SUMMARY SCORE | | |

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

Local Hazard Mitigation Goals

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

| | Location in the | | SCORE |
|---|---|---|---|

| Element | Plan (section or annex and page #) | Reviewer's Comments | N | S |
|---|---|---|---|---|
| A Does the plan include a description of mitigation **goals** to reduce or avoid long-term vulnerabilities to the identified hazards? (**GOALS** are long-term; represent what the community wants to achieve, such as "eliminate flood damage"; and are based on the risk assessment findings.) | Section 7 | | | |
| | | SUMMARY SCORE | | |

Identification and Analysis of Mitigation Actions

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the plan identify and analyze a **comprehensive range** of specific mitigation actions and projects for each hazard? | Section 7 | | | |
| B Do the identified actions and projects address reducing the effects of hazards on **new** buildings and infrastructure? | Section 8 | | | |
| C. Do the identified actions and projects address reducing the effects of hazards on **existing** buildings and infrastructure? | Section 8 | | | |
| | | SUMMARY SCORE | | |

Implementation of Mitigation Actions

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the mitigation strategy include how the actions | Sections 2 and 7 | | | |

| | | | | |
|---|---|---|---|---|
| are **prioritized**? (For example, is there a discussion of the process and criteria used?) | | | | |
| B. Does the mitigation strategy address how the actions will be **implemented and administered**? (For example, does it identify the responsible department, existing and potential resources, and timeframe?) | Section 8 | | | |
| C. Does the prioritization process include an emphasis on the use of a **cost-benefit review** (see page 3-36 of *Multi-Hazard Mitigation Planning Guidance*) to maximize benefits? | Sections 2, 7 and 8 | | | |
| | | SUMMARY SCORE | | |

Multi-Jurisdictional Mitigation Actions

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A Does the plan include at least one identifiable **action item** for each jurisdiction requesting FEMA approval of the plan? | Section 8 | | | |
| | | SUMMARY SCORE | | |

PLAN MAINTENANCE PROCESS

Monitoring, Evaluating, and Updating the Plan

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the plan describe the method and schedule for **monitoring** the plan? (For example, does it identify | Section 9 | | | |

| | | | | |
|---|---|---|---|---|
| the party responsible for monitoring and include a schedule for reports, site visits, phone calls, and meetings?) | | | | |
| B. Does the plan describe the method and schedule for **evaluating** the plan? (For example, does it identify the party responsible for evaluating the plan and include the criteria used to evaluate the plan?) | Section 9 | | | |
| C. Does the plan describe the method and schedule for **updating** the plan within the five-year cycle? | Section 9 | | | |
| | | SUMMARY SCORE | | |

Incorporation into Existing Planning Mechanisms

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE | |
|---|---|---|---|---|
| | | | N | S |
| A. Does the plan identify other local planning mechanisms available for incorporating the requirements of the mitigation plan? | Sections 6 and 9 | | | |

| | | | | |
|---|---|---|---|---|
| B. Does the plan include a process by which the local government will incorporate the requirements in other plans, when appropriate? | Section 9 | | | |
| | | SUMMARY SCORE | | |

Continued Public Involvement

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the plan explain how **continued public participation** will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?) | Section 9 | | | |
| | | SUMMARY SCORE | | |