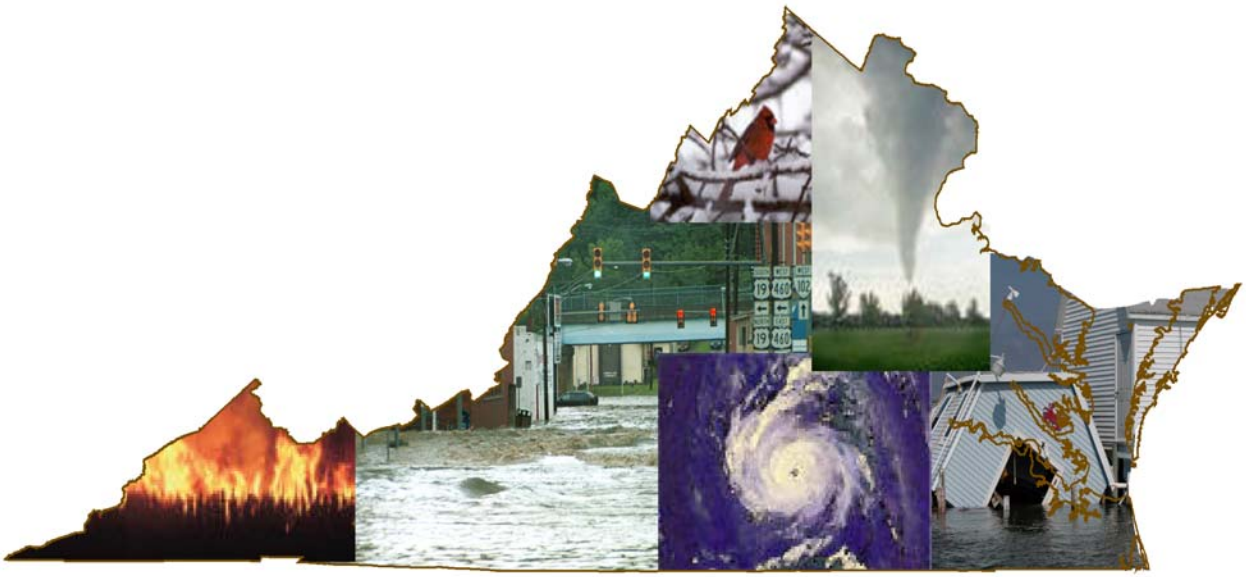
Commonwealth of Virginia

Emergency Operations Plan

Volume 6



Standard Hazard Mitigation Plan

September 2004

Developed and published by the Virginia Department of Emergency Management and the Virginia Tech Center for Geospatial Information Technology.

Table of Contents

1.0	Introduction
2.0	Planning Process
3.0	Hazard Identification and Risk Assessment (HIRA)
4.0	Mitigation Strategies
5.0	Coordination with Local Mitigation Planning Efforts
6.0	Plan Monitoring, Maintenance & Revision
Appendix A	Acronyms
Appendix B	Glossary
Appendix C	Federal DMA 2000 Legislation
Appendix D	Mitigation Planning Agency Profiles
Appendix E	Steering Committee Meetings
Appendix F	HIRA Figures and Tables
Appendix G	Local Plans
Appendix H	Mitigation Projects
Appendix I	Steering Committee Members
Appendix J	Standard Hazard Mitigation Plan Crosswalk
Appendix K	Virginia EOP: Appendix 9: Hazard Mitigation Grant Program

Chapter 1 Introduction

Disaster Mitigation Act of 2000

§201.4(c)(6): A Plan Adoption Process. The plan must be formally adopted by the State prior to submittal to us for final review and approval.

§201.4(c)(7): The plan must include assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).

1.1 *Purpose of the State Hazard Mitigation Plan*

The Commonwealth of Virginia Standard Hazard Mitigation Plan provides guidance for hazard mitigation within the Commonwealth. Its vision is supported by goals, objectives and strategies for Virginia state government that will reduce or prevent injury from natural hazards to citizens and critical state facilities. This plan is supplemented by: agency Continuity of Operations Plans, agency strategic plans, and the *Commonwealth of Virginia Emergency Operations Plan -Volumes 1 through 8*.

This plan fulfills the standard state mitigation planning requirements (44 CFR §201.4) of the Disaster Mitigation Act of 2000 (DMA2K; Public Law 106-390, signed into law October 10, 2000). The DMA2K amends the 1988 Robert T. Stafford Disaster Relief and Emergency Assistance Act, and reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. Section 322 of the act specifically addresses mitigation planning at state and local levels. New requirements are identified that allow Hazard Mitigation Grant Program (HMGP) funds to be used for mitigation activities and projects for states and localities with Hazard Mitigation Plans approved by November 1, 2004. States that have developed a comprehensive, *enhanced* mitigation plan prior to a disaster will qualify for higher levels of HMGP funding. The Commonwealth of Virginia Hazard Mitigation Plan is a standard plan meeting the requirements for A Standard State Plan detailed in Interim Rule 44 CRF 201.4, published by the Federal Emergency Management Agency February 28, 2004. The Commonwealth will seek enhanced status following program capacity building once the standard plan is approved by the Department of Homeland Security's Federal Emergency Management Agency.

Meeting the requirements and criteria of section 322 regulations and rules qualifies the Commonwealth to obtain all disaster-related assistance including categories C through G of the Public Assistance Program. This is an essential component of disaster recovery. In addition, the Commonwealth will remain eligible for Hazard Mitigation Grant Program funds and the nationally competitive Pre-disaster Mitigation Program.

This plan is one of eight subplans or volumes that together constitute the *Commonwealth of Virginia Emergency Operations Plan* (EOP). The *Basic Plan* and its subplans listed

below are maintained by state agencies with emergency management duties and responsibilities. Selected parts of these plans are available online for viewing or download from the Virginia Department of Emergency Management Online Library at http://www.vaemergency.com/library/eplan.cfm. Reference copies of Volumes 1 through 6 also are available at community college and public university libraries statewide. Distribution of Volumes 7 and 8 is limited to specific individuals and user groups.

The volumes that comprise the entire Commonwealth of Virginia EOP include:

Table 1-1 ***Commonwealth Emergency Operations Plan***

Volume	Title	Status
1	*Basic Plan*	April 2004
2	*Disaster Recovery*	March 1999; update underway
3	*Radiological Emergency Response*	October 2000; under review
4	*Oil and Hazardous Materials Emergency Response*	December 2001
5	*Virginia Hurricane Emergency Response*	August 2001
6	*Hazard Mitigation*	November, 2004
7	*Virginia Department of Transportation Emergency Operations*	July 2002, (limited distribution)
8	*Terrorism Consequence Management*	April 1999 (limited distribution)

Authority to implement the plan was further clarified beyond the *Code of Virginia* through Executive Order 73 (97).

COMMONWEALTH OF VIRGINIA

OFFICE OF THE GOVERNOR
Executive Order 73 (97)

PROMULGATION OF THE COMMONWEALTH OF VIRGINIA EMERGENCY OPERATIONS PLAN

By virtue of the authority vested in me by Section 44-146.17 of the Code of Virginia as Governor and as Director of Emergency Services, I hereby promulgate and issue the Commonwealth of Virginia Emergency Operations Plan ("the Plan"), dated 1997, which provides for a state government response to emergencies and disasters wherein assistance is needed by affected local governments in order to save lives; to protect public health, safety, and property; to restore essential services; and to effect an economic recovery.

The State Coordinator of Emergency Services, on behalf of the Governor, is hereby authorized to activate the State Emergency Operations Center (EOC) in order to direct and control state government emergency operations. Activation of the State EOC shall constitute implementation of the Plan.

In accordance with the duties and responsibilities assigned in the plan, each designated state department or agency shall:

(1) prepare and maintain the part(s) of the Plan for which it is responsible
(2) conduct an on-going training program and participate in exercises as needed in order to maintain an appropriate emergency response capability;
(3) in time of emergency, implement emergency response actions as required and in coordination with the State EOC; and
(4) assist with post-disaster restoration and recovery operations as required.

The Plan is consistent with the Commonwealth of Virginia Emergency Services and Disaster Law of 1973 (Chapter 3.2, Title 44 of the *Code of Virginia)* and the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended) and its implementing regulations.

This Executive Order rescinds the following three Executive Orders issued in 1990 by Governor Lawrence Douglas Wilder: Number 19 (90), Promulgation of Volume II, Emergency Operations Plan for Peacetime Disasters; Number 20 (90), Promulgation of the Commonwealth of Virginia Emergency Operations Plan, Volume III, Operational Survival Plan for War-Caused Disasters; and Number 26 (90), Promulgation of the Commonwealth of Virginia Emergency Operations Plan, Closing of the Chesapeake Bay Bridge-Tunnel.

This Executive Order shall be effective upon its signing and shall remain in full force and effect until amended or rescinded by further executive order.

Given under my hand and under the seal of the Commonwealth of Virginia this 9th day of May, 1997.

George Allen
Governor

Attest:
Betsy Davis Beamer
Secretary of the Commonwealth

05/04/04 11:06 FAX 804 371 0017 SOC 002

Commonwealth of Virginia
Office of the Governor

Executive Order

NUMBER SIXTY-FIVE (2004)

PROMULGATION OF THE COMMONWEALTH OF VIRGINIA EMERGENCY OPERATIONS PLAN

By virtue of the authority vested in me by Section 44-146.17 of the Code of Virginia as Governor and as Director of Emergency Management, I hereby promulgate and issue the Commonwealth of Virginia Emergency Operations Plan ("the Plan") dated 2004. The Plan provides for state government's response to emergencies and disasters wherein assistance is needed by affected local governments in order to save lives; to protect public health, safety, and property; to restore essential services; and to enable and assist with economic recovery.

The State Coordinator of Emergency Management, on behalf of the Governor, is hereby authorized to activate the Commonwealth of Virginia Emergency Operations Center ("State EOC") in order to direct and control state government emergency operations. Activation of the State EOC shall constitute implementation of the Plan.

In accordance with the duties and responsibilities assigned in the Plan, the head of each designated state department or agency shall appoint a lead and at least one alternate Emergency Coordination Officer for the agency. The Emergency Coordination Officer is assigned the following responsibilities:

1. Coordinate with the Department of Emergency Management on emergency preparedness, response, and recovery issues;

2. Prepare and maintain designated parts of the Plan for which the agency is responsible;

3. Prepare and maintain internal plans and procedures to fulfill the responsibilities designated in the Plan;

05/04/04 11:06 FAX 804 371 0017 SOC 003

Executive Order 65 (2004)
Page 2

4. Maintain a roster of agency personnel to assist in disaster operations and ensure that persons on the roster are accessible and available for training, exercises, and activations of the Plan;

5. Coordinate appropriate training for agency personnel assigned to disaster operations;

6. Prepare and maintain internal emergency preparedness, response, and recovery plans for the agency's resources (facilities, personnel, and assets) that outline a comprehensive and effective program to ensure continuity of essential state functions under all circumstances;

7. Assure the State Coordinator of Emergency Management that preparedness plans for its facilities are coordinated with the applicable local emergency management agency.

The Plan is consistent with the Commonwealth of Virginia Emergency Services and Disaster Law of 2000 (Chapter 3.2, Title 44 of the Code of Virginia, as amended) and the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended) with its implementing regulations.

This Executive Order rescinds Executive Order Number Seventy-three (97) issued on May 9, 1997, by Governor George Allen.

This Executive Order shall be effective upon its signing and shall remain in full force and effect until amended or rescinded by further executive order.

Given under my hand and under the Seal of the Commonwealth of Virginia, this 1st day of April 2004.

Mark R. Warner, Governor

Attest:

Secretary of the Commonwealth

1.2 *Disaster Mitigation Act of 2000 and Implementing Regulations*

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S.C. 5165, enacted under § 104 of the Disaster Mitigation Act of 2000, (DMA 2000) Public Law 106-390. DMA 2000 was intended to facilitate cooperation between state and local authorities. It encourages and rewards local and state disaster planning in advance of disasters in order to promote sustainability of communities and services as a strategy to support disaster resistance. This enhanced pre-disaster planning effort is intended supports state and local governments' efforts to articulate accurate, targeted and prioritized needs for hazard mitigation that will reduce exposure to natural hazards. This planning effort will result in timely allocation of funding and more effective risk reduction strategies and projects.

FEMA prepared an Interim Final Rule, published in the Federal register on February 26, 2002 within 44 CFR Parts 201 and 206, that establishes planning and funding criteria for states.

44 CFR Part 201

44 CFR § 201.1 *et seq.* was promulgated by the Federal Emergency Management Agency, (FEMA) on February 26, 2002 in order to implement DMA 2000. The rule addresses state mitigation planning, and specifically in 44 CFR § 201.3 (c) identifies the states' mitigation planning responsibilities, which include:

1) Prepare and submit to FEMA a Standard Hazard Mitigation Plan following criteria established in 44 CFR § 201.4 as a condition of receiving Stafford Act assistance (except emergency assistance).
2) For consideration for 20% Hazard Mitigation Grant Program funding, prepare and submit an Enhanced State Mitigation Plan in accordance with 44 CFR § 201.5, which must be reviewed and updated, if necessary, every three years from the date of the approval of the previous plan.
3) Review and if necessary, update the Standard State Mitigation Plan by November 1, 2004, and every three years from the date of approval of the previous plan in order to continue program eligibility.
4) Make available the use of up to the seven percent of HMGP funding for planning in accordance with 44 CFR § 206.434. *See* 44 CFR § 201.3 (c).

44 CFR § 201.4, *Standard State Mitigation Plans*, lists the required elements of state hazard mitigation plans. Under 44 CFR § 201.4 (a), by November 1, 2004 states must have an approved Standard State Hazard Mitigation Plan that meets the requirements of the regulation to receive Stafford Act assistance. The planning process, detailed by 44 CFR § 201.4 (b), must include coordination with other state agencies, appropriate Federal agencies and interested groups.

44 § 201.4 (c), "Plan content," identifies the following elements that must be included in a state hazard mitigation plan:

1) A description of the planning process used to develop the plan;
2) Risk assessments that provide the factual basis for activities proposed in the strategy portion of the mitigation plan;
3) A Mitigation Strategy that provides the state's blueprint for reducing losses identified in the risk assessment;
4) A section describing Coordination of Local Mitigation Planning;
5) A Plan Maintenance Process, including a method and schedule for monitoring, evaluating and revising the plan; a system for monitoring implementation of

mitigation strategies and projects; and a system for reviewing progress in achieving goals, objectives and strategies as well as project implementation;

6) A Plan Adoption Process for formal adoption by the State Prior to submittal to FEMA for final review and approval; and
7) Assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to grant funding periods, in compliance with 44 CFR 13.11(c). The state must amend its plan whenever needed to reflect changes in state or federal laws and statutes as required by 44 CFR 13.11 (d).

44 CFR Part 206

On February 26, 2002, FEMA also changed 44 CFR Part 206 in order to implement DMA 2000 (*See* 67 *Federal Register 8844 [February 26, 2002].* Changes to 44 CFR Part 206 authorize hazard mitigation grant program funds for planning activities and increase the amount of HMGP funds available to states that develop an Enhanced Mitigation Plan.

In addition, through 44 CFR § 206.400, states receiving any disaster assistance funding under the Stafford Act must conduct repairs or construction funded by a disaster loan or grant in accordance with applicable standards such as the minimum standards of the National Flood Insurance Program (NFIP) and standards substantially equal to the recommended provisions of the National Earthquake Hazards Reduction Program (NEHRP).

1.3 *Assurances & Adoption*

The plan serves as V*olume 6: Hazard Mitigation of the Commonwealth of Virginia Emergency Operations Plan;* and is adopted as part of the complete *Commonwealth of Virginia Emergency Operations Plan* by the Governor with Executive Order Number Sixty-Five (2004). This document is within this plan on Pages 1-4 and 1-5. In addition, the plan has been cross-walked through the Emergency Management Accreditation Program (EMAP) and has been deemed consistent with the standards of EMAP relative to hazard mitigation.

§44-146.17.Powers and Duties of the Governor.

The Governor shall have, in addition to his powers hereinafter or elsewhere prescribed by law, the following powers and duties:

(1)…He may adopt and implement the Emergency Operations Plan, which provides for state-level emergency operations in response to any type of disaster or large-scale emergency affecting Virginia and that provides the needed framework within which more detailed emergency plans and procedures can be developed and maintained by state agencies, local governments and other organizations.

(2) To appoint a State Coordinator of Emergency Management and authorize the appointment or employment of other personnel as is necessary to carry out the provisions of this chapter, and to remove, in his discretion, and all persons serving hereunder;

§44-146.22. Development of measures to prevent or reduce harmful consequences of disasters.

In addition to disaster prevention measures included in state, local and inter-jurisdictional emergency operations plans, the Governor shall consider, on a continuing basis, hazard mitigation or other measures that could be taken to prevent or reduce the harmful consequences of disasters. At his direction, and pursuant to any other authority, state agencies, including, but not limited to, those charged with responsibilities in connection with floodplain management, stream encroachment and flow regulation, weather modification, fire prevention and control, air quality, public works, land use and land-use planning, and construction standards, shall make studies of disaster prevention. The Governor, from time to time, shall make recommendations to the General Assembly, local governments, and other appropriate public and private entities as may facilitate measures for prevention or reduction of the harmful consequences of disasters.

The Code of Virginia § 44-146.17 allows the Governor to appoint an Emergency Coordinator to carry out all provisions of the Code of Virginia relating to emergency preparedness, response and recovery. *The Code of Virginia § 44-146.22* specifically authorizes the Governor to consider hazard mitigation measures to prevent or reduce the harmful consequences of disasters. The Governor is expected to make recommendations to the General Assembly, local governments, and appropriate public and private entities. This Plan supercedes the hazard mitigation plan developed in 2001, and is Volume 6 of the eight-volume Commonwealth of Virginia Emergency Operations Plan.

The Commonwealth of Virginia, Department of Emergency Management, pledges that it will:

1. Comply with all applicable Federal statutes and regulations in effect with respect to periods for which it receives grant funding, in compliance with 44 CFR 13.11(c); and
2. Amend this plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).

1.4 *Planning Team*

Funding assistance for the preparation and printing of this plan was provided by the Federal Emergency Management Agency (FEMA) and is prepared in accordance with appropriate regulations and guidance provided by that agency.

This plan was completed with planning assistance and support by the planning staff at the Virginia Department of Emergency Management (VDEM). Staff from FEMA Region III offices provided additional planning assistance and plan review. The Virginia Tech Center for Geospatial Information Technology (CGIT) performed the hazard and risk identification and the vulnerability analysis. In addition, the center's staff supported the plan web site that was used to solicit mitigation project worksheets. The project and strategy prioritization process was managed by the Center.

The University of Virginia Institute for Environmental Negotiation provided facilitation to the final two State Steering Committee meetings as well as collaborated on development of project ranking protocols. Center staff also provided the final document continuity edit.

Technical mapping, hazard, and vulnerability analyses were accomplished by VDEM staff using ESRI ArcGIS 8.2 software, with spatial data provided by the Virginia Geographic Information Network (VGIN), the United States Geologic Survey (USGS), the National Weather Service (NWS), the Virginia Department of Treasury Division of Risk Management (VDT-DRM) and the Virginia Department of Forestry (DOF).

Critical to the development of the plan was the participation and contributions of more than 105 state and federal agencies, non-profit organizations and Virginia colleges and universities. Representatives attended four meetings of the State Hazard Mitigation Steering Committee, provided critical facilities data, submitted hazard mitigation strategies and projects, ranked activities and review the plan draft. In addition, many of these Steering Committee participants will continue to serve ongoing hazard mitigation task forces that will guide and direct implementation of this plan as well as determine continued data and information required for future plans that must integrate human-caused hazards into the current hazard identification and vulnerability assessment. Table 1-2 provides a list of organizations that provided valuable input to the plan. A full description of the planning process follows in Chapter 2 *Planning Process.* A full listing of the Mitigation Steering Committee may be found in Appendices D and I.

Table 1-2 State Hazard Mitigation Steering Committee

Agriculture & Consumer Services	Department of Transportation	Virginia Capitol Police
American Red Cross	Department of Treasury	Virginia Center for School Safety
Chesapeake Bay Commission	Dispute Resolution Center	Virginia Code Commission
Chesapeake Bay Foundation	Emergency Management Office Norfolk District, Corps of Engineers	Virginia College Savings Plan
Chesapeake Bay Local Assistance Department	Facilities Services & Planning Administration	Virginia Commonwealth University
Chesapeake Bay Program	Federal Emergency Management Agency	Virginia Community College System
College of William and Mary	Frontier Culture Museum of Virginia	Virginia Community Policing Institute
Compensation Board	James Madison University	Virginia Cooperative Extension
Department for the Aging	Jamestown-Yorktown Foundation	Virginia Department of Emergency Management
Department of Agriculture and Consumer Services	Motor Vehicle Dealer Board	Virginia Drought Monitoring Task Force
Department of Business Assistance	National Park Service	Virginia Economic Development Partnership
Department of Conservation and Recreation	National Weather Service	Virginia Employment Commission
Department of Corrections	Norfolk State University	Virginia Ground Water Protection Steering Committee
Department of Education	Office of Commonwealth Preparedness	Virginia Housing Development Authority
Department of Environmental Quality	Office of the Attorney General	Virginia Information Technology Agency
Department of Fire Programs	Office of the Governor	Virginia Marine Resources Commission
Department of Forestry	Richard Bland College	Virginia Municipal League
Department of General Services	Salvation Army	Virginia Museum of Fine Arts
Department of Health	Southwest Virginia Higher Education Center	Virginia National Guard
Department of Health Professions	State Corporation Commission	Virginia Port Authority
Department of Historical Resources	State Corporation Commission	Virginia Resources Authority
Department of Homeland Security	Transportation Research Council	Virginia Save Our Streams
Department of Housing and Community Development	United States Army Corps of Engineers	Virginia State Climatology Office
Department of Juvenile Justice	United States Department of Agriculture	Virginia State Police
Department of Labor and Industry	United States Department of the Interior	Virginia State University
Department of Mental Health, Mental Retardation & Substance Abuse Services	United States Geological Survey	Virginia Tech Environmental Health & Safety Services
Department of Military Affairs	University of Virginia	Virginia Tech
Department of Mines, Minerals and Energy	University of Virginia at Wise	Virginia Tourism Authority
Department of Planning and Budget	URS Corporation	Virginia Volunteer Organizations Active in Disaster (VOAD)
Department of Professional & Occupational Regulation	Virginia Association of Counties	Virginia Water Monitoring Council
Department of Rail and Public Transportation	Virginia Association of Planning District Commissions	Workers' Compensation Commission
Department of Taxation	Virginia Association of Soil and Water Conservation Districts	Virginia Tech Environmental Health & Safety Services
Department of the Blind and Vision Impaired	Virginia Association of Zoning Officials	Virginia Tech
Virginia Water Monitoring Council	Virginia Biotechnology Research Park	Virginia Tourism Authority
Workers' Compensation Commission	Department of Transportation	Virginia Volunteer Organizations Active in Disaster (VOAD)

1.5 *State Hazard Mitigation Plan Coordination*

VDEM Mitigation Planning Managers

Mary C. Camp, Director, Preparedness & Mitigation Division, VDEM

Harry Colestock, Director, Recovery & Mitigation Division, VDEM

Deborah Mills, State Hazard Mitigation Program Manager, VDEM

VDEM Mitigation Program Staff

David Corzilius, AICP, Mitigation Planner & GIS Technician

Elaine Meil, Hazard Mitigation Planner & GIS Technician

Michelle Pope, Hazard Mitigation Grant Program Coordinator

Eileen Tarr, Mitigation Planner

Brittany Taylor Schaal, Mitigation Planner

Virginia Polytechnic Institute Center for Geospatial Information Technology Staff

Dr. Shane Parson, Senior Project Manager

Rachael Herman Heltz, Project/GIS Specialist

Craig Moore, Project/GIS Specialist

Chris Stahl, GIS Assistant

Patrick Jarvis, Graduate Assistant

Sara Hyland, Graduate Assistant

University of Virginia Institute for Environmental Negotiation

Dr. E. Franklin Dukes, Director

A. Bruce Dotson, Associate Professor

Christine Gyovai, Graduate Associate

Anthony Scott, UVA Facilitator

FEMA Region III, Community Mitigation Division

Robert Linck

Therese Grubb

Joseph Zagone

URS Corporation

Stuart Wallace, AICP

Esther Aranda

1.6 *Overview of Plan*

Each chapter beings with the appropriate requirements from the Disaster Mitigation Act of 2000 to provide reference and context to the issues discussed within the chapter. A brief introduction to the section is followed by relevant information, charts, tables, and maps, which fulfill regulation requirements. The main chapters of the plan follow primary requirements of the hazard mitigation planning law:

Chapter 2.0 *Planning Process* describes the activities and work of the State Hazard Mitigation Steering Committee, VDEM staff and Virginia Tech and University of Virginia contractors. Plan participants, planning process, planning products and relevance to other related plans or Commonwealth functions is described.

Chapter 3.0 *Hazard Identification and Risk Assessment* has three primary components. A description of the Commonwealth is provided that includes:

- population distribution and characteristic
- business and industry
- agriculture
- locations of state government facilities, including those deemed critical

Natural hazards affecting the state are identified, including:

- descriptions and histories of hazards
- assessment of geographic extent and risk of hazards
- hazard specific loss estimation for state facilities

A summary assessment of the potential losses and risks is provided. The Commonwealth of Virginia Hazard Mitigation Plan will be revised during 2006 to include loss estimation data provided from local and regional hazard mitigation plans currently under development.

Chapter 4.0 *Hazard Mitigation Strategy* has multiple components. The Commonwealth's capability to respond to assessed hazards is described. A listing of limitations of this planning process, data and analysis methods used in the plan is discussed, along with provisions for the 2006 plan revision. The Chapter 3.0 vulnerability assessment was used to develop the hazard mitigation vision, goals and objectives necessary to reduce the risk from hazards across the state to specific state facilities and citizens. The final section presents the program strategies and projects ranked "critical" and "high" for importance to reduce exposure to hazards. A complete listing of projects and strategies is presented in Appendix H.

Chapter 5.0, *Coordination with Local Mitigation Planning Efforts,* describes a comprehensive three-year process to engage all Virginia communities in hazard mitigation planning. To date, two plans have been approved: the City of Chesapeake Hazard Mitigation Plan and the New River Planning District Hazard Mitigation Plan. Currently, 27 local hazard mitigation plans are under development by towns, cities, counties and planning district commissions. Most local plans are being coordinated by regional planning district commissions and comprise several counties, cities and towns.

Several regional plans are being developed in Tidewater Virginia led by the cities of Virginia Beach and Newport News. In addition, Amelia County, the Cities of Franklin and Poquoson, and the Town of Bluefield are engaged in development of a hazard mitigation plan.

Chapter 6.0, *Plan Maintenance, Implementation and Adoption,* outlines implementation of the plan and development of the anticipated 2006 plan revision. Processes used to maintain and update data and information contained in the hazard identification and vulnerability assessment databases are described. Plan adoption and revision are also described, augmented with a timeline.

Appendices may be found immediately following the plan. These provide detailed listings and agendas from each Steering Committee meeting, details on hazard identification and vulnerability assessment as well as the complete listing of agency-proposed goals, objectives and supporting strategies and proposed projects. The strategies and projects are each given a priority rating of "Critical," "High," "Medium," and "Low."

Appendix A includes a list of acronyms used in the plan.

Appendix B includes a glossary of definitions for terms used in the *Commonwealth of Virginia Hazard Mitigation Plan.*

Appendix C presents the federal legislation directing the planning process.

Appendix D provides profiles of major state and federal agencies and private non-profit organizations that participated during the planning process.

Appendix E contains documentation regarding the four State Steering Committee meetings conducted from July 2003 through July 2004.

Appendix F includes tables and documentation of the hazard and risk identification process; the vulnerability assessment and potential loss estimates are also included.

Appendix G provides summary information regarding development of the 29 local mitigation plans approved or under development by regional planning district commissions, regional groups and individual cities, counties or towns.

Appendix H is the comprehensive list of the four goal areas, supporting objectives, strategies and projects as prioritized by members of the State Steering Committee.

Appendix I provides the complete listing of those contributed to this plan through participation in the planning process.

Appendix J contains the Virginia Standard State Hazard Mitigation Plan Crosswalk document.

Appendix K includes the Virginia Emergency Operations Plan; Appendix 9: HAZARD MITIGATION GRANT PROGRAM

Chapter 2 Planning Process

Disaster Mitigation Act of 2000

§201.4(b): An effective planning process is essential in developing and maintaining a good plan. The mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.

§201.4(c)(1): Description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated

2.1 *Introduction*

It must be noted that existing programs, statutes and polices of state agencies were reviewed in the early stages of plan development and remained in the background throughout the planning process. Emergency Management Plans have traditionally been directed by requirements of the Stafford Act with respect to Mitigation Planning. The short time frame allotted for development and approval of the plan prior to November 1, 2004 meant that the state plan must focus on mitigation of state agency facilities from natural hazards. This approach focused the planning process to specific facilities and mitigation of those facilities.

Therefore, the final *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* does not attempt to fully integrate ongoing state and local programs into the mitigation goals, objectives, strategies and projects listed herein. The Mitigation Strategy presented in Chapter 4 was developed to address state agency structural, educational, policy and information development deficiencies identified through the hazard identification and risk analysis process described in Chapter 3.

Since many of the Commonwealth's state and local programs, policies and statutes address natural hazards, they are listed in this plan to provide background on institutional, comprehensive approaches to natural hazards mitigation that have been present in Commonwealth programs prior to the 2000 Stafford Act revision. These programs are relevant and contribute significantly to reduced impacts from natural hazards.

The 2007 revision of *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* will include a HIRA and vulnerability assessment that reflects local HIRAs. The new plan will incorporate human-caused hazards and will address the highest priorities listed in 28 local and regional hazard mitigation plans currently under development. In development of the 2007 plan process, which will begin during 2006, full analysis of federal, state and local program statutes, plans and policies will ensue to determine relevant programs to the state hazard mitigation planning process. This will be done in the context to fully integrate, not duplicate those programs that support state hazard mitigation priorities.

2.2 *Overview of the Planning Process*

The planning process for the Commonwealth of Virginia Hazard Mitigation Plan was initiated by the first meeting of the State Steering Committee on July 28, 2003. At that meeting, the federal rule requirements were explained to state and federal agency stakeholders as well as representatives of private non-profit organizations that were in attendance. The original planning process involved three sub-committees that would essentially develop the plan. These committees were charged with the three major planning tasks that comprise development of a hazard mitigation plan:

A. Identify Hazards and Risks
B. Perform a Vulnerability Assessment
C. Develop Mitigation Strategies to Address Reduction of Potential Damages

Seven weeks following the organization of the stakeholders into these three sub-committees, the Commonwealth was struck by the largest natural disaster since settlement – Hurricane Isabel. This major storm entered the Commonwealth on September 18, 2003. Damages resulted in inclusion of 100 jurisdictions in the Presidential Disaster declaration DR-1491-VA. More than 93,000 Virginia households, individuals and businesses registered for disaster assistance. Damages were incurred from hurricane tidal surge, high winds, flooding and tornadic activity. To date, nearly $2 Billion in damages resulted from the storm.

Obviously, Hurricane Isabel derailed the planned hazard mitigation planning process as VDEM and other state agencies scrambled to provide response, recovery and mitigation to the citizens of the Commonwealth. Key VDEM, DCR, and other state staff were deployed to the FEMA-Commonwealth Disaster Field Office, in operation from September 22, 2003 through January 30, 2004. Since up to 7% of Hurricane Isabel HMGP funds could be directed to support development of state and local §322 hazard mitigation plans, a decision was made to contract the hazard and risk identification, vulnerability assessment and probable loss prediction functions to the Virginia Tech Center for Geospatial Information Technology.

As the Center developed databases connected to GIS mapping throughout the fall of 2003 and the winter of 2004, the planning process was amended to guide the Steering Committee through a participative planning process that would be conducted during the three remaining Steering Committee meetings with individual participation through web-based project data entry, strategy and project ranking and plan draft review. Continued development of an inventory of state facilities, analysis of the recorded history of impacts from damage due to natural hazards and synthesis of GIS layers for wildfire, special flood hazard areas, earthquake zones, karst topography and tornado occurrence led to prediction of probability for incurred damages to state facilities from identified natural hazards. The planning process continued to evolve to ensure comprehensive agency responses as data was being developed and analyzed. The Steering Committee Meetings may be summarized as follows:

First Meeting: Introduction of Section 322 requirements and the state planning process
Establishment of three Sub-committees:
- Hazard and Risk Identification
- Vulnerability Assessment
- Mitigation

Second Meeting: Presentation and Hazard and Risk Analysis (HIRA)

Re-delineation of Sub-committees to determine state goals and objectives:

- Structural Mitigation Projects Sub-committee
- Policy, Planning & Funding Sub-committee
- Data Development Sub-committee
- Education Sub-committee

Third Meeting: Final Presentation of HIRA and Loss Analysis
Refinement of Sub-committee Goals and Objectives
Development of Project Prioritization Criteria
Instruction on Project Data Entry via web site

Fourth Meeting: Introduction to the Plan draft and instructions for review
Project Prioritization Procedures via web site
Schedule for final plan review and submission
Organization of Permanent Advisory Sub-Committees

- Project Advisors
- Planning, Policy & Funding
- Mitigation Database Expansion and Refinement
- Assessment of Human-caused Hazards

2.3 *Stakeholder Involvement*

The involvement of stakeholders in plan development was considered a vital element to success in development of a FEMA-approvable plan. Since the plan was primarily targeted to provide a mitigation strategy for Commonwealth of Virginia-owned facilities, stakeholders were sought from state agencies, colleges and universities. State agency stakeholders were joined by key federal agency partners and private non-profit organizations. This holistic participation was necessary for the plan to evolve into a true ongoing mitigation movement across the Commonwealth as opposed to the traditional planning “shelf” document. Stakeholders evolved into Steering committee members who provided critical input to the planning process, including sharing of inventories of state facilities, database layers identifying wildfire risk to structures located in woodlands, Special Flood Hazard Areas, earthquake fault zones, karst limestone topography (caves and sinkholes), winter storms and tornados. The participants crafted a vision and four hazard mitigation goals which provide the framework of the Mitigation Plan (Chapter 4). Supporting objectives were outlined and refined to support each of the four mitigation goals. Hundreds of projects and strategies to support objectives were entered into a web-based database. Each project was then ranked based on established criteria to enable prioritization of strategies and projects into categories of “critical,” “high,” “medium’ and “low.” Finally, Steering Committee members will continue the work on a ad hoc basis through the establishment of standing sub-committees during the final steering committee. These sub-committees will advise VDEM in critical areas and functions of Mitigation Planning that will not only facilitate implementation of the 2004 Commonwealth Hazard Mitigation Plan but will enable comprehensive revision of the plan within the three year planning cycle outline within the federal rule.

2.4 *Agency Contacts*

Federal regulations require that planning process participants represent a cross-section of relevant state and federal agencies as well as organizations. A diverse group of stakeholders were invited from the beginning of the planning process during the summer

of 2003 to attend the first Steering Committee meeting. These agency representatives brought expertise and concerns for natural resources, weather forecasting, data and GIS development, hydrology, emergency services, transportation, health, public safety and higher education. Private non-profit interests, especially the American Red Cross and Volunteer Agencies (VOLAG) were invited as well. Following the first Steering Committee meeting, staff made individual contacts to specific agencies and organizations to solicit data sharing and to invite participations. Each state agency director and college or university president within the Commonwealth of Virginia was invited to the second and third Steering Committee meetings, which significantly diversified agency participation. Along with federal agency partners and non-profit organization cooperators, the broad geographic and technical expertise represented by these participants allowed the Commonwealth to develop a representative, collaborative mitigation plan.

More than 160 representatives participated through attendance at one, two, three or all of the Steering Committee meetings, provided integral data, participated in sub-committees, entered projects or strategies into the database or provide technical review to the plan draft. Participation was both active and passive, but even telephone discussions or email messages added to the comprehensiveness of the HIRA and development of the Mitigation Goals, Objectives and Strategies & Projects.

2.5 *Steering Committee Meetings*

Virginia mitigation stakeholders participated in a series of four meetings in Richmond, the state capital during the course of the one-year planning effort. These meetings provided a forum for discussion on hazard identification and assessment methods for a variety of hazards. In addition, as the process evolved, stakeholders, Department of Emergency Management staff and the consulting universities developed a participatory planning process. A full description of each of the four Steering Committee meetings follows:

2.5.1 July 26, 2003 Steering Committee Meeting

The first Steering Committee meeting was conducted in July, 2003. The requirements of section 322 of the 2000 Stafford Act were presented to state and federal agencies in attendance along with several large non-profit organizations that participate in emergency response and recovery. The participants were divided into three sub-committees that were intended to develop the plan. The sub-committees were:

- Hazard and Risk Identification
- Vulnerability Assessment
- Mitigation Strategies

It was intended that the Hazard and Risk Identification sub-committee, with VDEM staff support, would perform the hazard and risk analysis during the fall of 2003. This data would be fed to the Vulnerability Assessment sub-committee, that would assign state agency facilities a vulnerability ranking based on the facility's exposure to natural hazards. Finally, the Mitigation Strategies sub-committee would develop mitigation strategies and projects responsive to vulnerabilities identified by the other two subcommittees.

In retrospect, this planning process was inherently flawed since a group of agency representatives did not have the central data assimilation capability to perform hazard

and risk identification as well as a vulnerability synthesis. VDEM at the time did not have the staff expertise or capability to adequately support the subcommittees in these tasks.

The planning programmatic deficiencies were becoming evident by September, 2003. Hurricane Isabel devastated the Commonwealth on September 18, 2004, resulting in a federal disaster declaration that encompassed 70 counties and 30 cities. As VDEM Mitigation Program resources were directed to address Isabel recovery, it became evident that development of an "in-house" plan supported by sub-commitees of agency and organization partners was not practical. The Virginia Tech Center for Geospatial Information Technology was contracted to develop the HIRA during late fall, 2003.

2.5.2 February 26, 2004 Steering Committee Meeting

The hazard identification and risk assessment was the focus of the second meeting, held within one month of closure of the Hurricane Isabel Disaster Field Office. A preliminary Hazard and Risk Analysis, with agency-specific vulnerability assessment was provided to those participating. Discussion was lively as participants began to understand the scope of Commonwealth vulnerability to common hazards such as flood and winter storm. In addition, it became evident that the nearly 12,000 state structures and facilities dispersed throughout the Commonwealth are exposed to tornado, earth quake, land subsidence, severe storms and hurricane.

It became clear that the previously designated Mitigation Strategies Sub-committee could not fully address the results of the HIRA and vulnerability analysis. Therefore, the sub-committee structure was reconfigured to the following subcommittees:

- Structural Mitigation Projects Sub-committee
- Policy, Planning & Funding Sub-committee
- Data Development Sub-committee
- Education Sub-committee

The sub-committees formed during this meeting. They began to develop a sub-committee mitigation goal and supporting objectives, which were refined during the next six weeks. In addition, work to edit and complete the HIRA and vulnerability assessment continued.

2.5.3 May 26, 2004 Steering Committee Meeting

The University of Virginia Institute for Environmental Negotiation joined the plan development effort at the third steering committee meeting. The final results of the hazard identification and risk analysis were presented, along with the vulnerability assessment for all state agency facilities. With assistance from the Institute for Environmental Negotiation, the sub-committees met and refined their goals and objectives. The four mitigation goals, which address planning & policy; information and data needs; mitigation education; and structural mitigation projects were solidified at this meeting. Discussion of project and strategy needs occurred during the sub-committee meetings. Prior to this meeting, state agencies had not developed specific mitigation projects or strategies. To ease this process and to encourage projects and strategies that would support a specific mitigation goal and objective, an on-line system had been developed for mitigation and project strategy data entry. The on-line system was introduced at the meeting and was operational immediately following the meeting. It allowed state agencies to enter mitigation project/strategy summaries that specifically addressed mitigation objectives.

2.5.4 July 19, 2004 Steering Committee Meeting

Project data entry continued from May 26 through July 10. Nearly 100 projects were developed using the Mitigation web site during this period. The draft *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* was written and distributed to all agencies, organizations and individuals that have participated in the hazard mitigation planning process since its inception in July, 2003.

The fourth and final Steering Committee Meeting focused on plan review and implementation. A ranking system was introduced that would allow steering committee members to use the Mitigation website to rank projects using priorities developed by each sub-committee during the May meeting.

In addition, the steering committee was challenged to begin to explore refinements that would be necessary for plan revision in 2007 to incorporate the results of 28 local and regional mitigation plans. The 2007 plan must also address human-caused hazards. To this end, while the four goal groups reflected in Chapter 4 of this plan mirror those developed by the sub-committees to date, the sub-committees were re-configured slightly to better accommodate plan implementation and refinement. The new Virginia Mitigation Sub-Committees established on July 19, 2004 are:

- Project Advisors
- Planning, Policy & Funding
- Mitigation Database Expansion and Refinement
- Assessment of Human-caused Hazards

These new sub-committees met during the July 19 meeting, assisted by Institute of Environmental Negotiation facilitators. They determined leadership, method of communication and a schedule for meeting during the next 18 months.

2.6 *Additional Workgroup Meetings*

Following the first Steering Committee meeting, the Mitigation Sub-committee met to develop a survey method to gather data regarding existing Commonwealth and other grant programs that might be available to fund mitigation projects. The group developed a survey format that was digitally conveyed to sub-committee members in late August, 2003. The data gather was used to develop a “test” web-based grants database that remains in development. It is anticipated that this database will evolve by late 2004 into a useful tool for those seeking funding beyond traditional FEMA grant programs to support implementation of the strategies and projects included in the Mitigation Plan.

2.7 *Agency Contacts and Interviews*

Throughout the planning process additional resources were identified for information to support development of the hazard identification and risk assessment. Meetings were conducted with agency officials contributing information and data to the process. Telephone interviews and email correspondence were also used to supplement meetings.

In addition, agency profiles were developed through a web-based survey. These profiles were completed by agency stakeholders and characterize their agency's role in mitigation planning.

The complete agency profiles can be found in Appendix D.

2.8 *Planning Efforts by State and Local Agencies*

Local jurisdictions in Virginia address some hazards in the planning and development process, primarily through the building code, which includes provisions requiring new buildings and structures to be designed to resist certain flood, wind, snow, and seismic loads. The Uniform Statewide Building Code has very specific provisions addressing fire hazards and the safety of occupants.

In the preparation of a comprehensive plan, the local planning commission is required to survey and study such matters as the use and preservation of land, characteristics and conditions of existing development, natural resources, surface water, geologic factors, environmental and economic factors, existing public facilities, drainage, flood control and flood damage prevention measures, among others. (§15.2.2224,*Code of Virginia*).

Comprehensive plans and ordinances for zoning and subdivisions must explicitly address flood hazards and geologic information (§15.2.223 et seq. *Code of Virginia*). Cities and counties in the coastal zone also must address coastal management issues such as erosion. Hazards that are not specifically addressed include: non-building aspects of severe winter storms, landslides, forest/urban interface and wildfire, and dam-break hazards.

It must be noted that existing programs, statutes and polices of state agencies were reviewed in the early stages of plan development and remained in the background throughout the planning process. However, the final *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* does not attempt to fully integrate these ongoing state and local programs into the mitigation goals, objectives, strategies and projects. The Mitigation Strategy presented in Chapter 4 was developed to address state agency structural, educational, policy and information development deficiencies identified through the hazard identification and risk analysis process described in Chapter 3.

Since many of the Commonwealth's state and local programs, policies and statutes address natural hazards, they are listed in this plan to provide background on institutional, comprehensive approaches to natural hazards mitigation that have been present in Commonwealth programs prior to the 2000 Stafford Act revision. These programs are relevant and contribute significantly to reduced impacts from natural hazards.

2.8.1 Local Planning and Development

With respect to addressing natural hazards, local jurisdictions control land use through plans, ordinances and codes. These programs are enabled through state law and regulation and like the many state programs described in this chapter, contribute significantly to mitigation of natural hazards. These programs were not directly considered during development of the final *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* because the plan primarily addresses state facilities determined to be at risk following analysis of vulnerability of state facilities to natural hazards. However, these efforts are extremely relevant as state agencies generally manage state facilities in a manner that is consistent and complementary of local

comprehensive planning and zoning. State–sponsored construction adheres to the International Building Code, 2000, which has also been adopted for local use. In general, the following local activities reflect local approaches to hazard mitigation prior to Virginia local governments addressing natural hazards through development of local and regional all-hazards plans. Local §322 planning is addressed in Chapter 5 of this document.

- **Comprehensive Plans** are prepared by local planning commissions and address the physical development of land within a jurisdiction's boundaries. The comprehensive plan "shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants" (§15.2-2223, *Code of Virginia*). Most plans evaluate and provide guidance for both land uses and the environment. Residential, business, industrial, agricultural, parks and open space, public land, floodplains, transportation corridors, community facilities, historical districts and areas targeted for redevelopment are all addressed within the plan. Also included are demographic trends such as population densities and information on the age and quality of the housing stock
- **Zoning Ordinances** are for the general purpose of promoting the health, safety or general welfare of the public. Some consideration to the following should be given within each zoning district, where applicable:
  - adequate light, air, convenience of access, and safety from fire, flood, crime and other dangers;
  - the provision of adequate police and fire protection, disaster evacuation, water, sewerage, flood protection, and other public requirements; and
  - protection against loss of life, health, or property from fire, flood, panic or other dangers (§15.2-2283, *Code of Virginia*).
- **Land Subdivision and Development Ordinances** are prescribed by statute and provide restrictions for plats, utilities, and streets, and address flood control, drainage, and other regulations that control the density and use of the land. (§15.2-2241, *Code of Virginia*).
- **2000 International Building Code** includes provisions related to wind hazards, snow loads, seismic risk flood hazards, and structural fire hazards. The 2000 International Building Code was adopted October 1, 2003 and supersedes local building codes and regulations. [§36-98, *Code of Virginia].* The code has been cross-walked with the National Flood Insurance Program regulations and is consistent with local floodplain ordinances.
- **Floodplain Management**, in addition to the provisions of the building code, has typically been addressed by stand-alone ordinances adopted for voluntary participation in the National Flood Insurance Program. Revised floodplain ordinance provisions recently have been incorporated into comprehensive zoning ordinances when localities revise or re-codify zoning ordinances.

2.8.2 Emergency Response and Recovery

Response to natural hazard events is coordinated through local emergency management agencies. Most local agencies are responsible for preparing for and training to respond to disasters, whether natural or technological in origin. Recovery, especially from major events, may involve other local agencies, such as housing, water/wastewater, and parks

and recreation. Local agencies prepare local emergency management plans that direct their response and recovery operations.

2.9 *State Agencies*

Key word searches of the *Code of Virginia* were conducted (**http://leg1.state.va.us/000/src.htm**). The purpose of the search was to identify statutes that may influence how hazards are currently addressed, and how existing programs and authorities affect hazard mitigation. Key word searches are not intended to be exhaustive, but to suggest areas for further examination. The key words used in this search were:

■ building code	■ infrastructure
■ coastal erosion	■ landslide
■ dam failure; dam safety	■ land use
■ disaster	■ public land
■ earthquake	■ seismic
■ emergency management	■ slope failure
■ flood; floodplain	■ steep slope
■ forest fire	■ subsidence
■ growth management	■ tornado
■ hail	■ utilities
■ hazard	■ wind
■ hurricane	■ zoning

In order to summarize how various state agencies address hazards in their on-going activities, a set of questions was distributed to the Committee members. Each member was interviewed about agency authorities, responsibilities, programs and functions. Table 2-1 summarizes the methods that agencies use to influence new development, public buildings and infrastructure, existing development, and public information. Brief agency profiles (see Appendix D) were developed to summarize:

- Agency and contact information;
- Description and mission; and
- Existing programs and mitigation roles.

MITIGATION FUNCTIONS	Agriculture & Consumer Services	Business Assistance	Chesapeake Bay Local Assistance	Commission on Local Government	Conservation & Recreation	Economic Development Partnership	Emergency Management	Environmental Quality	Forestry	Game & Inland Fish	General Services	Geographic Information Network	Health	Historic Resources	Housing & Community Development	Housing Development Authority	Labor & Industry	Marine Resources Commission	Mines Minerals & Energy	Planning & Budget	Rail & Public Transportation	Transportation	Treasury, Risk Management	VA Resources Authority	VA Municipal League/Assoc. of Counties	Local Jurisdictions	Planning District Commissions
INFLUENCE NEW PRIVATE DEVELOPMENT																											
Planning (e.g., land use, comprehensive, etc.)			◆						◆									◆	◆			◆				◆	◆
Regulations (e.g., permits, codes, standards)								◆					◆	◆	◆				◆			◆				◆	
Funding (e.g., for public infrastructure, housing)								◆					◆		◆	◆								◆			◆
INFLUENCE PUBLIC BUILDINGS, PUBLIC INFRASTRUCTURE																											
Standards for planning & construction of buildings											◆				◆			◆								◆	
Loss control/Insurance on buildings		◆																					◆		◆		
Standards for planning & construction of roads					◆													◆				◆					
Standards for planning & construction of infrastructure					◆			◆					◆		◆			◆			◆					◆	
INFLUENCE EXISTING DEVELOPMENT, REDEVELOPMENT, POST-DISASTER RECOVERY																											
Regulations (e.g., codes for existing building)								◆			◆		◆	◆	◆		◆									◆	
Planning (e.g., planning & project grants)					◆		◆		◆		◆		◆		◆											◆	◆
Funding/incentives (e.g., tax, subsidies, grants, loans)		◆			◆		◆		◆				◆		◆									◆			
Technical assistance	◆	◆			◆	◆	◆	◆	◆		◆	◆	◆	◆	◆		◆					◆				◆	◆
PUBLIC INFORMATION																											
Information (e.g., outreach, awareness)	◆	◆	◆	◆	◆	◆	◆	◆	◆			◆	◆	◆	◆		◆	◆	◆			◆		◆	◆	◆	◆

Table 2.1 Mitigation Planning Function, by Agency.

The section of each profile that summarizes existing programs and mitigation roles contains information regarding how hazards are addressed. For the most part, agency activities do not expressly address hazards; however, some programs address hazards tangently.

VDEM emphasized throughout this planning process that agencies should provide data and proposed and ongoing projects (discussed in Chapter 4 and listed in Appendix H) that come from existing programs and mitigation efforts for those agencies. The agencies and programs that most directly address hazards and mitigation include:

- **Department of Emergency Management.** VDEM's primary mission is to protect the lives and property of Virginia's citizens from emergencies and disasters by coordinating the state's emergency preparedness, mitigation, response and recovery efforts. It is the responsibility of VDEM to ensure a comprehensive, efficient and effective response to emergencies and disasters throughout Virginia, including provision of assistance in the absence of events for which federal aid is made available. VDEM is charged with supporting mitigation planning and administers the Hazard Mitigation Grant Program that provides grants to eligible entities to implement cost effective mitigation projects in the post-disaster period. VDEM and the Department of Conservation & Recreation coordinate the administration of FEMA's NFIP-funded Flood Mitigation Assistance Program. VDEM also leads the state and federal Public

Assistance Programs, which provide disaster assistance to state agencies, local jurisdictions, and certain private nonprofit entities to repair and restore damaged facilities. Damaged facilities must be repaired in a manner that is compliant with existing codes and standards. VDEM manages the National Weather Service's Integrated Flood Observing and Warning System (IFLOWS) in several western and southwestern counties. IFLOWS improves local flash flood warnings through a linked wide area monitoring and communications network. With other state agencies and local jurisdictions, VDEM coordinates hurricane evacuations, relying in part on information developed as part of the Hurricane Evacuation Study prepared by the U.S. Army Corps of Engineers with support from FEMA, VDEM, and the National Weather Service (VDEM, 1992).

- **Department of Conservation & Recreation.** DCR enhances natural and recreational resources through land management planning, funding, education and regulations. DCR is the State Coordinating Office for the National Flood Insurance Program, administers the dam safety program, and participates in interagency initiatives concerning coastal erosion. A number of DCR's programs have the potential to support certain flood mitigation projects: the Flood Prevention and Protection Assistance Fund helps local jurisdictions address problem areas. Some easement and other programs may support floodplain acquisition projects, including the Scenic Rivers Program, funding from the Virginia Outdoors Fund, the Conservation Reserve & Enhancement Program, and Best Management Practices implemented with Water Quality Improvement grants.
- **Department of Housing & Community Development (DHCD).** DHCD collaborates with communities to assist them in fully developing their economic potential, and to create a healthy, safe and affordable living environment. Three key aspects of DHCD's broad responsibilities merit particular attention: Several funding programs can support local mitigation measures, including the Community Development Block Grant program and other federally funded programs; the State Building Code Official provides technical assistance and interpretation to local governments; and after catastrophic disasters of regional proportions, DHCD coordinates the Long-Term Disaster Recovery Task Force.
- **Department of Forestry (DOF).** Virginia's program, one of the strongest in the nation, is responsible for 15 million acres of forestland, providing protection and management for forest fire, insects, and disease. DOF is directly responsible for suppression of forest fires and supports response to natural disasters. Full-time and part-time wildland firefighters are trained and qualified by DOF in fire control tactics and the Incident Command System. An emergency interagency response center is located in Charlottesville; two mobile command centers are available for rapid deployment. Funded by National Fire Plan grants, DOF has initiated statewide wildland fire risk assessments that will be maintained in a geographic information database system.
- **Virginia Resources Authority (VRA).** The VRA facilitates loans to support local infrastructure for projects concerning environmental quality, public health, transportation and economic development. VRA serves as a banking institution and has no funds of its own. Projects may involve expansion or construction of new facilities, which may be prompted by growth, or replacement/reconstruction of existing facilities. Relocation of facilities may be undertaken, as well as retrofitting or upgrading existing facilities to meet current standards.
- **Department of General Services (DGS).** DGS oversees the design and construction of state-owned buildings, applying the Virginia Uniform Statewide Building Code (USBC) provisions related to wind, seismic, snow, and flood loads. The *Governor's Executive Memorandum 2-97* designates DGS as the agency responsible for ensuring that state construction proposed in mapped

flood hazard areas complies with the NFIP. All proposals are processed as variances, and must be reviewed by DCR.

- **Virginia Department of Transportation.** VDOT is responsible for building, maintaining and operating the state's roads, bridges and tunnels, including the repairs and replacements required after natural disasters. In accordance with the requirements of the Federal Highway Administration, VDOT routinely factors flood hazards into the planning and design of transportation infrastructure, and seismic provisions are required in the southwestern portion of the state. Based on an evaluation of major bridges, seismic retrofit measures are not required throughout the rest of the state.
- **Risk Management Division, Department of Treasury.** The Risk Management Division maintains a blanket insurance policy to cover all state buildings. Each agency pays premiums based on their buildings and loss history. Specific coverage is provided for flood damage, which provides up to $500 million, with a deductible of $1 million for any single event (regardless of the number of impacted buildings). Coverage is provided for losses associated with seismic events.
- **Department of Mines, Minerals & Energy (DMME).** The DMME operates six divisions, which focus on the production of more than 30 different mineral resources such as coal, gas and oil, and non-petroleum minerals like rock and gravel. A primary goal of DMME is that these mining operations have no off-site effects such as increased flood hazards and slope failure potential. The State Geologist's office provides mapping and digital data to local jurisdictions to be included in local plans. Maps of steep slope areas, including areas where landslides have occurred, are available for some areas.
- **Department of Environmental Quality (DEQ).** As the lead agency for the Virginia Drought Monitoring Task Force, DEQ compiles Drought Status Reports using information from several state and federal agencies. The reports, which are distributed by VDEM, contain sections relating to current climatological conditions and situation reports regarding water supplies, water quality, forest fire risks and agriculture and crop reports.
- **Virginia Coastal Program.** The Department of Environmental Quality leads the networked Coastal Program and helps with the development and implementation of coordinated policies. DCR manages the Shoreline Erosion Advisory Service (SEAS), which advises shoreline property owners and coastal resources managers about shoreline erosion control and stabilization methods. The Virginia Marine Resources Commission regulates sand dune modifications; many local jurisdictions have adopted ordinances for sand dune protection and issue permits with the Marine Resources Commission in an oversight role. Virginia Institute of Marine Science provides technical and research support. The Board on Conservation and Development of Public Beaches provides for the conservation of tidal public beaches by allocating state-funded grants to local jurisdictions to conserve, protect, improve, maintain and develop public beaches and tidal shorelines.

2.9.1 Related State Plans and Documents

There are many state plans and documents related to mitigation planning in Virginia. Existing state plans and documents that most affect mitigation were reviewed in detail, and are summarized below.

Commonwealth of Virginia Emergency Operations Plan; Volume 6 Mitigation (2001) (Virginia Department of Emergency Management, 2001). This plan, developed primarily to meet federal regulatory requirements, was prepared using a traditional planning

process. A list of the "task assignments" was included in Section 5.3. A number of opportunities were identified and incorporated into this new Virginia *Hazard Mitigation Plan*. This plan replaced the 1993 plan.

High Priority Mitigation Actions - 2001

1. Make Available to Local Jurisdictions Information about Programs and Funding Mechanisms that May Support Mitigation Projects.

2. Foster Local Pre-Disaster Mitigation Planning.

3. Identify Existing and Potential Mitigation Projects; Seek Funding; Support Post-Disaster Repairs.

4. Increase Public Education and Awareness of Hazards and Mitigation.

5. Mitigate Damage and Losses at Local Public Buildings, School Buildings, and Water/Wastewater Treatment Facilities and Strengthen Ability to Continue Service.

6. Examine Measures to Help Reduce Power Outages During Disasters.

7. Protect State Investments in High Risk Areas.

Floodplain Management Plan for the Commonwealth of Virginia (1997) (Virginia Department of Conservation and Recreation). This document contains valuable information on flood hazards and risks, and defines the state's role in floodplain management. It contains a modest action agenda, which is reflective of concerns about reductions in program staff and resources in the early 1990s. A summary of the status of the action agenda set forth in the Plan was included in the plan. A review of the Plan, on file with VDEM and DCR, recommended that the *Floodplain Management Plan* form the technical basis for the flood-related actions set forth in this Hazard Mitigation Plan. However, delay of revision of the State *Floodplain Management Plan* precluded its use in developing the hazard and risk analysis for this plan. The State Floodplain Management Coordinator began revision of the plan during spring, 2004 with completion anticipated for December, 2004. It will adopted as an annex to the 2004 Mitigation Plan and will be used to inform future hazard and risk analysis for Mitigation Plan revisions.

Executive Memorandum 2-97, Floodplain Management for State Agencies (1997). Developed in the early 1990s and adopted after Hurricane Fran in 1996, this document is a clear statement of the Governor's intent that all state agencies have some responsibility in managing flood hazards and reducing their impacts through a series of different avoidance, promotion, and coordination activities. A summary review is on file with VDEM and DCR. As set forth in the Executive Memorandum, the Governor addresses important aspects of state performance:

- DCR is charged as the State Coordinating Office of the NFIP and the technical advisor on the viability of proposed flood mitigation projects;
- All State agencies engaged in construction or land disturbing activities are to comply with locally adopted floodplain management ordinances;

- New state buildings in flood hazard areas must be authorized by a variance obtained from the Director of the Department of General Services' Division of Engineering and Buildings in consultation with DCR; and
- The State Corporation Commission determines the adequacy of the Commonwealth's insurance with respect to potential flood damage.

All state agencies follow the directives listed above routinely. Therefore, the Executive Memorandum is considered state policy that must be followed by all state agencies. It represents ongoing mitigation efforts, not new initiatives, so is not further addressed by this plan.

Mitigation Strategies: Prepared by the Commonwealth and FEMA immediately following establishment of a Disaster Field Office to respond to each presidential declared disaster, the Mitigation Strategy focuses mitigation priorities specific to recovery from that disaster. In conjunction with the state's mitigation goals and vision statement, the Mitigation Strategy priorities are determined to support recovery operations for the specific disaster event. These priorities can include education, support of local officials in administration of floodplain ordinance requirements, targeted technical training and development of specific mitigation messages for affected residents, businesses and local governments. The Strategy outlines priorities for implementing Hazard Mitigation Grant Program funding that is determined as 7 ½% of eligible program expenditures for the disaster. Immediate recovery priorities are outlined to guide eligible HMGP applicants; these priorities are used to rank and select HMGP project applications.

2.9.2 Federal Agencies & Programs

The following list of federal programs is intended to focus on those that are most applicable to the hazards that have occurred recently in Virginia. After each declared disaster, federal resources that may support recovery are identified. Some federal programs can be accessed in an ongoing capacity to support local initiatives. More detailed information on these programs and others can be found in *Federal Programs Offering Flood Recovery and Floodplain Management Alternatives* (Office of Management and Budget, 1998) and *Economic Impact Assessment of Hurricane Floyd for Virginia* (EDA and FEMA, 2000). As with local and state programs, these programs were in the background of the development of this plan, but were not specifically integrated into the final *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* because the plan primarily addresses state facilities determined to be at risk following analysis of vulnerability of state facilities to natural hazards. As implementation of the plan ensues, every opportunity to integrate existing federal programs into hazard mitigation will be explored.

Federal Emergency Management Agency (FEMA). As the nation's emergency management agency, FEMA's programs focus mainly on supporting state and local initiatives that will reduce the impacts of disasters. The programs provide technical assistance, regulatory standards and financial assistance. Additional information is available online at **www.fema.gov**. Some programs are activated only after a disaster is declared; others are ongoing:

- **Hazard Mitigation Grant Program (HMGP).** The HMGP has become the most widely known grant program that provides grant funding to address at-risk development. While the program's primary emphasis has been to remove homes through acquisition or to elevate them above predicted flood levels, HMGP funds have also been used on a wide variety of projects to increase resistance to nearly all natural hazards. Since 1989, over $1.5 billion has been invested nationwide in mitigation through HMGP. Funds for this program

become available only after a disaster declaration; recipients must meet certain eligibility criteria; projects must also be feasible and cost effective. Many of the projects identified within the Structural Mitigation goal element of the plan could be funded through HMGP.

- **Response & Recovery – Public Assistance (PA).** Immediately following the declaration of a major disaster, FEMA and the state implement procedures to assess damage, to estimate the cost of restoration, and to allocate funds for recovery. The Public Assistance program focuses on restoration of certain non-profit and public buildings, public utility and transportation infrastructure and covers a portion of the costs to respond to and recover from the event. Under certain circumstances, mitigation measures can be factored into recovery of public buildings and facilities in order to minimize the potential for future losses from comparable events. Use of this program to strengthen structures impacted by disasters as part of the repair and recovery process will be pursued as disasters occur that provide federal Public Assistance funding for eligible structures. VDEM is responsible for coordinating response and recovery efforts with FEMA and local jurisdictions. Additional information is available on FEMA's website at **www.fema.gov/r-n-r/pa/index.htm**.
- **Response & Recovery – Individual Assistance (IA).** Also implemented jointly immediately following a major disaster declaration for events that impact citizens, the IA program provides funds for temporary housing, basic housing repairs, and replacement of essential household items. Contact VDEM for additional information and check FEMA's website at **http://www.fema.gov/R-N-R/iNassist.htm**.
- **Pre-Disaster Mitigation.** In the late 1990s, FEMA's *Project Impact* initiative was created to promote the concept of disaster resistant communities through public-private partnerships. The program was eliminated following the Stafford Act revision in 2000. This law created the requirement to develop all-hazard mitigation plans. The Pre-disaster Mitigation Program was created to fund common-sense, damage-reduction approaches, based on planning developed with three principles: (1) preventive actions must be decided at the local level; (2) private sector participation is vital; and (3) long-term efforts and investments in prevention measures are essential. Projects identified in the Structural Mitigation goal section of the plan will pursue PDM funding as FEMA releases Requests for Proposals for this program. Local governments are currently preparing local hazard mitigation plans that will allow them to compete for Pre-Disaster Mitigation funds once their local plan is approved.
- **Flood Mitigation Assistance Program (FMAP).** This grant program is intentionally focused on those properties that, if mitigated, will benefit to the National Flood Insurance Program and its policyholders. For the most part, the projects acquire, elevate or relocate residential buildings that have a history of repetitive claims against the NFIP. All projects, including measures other than acquisition and elevation, must be cost effective and not have adverse environmental impacts. Localities wishing to apply for these funds must have an approved Flood Mitigation Assistance Plan or All-Hazards Mitigation Plan. This funding source will be pursued for local structural mitigation projects as local DMA plans are approved. Additional information is available from FEMA's website or the Department of Emergency Management.
- **National Flood Insurance Program (NFIP).** The NFIP offers flood insurance to residents who reside in local jurisdictions that adopt and enforce certain provisions that will help to minimize future flood losses. The measures apply to all activities proposed within special flood hazard areas that are designated on maps provided by FEMA. All development must be designed and constructed to withstand damage (from water and wind-related hazards) and must not create

any adverse impacts on other properties. The single most effective measure (other than build away from flood-prone areas) is to elevate buildings above the base flood elevation. Additional information is available through DCR or on FEMA's website at **www.fema.gov/nfip**.

- **Map Modernization Program.** As part of the NFIP, FEMA oversees the development of flood hazard maps. Flood Insurance Rate Maps (FIRM) are used by local jurisdictions to regulate development. Projects intended to reduce flood damage generally are designed using the flood hazard information show on the maps and contained in accompanying engineering studies. Although nearly all flood-prone communities in the nation have been mapped, FEMA has a significant backlog of revisions and updates that need to be performed on an ongoing basis. The Commonwealth is currently revising maps through a national Map Modernization initiative. DCR completed its *Map Modernization Program Business Plan* in 2004 and has initiated implementation of this plan. The Commonwealth is participant in the Cooperative Technical Partners program, as are many Commonwealth local jurisdictions. Additional information is available through DCR.
- **Community Rating System (CRS).** The CRS is an incentive program that rewards communities that exceed NFIP regulations in ways that reduce damage and improve safety. The incentive is a reduction in the cost of flood insurance premiums. Communities must apply, annually certify their programs, and undergo periodic audits. In Virginia, 16 communities participate and provide discounts to their residents of 5% to 10%. Additional details are available from DCR.
- **National Earthquake Program.** The National Earthquake Program, coordinated by FEMA, has four basic goals directly related to the mitigation of seismic related hazards: (1) promote understanding of earthquakes and their effects; (2) work to better identify earthquake risk; (3) improve earthquake-resistant design and construction techniques; and (4) encourage the use of earthquake-safe policies and planning practices.
- **National Hurricane Program.** FEMA funding is provided to hurricane-prone states to establish, enhance and maintain basic levels of preparedness and mitigation capabilities, to promote effective mitigation measures, to conduct hazard identification and evacuation studies, to conduct post-storm analyses of mitigation measures, to conduct training, and to promote public awareness and education of hurricane safety and preparedness. The Commonwealth's participation is coordinated by a hurricane planner within VDEM.
- **National Dam Safety Program.** FEMA coordinates the National Dam Safety Program among federal agencies and state partners. In addition to maintaining a dam inventory, encouraging research, and promoting the implementation of state programs, the program also provides training and funds. Virginia's participation is coordinated by the Division of Dam Safety and Floodplain Management at DCR.
- **Hazards U.S. (HAZUS).** HAZUS is a computer program that utilizes a set of Geographic Information System (GIS)-based mapping tools that can help to estimate losses associated with earthquakes, floods, and wind. Developed in partnership with the National Institutes for Building Safety, HAZUS can be used to model event scenarios that are useful to compare risks between regions as well as to evaluate the effects of certain mitigation measures. Each state receives a copy of the software and certain baseline data. Recent improvements have been made in the quality of data that characterize building types and locations, significantly improving the analysis results.

U.S. Department of Housing and Urban Development (HUD). HUD programs are administered through the Virginia Department of Housing and Community Development and offer several programs that support local efforts to address hazards and to implement mitigation measures. The following are some of the more active programs used to minimize flood hazards:

- **Community Development Block Grant (CDBG).** CDBG funds are available to support activities that meet one of the three National Objectives criteria established by HUD:
  - benefit low and moderate income persons;
  - prevent or eliminate slum and blight conditions; or
  - meet other community development needs having a particularly urgency because existing conditions pose a serious and immediate threat to the health and welfare of the community, and where other financial resources are not available.
- **HOME Housing Partnerships Program.** HOME program funds give communities the flexibility to undertake a broad range of affordable housing activities, including the acquisition of property, construction of new housing for rent or homeownership, rehabilitation of rental or owner-occupied housing, improvement of sites or demolition of dilapidated homes, relocation costs for households displaced by HOME program activities, financial assistance to low-income homeowners and new homebuyers, and tenant-based rental assistance for low-income renters. The Virginia Department of Housing and Community Development coordinates the HOME program.

U.S. Department of Commerce, Economic Development Administration (EDA). EDA supports economic recovery strategies, in part by providing cost-shared funds for planning and technical assistance, emergency infrastructure grants, construction grants and a Revolving Loan Fund to assist communities and quasi-public entities such as local development corporations and public or private non-profit organizations. EDA funds have been used to retrofit or relocate public water supply or wastewater treatment facilities. After disasters, some communities use EDA long-term recovery funding to help businesses move to safer locations.

U.S. Army Corps of Engineers. In addition to managing several large dams, levee protection projects and beach nourishment projects, the Corps supports state and local floodplain management and mitigation through the following:

- **Floodplain Management Services (FPMS).** Under FPMS, the Corps provides a full range of technical services and planning guidance support for state and local efforts. The same services are available to non-governmental entities, including individuals, on a reimbursable basis. The Corps can provide information on flooding, estimates of potential flood losses, and guidance for managing flood hazard areas. Under FPMS, the Corps investigates methods to prevent and reduce flood damage, including retrofit and other flood proofing methods.
- **Planning Assistance to States (Section 22).** Assistance and planning guidance to state, regional and local governments is provided on a cost-shared basis and can address a variety of water resources issues, including floodplain management, flood damage reduction, dam safety, water supply, water quality, coastal zone management, wetlands management and environmental conservation and preservation.
- **Hurricane Evacuation Studies.** Coordinated with FEMA and the National Weather Service (NWS), the Corps leads development of regional evacuation

studies based on predicted storm conditions developed by the NWS. Virginia's involvement is coordinated by VDEM and resulted in the *Virginia Hurricane Evacuation Study*

(VDEM, 1992). Updated evacuation studies for Virginia's Tidewater region and the rest of the Chesapeake Bay are expected in the next few years.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). The NRCS is dedicated to the conservation of soil and water and related resources. Technical assistance is provided to individuals, groups, organizations and government agencies through conservation districts. Virginia's Departments of Agriculture and Consumer Services and Conservation and Recreation are the state's contacts for NRCS programs:

- Under authority in Public Law 566, numerous flood reduction projects have been built to address problems in small watersheds. NRCS supports river basin and watershed planning initiatives undertaken by local jurisdictions.
- The Emergency Watershed Protection Program can provide technical and financial assistance to communities to repair and restore clogged and damaged waterways to pre-disaster conditions.
- The Emergency Conservation Program, coordinated with the USDA Farm Services Agency, provides technical assistance to the agricultural community after disasters.
- Wetland Reserve Program provides technical and financial support to help landowners implement wetland restoration, conservation and wildlife practices.

U.S. Department of Agriculture, Other Programs. USDA has a number of loan and grant programs that may support mitigation initiatives and post-disaster recovery. Additional information may be obtained from the U.S. Department of Agriculture or on-line at **www.usda.gov**:

- Rural Business-Cooperative Development Service Business and Industrial Loans help create jobs and stimulate rural economies by backing rural businesses.
- Rural Housing Service Community Facilities Loans and Grants can be used to construct, enlarge or improve community services for health care, public safety, and public services.
- Water and Waste Grants and Loans are used to develop, replace, or repair water and waste disposal (including storm drainage) systems in rural areas and small towns.
- Farm Service Agency Emergency Conservation Program assistance can be used to rehabilitate certain farmland damaged by floods or other disasters.
- Farm Service Agency Tree Assistance provides cost-shared payments to orchardists, maple sugar producers, greenhouse operators and vineyard growers who incur losses due to damaging weather.
- Federal Multi-Peril Crop Insurance policies insure against losses due to natural causes such as drought, excessive moisture, hail, wind, frost, insects and disease.
- Non-insured Crop Disaster Assistance Program helps growers of crops for which crop insurance is not available.
- Farm Service Agency Flood Risk Reduction allows farmers to voluntarily enter into contracts to receive payments on lands with high flood potential in return for foregoing certain USDA program benefits.

- Conservation Reserve Program helps landowners conserve and improve soil, water and wildlife resources by converting environmentally sensitive acreage to long-term, approved cover.
- Emergency Conserve Program provides funding to address new conservation problems created by disaster that, if not treated, would impair or endanger the land. Funds can be used to rehabilitate farmland damaged by wind erosion, floods, hurricanes, or other natural disasters and to carry out water conservation measures during drought.

U.S. Small Business Administration (SBA). The SBA has the authority to declare disaster areas based on the number of homes and businesses that are affected, even if the event does not warrant a declaration by the President. SBA provides low-interest loans, and can authorize loan amounts up to 20% above the costs of restoration if the applicant agrees to implement mitigation measures. Individuals and businesses can use SBA funds to pay for the non-federal share of HMGP and FMA projects to elevate-in-place, relocate, or flood-proof buildings in flood hazard areas. The Virginia Department of Business Assistance is one source of information, and the SBA is on-line at **www.sba.gov**:

- **SBA Business Physical Damage Loan Program.** Available to help businesses and nonprofit organizations repair or replace uninsured damaged property such as real estate, machinery and equipment, inventory, and supplies. SBA requires borrowers to obtain and maintain appropriate insurance, especially if located in a flood hazard area.
- **SBA Economic Injury Disaster Loan.** These loans of “last resort” provide working capital to small businesses and small agricultural cooperatives to help them through the recovery period.

Chapter 3 Hazard Identification and Risk Assessment

Disaster Mitigation Act of 2000

§201.4(c)(2): Risk assessments that provide the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide risk assessments must characterize and analyze natural hazards and risks to provide a statewide overview. This overview will allow the State to compare potential losses throughout the State and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessments.
The risk assessment shall include the following:
§201.4(c)(2)(i): An overview of the type and location of all natural hazards that can affect the State, including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate;
§201.4(c)(2)(ii): An overview and analysis of the State's vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State risk assessment. The State shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State owned critical or operated facilities located in the identified hazard areas shall also be addressed;
§201.4(c)(2)(iii): An overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in local risk assessments as well as the State risk assessment. The State shall estimate the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.

3.1 *Overview of the Hazard Identification and Risk Assessment (HIRA) Process*

The Hazard Identification and Risk Assessment (HIRA) for the Commonwealth of Virginia Hazard Mitigation Plan was conducted primarily by the Virginia Tech Center for Geospatial Information Technology. The following sections of this chapter will cover the following three main requirements for the HIRA:

Identifying and Profiling Hazards
Assessing Vulnerabilities
Estimating Potential Losses

Two important considerations that run throughout this chapter are overall data availability and lack of completed local plans. The FEMA guidelines emphasize using "available data"

for this plan. Many existing plans and reports exist addressing hazard mitigation for Virginia, such as the eight volume *Commonwealth Emergency Operations Plan* (EOP) (most volumes available at http://www.vdem.state.va.us/library/eplan.cfm). Initially, the Commonwealth considered "converting" the data and information contained within these types of reports into a comprehensive Mitigation Database for purposes of conducting the HIRA. With the onset of Hurricane Isabel and the necessity of bringing in Virginia Tech to assist with completion of the HIRA, the decision was made to develop a minimal Mitigation Database using readily available information in digital formats, preferably already in a Geographic Information System (GIS) format. When appropriate for the analysis for population and state facilities, publicly available maps and data tables were converted to work within a GIS context. However, for other at-risk assets, such as transportation infrastructure, where data security and availability issues arose, the existing plans and reports were deemed adequate in their current format to address the Federal requirements for this current version of the Virginia Hazard Mitigation Plan.

The data availability issues were also compounded by the lack of any completed local plans during the time period when the Virginia HIRA was being conducted (Dec. 2003 – Feb. 2004). This absence of local information about features such as local critical facilities and infrastructure greatly limited the scope of the Commonwealth HIRA. In the following sections of this chapter, the impact of these data limitations will be shown through the different vulnerability assessment and loss estimation methods used for hazards.

3.2 *Identifying and Profiling Hazards*

Based on the Federal Guidelines, the HIRA only focused on natural hazards and their impact on the Commonwealth. It should be noted that almost all volumes of the *Virginia EOP* either directly or indirectly address human-caused hazards to varying extents.

Federal Disasters

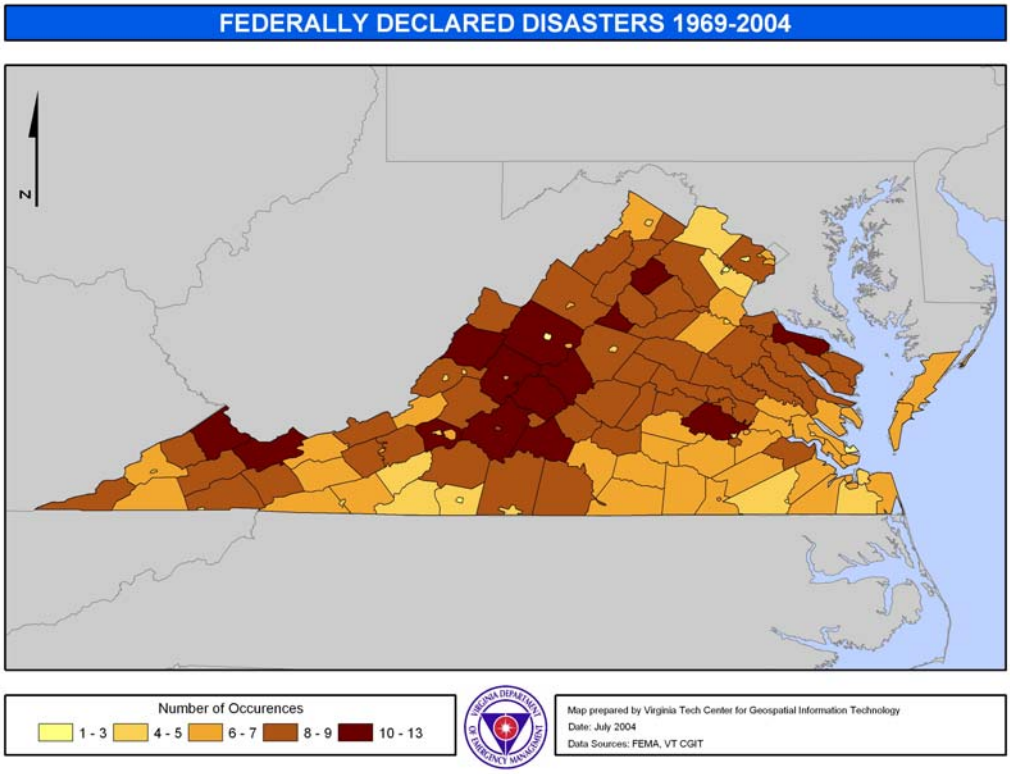


Figure 3-1. Federally Declared Disasters in Virginia from 1969 through June 2004.
Note: All maps in this chapter are included in Appendix F in full page landscape format.

Figure 3-1 shows the extent of federally declared disasters in Virginia. The map shows that 15 counties and cities have had 10 or more disasters in the last 35 years.

Table 3-1 lists these disasters, the type of disaster, and the number of jurisdictions declared.

Table 3-1. Presidential Disaster Declarations in Virginia Since 1969

Date	Type	Jurisdictions Declared
August 1969	Hurricane Camille	27
June 1972	Hurricane Agnes	106
September 1972	Storm/Flood	3
October 1972	Flood	31
April 1977	Flash Flood	16
November 1977	Flood	8
July 1979	Flood	1
September 1979	Flood	1
May 1984	Flood	3
November 1985	Flood	52
October 1989	Flood	1
April 1992	Flood	24
March 1993	Snowstorm	43
August 1993	Tornado	1
February 1994	Ice Storm	71
March 1994	Ice Storm	29
June 1995	Flood	24
January 1996	Blizzard	All counties & cities
January 1996	Flood	27
September 1996	Hurricane Fran	88
August 1998	Hurricane Bonnie	5
September 1999	Hurricane Dennis	1
September 1999	Hurricane Floyd	48
February 2000	Winter Storm	107
July 2001	Flood	10
September 2001	Pentagon Attack	1
March 2002	Flood	10
April/May 2002	Flood	9
February 2003	Winter Storms/Flood	39
September 2003	Hurricane Isabel	100
November 2003	Flood	6
May 2004	Flood	3

Reference:
Virginia Department of Emergency Management (VDEM). 2004. Presidential Disaster Declarations in Virginia Since 1969. < http://www.vdem.state.va.us/library/dishist.cfm > (8/19/2004).

Listed below is more information about these and other major disasters in Virginia's recent history:

- **Ash Wednesday Storm in 1962.** Damage was experienced up and down Virginia's Tidewater region. Houses along the coast and bay region were damaged and flooded by high waves and 7 to 9 foot water rises, Virginia Beach's concrete boardwalk and sea wall were damaged, and extensive shoreline erosion occurred. The city of Hampton alone had an estimated $4 million in wind and flood damage.
- **Hurricane Camille in 1969**. This major storm made landfall out of the gulf as a category 5 and weakened to a tropical depression before reaching the state. Precipitation trained over regions many hours, dropping more than 27 inches of rain in Nelson County and over ten inches in the area from Lynchburg to Charlottesville. Flooding and landslides, triggered by saturated soils, resulted in catastrophic damage. More than 150 people died and another 100 were injured. At the time, damage was estimated at more than $113 million.
- **Tropical Storm Agnes in 1972.** This event produced devastating flooding throughout the Mid-Atlantic States. Some areas of eastern Virginia received over 15 inches of rainfall as the storm moved through. The Potomac and James Rivers experienced

major flooding, which created 5 to 8 feet flood waters in many locations along the rivers. Richmond was impacted the most by these high water levels. Water supply and sewage treatment plants were inundated, as were electric and gas plants. Only one of the five bridges across the James River was open, while the Downtown area was closed for several days and businesses and industries in the area suffered immense damage. Sixteen people lost their lives in the state and damage was estimated at $222 million. These startling numbers resulted in 63 counties and 23 cities qualifying for disaster relief.

- **Tornado in 1973.** This F3 tornado is worth noting because it touched down in heavily populated areas of Northern Virginia and caused $25 million in total damages. The tornado touched down in Price William County and traveled through the cities of Fairfax and Falls Church before dissipating. Fairfax was hit hardest by this tornado; within one 6 mile stretch of damage path, a high school, two shopping centers, an apartment complex, and 226 homes were damaged.
- **Super Tornado Outbreak in 1974.** This was the worst tornado outbreak in U.S. history, generating the most tornadoes in a 24 hour period. Several states were struck with 148 observed tornadoes, killing 315 people and inuring thousands more. Eight of these tornadoes occurred in Virginia. Wind damage was reported in counties from Russell northward to Loudoun. Hundreds of homes and barns and many mobile homes were damaged or destroyed.
- **The Blizzard of 1983.** An unusually large area of the state was covered with more than 12 inches of snow, setting new records in many places. Richmond received 18 inches, while portions of northern Virginia had almost 30 inches. Strong winds that gusted over 25 mph created high snow drifts and made clearing of roads a tough task. This storm cost the state more than $9 million in snow clearance alone.
- **Severe Weather Outbreak, 1984.** Severe weather pushed through the state on May 8th of this year, spawning tornadoes and producing significant downburst wind damage in central and eastern Virginia. There was extensive home, mobile home, building, and tree damage from these cluster thunderstorms' imbedded tornadoes and wind storms, and total damage costs were around $50 million.
- **Election Day Flood, 1985.** Heavy rainfall from October 31 through November 6, 1985, caused record-breaking floods over a large region, including western and northern Virginia. Most of the rain fell on November 4 and 5 causing flash flooding. Heavy rainfall was indirectly related to Hurricane Juan. The Roanoke River rose seven feet in one hour and 18 feet in six hours, cresting at 23 feet on November 5 .There was 22 deaths in Virginia as a result of the flooding. FEMA declared 50 jurisdictions disaster areas, 1.7 million people were affected by the flooding. Flooding damages were estimated at $800 million.
- **The Storm of the Century, 1993.** Affecting nearly the entire East Coast, this storm killed 200 people and generated a few billion dollars of damage and snow removal costs. Although its effects in Virginia did not exceed the Ash Wednesday Storm in 1962, it affected more communities ranging from the Chesapeake Bay through the center part of the state and reaching into Southwest Virginia. Blizzard conditions in western Virginia dropped 2 to 3 feet of snow and produced snowdrifts up to 12 feet deep. Snow removal and clean-up costs were estimated at $16 million for the state.
- **The Petersburg/Colonial Heights Tornado in 1993.** This tornado outbreak killed four people and injured another 238 people; The strongest tornado touched down in Petersburg as an F4, with maximum winds estimated at 210 mph. Major damage occurred in the Old Towne section of Petersburg, and destroyed several stores and businesses in Colonial Heights. Other tornadoes hit the same day in the City of Newport News and the City of Chesapeake. In only 4 hours, 18 tornadoes were able to carve paths through southeast Virginia, setting a new record for the Commonwealth.

Total damages were estimated to be $52.5 million, making it Virginia's most costly tornado outbreak to date.

- **Ice Storm of 1994.** This winter storm coated portions of Virginia with 1 to 3 inches of ice from freezing rain and sleet. This led to the loss of approximately 10 to 20 percent trees in some counties, which blocked roads and caused many people to be without power for a week. There were numerous automobile accidents and injuries from people falling on ice. Damages were estimates at $61 million.
- **The Blizzard and flooding of Winter 1996.** Also known as the "Great Furlough Storm" due to Congressional impasse over the federal budget, the blizzard paralyzed the Interstate 95 corridor, and reached westward into the Appalachians where snow depths of over 48 inches were recorded. Several local governments and schools were closed for more than a week. The blizzard was followed with another storm, which blanketed the entire state with at least one foot of snow. To compound things, heavy snowfall piled on top of this storm's accumulations in the next week, which kept snow pack on the ground for an extended period of time. This snow was eventually thawed by higher temperatures and heavy rain that fell after this thaw resulted in severe flooding. Total damage between the blizzard and subsequent flooding was over $30 million.
- **Hurricane Fran in 1996.** This hurricane is notable not only for the $350 million in damages, but because of its widespread effects, including a record number of people without power and the closure of 78 primary and 853 secondary roads. Rainfall amounts between 8 and 20 inches fell over the mountains and Shenandoah Valley, leading to record-level flooding in many locations within this region. 100 people had to be rescued from the flood waters and hundreds of homes and buildings were damaged by the flood waters and high winds.
- **The Christmas Ice Storm, 1998.** This prolonged ice storm struck central and southeast Virginia in the days leading up to Christmas. Ice accumulations exceeded an inch, bringing down many trees and power lines within this region. 400,000 people were without power on Christmas Eve, and some of these people did not get their power back for up to ten days. Property damage from this storm was estimated to be around $20 million.
- **Wildfires of 1999.** The Purgatory Mountain Fire in Botetourt County, one of the largest fires of the year, burned 1,285 acres and cost over $166,000 to contain. A fire on Clinch Mountain in Southwest Virginia burned only 240 acres but containment costs exceeded $97,000 due to the mountainous terrain and extreme drought conditions. A total of 1,749 fires burned 12,118 acres, considerably exceeding the five-year average of 1,320 fires and 6,081 acres.
- **Hurricane Floyd in 1999.** This large hurricane brought 10 to 20 inches of total rainfall over portions of southeast Virginia, with wind gusts up to 100 mph and storm surges approaching 7 feet along the coast. These three elements combine together to cause total storm damages of approximately $255 million. This disaster will long be remembered in the City of Franklin and Southampton and Isle of Wight Counties, as well as the other 44 Virginia jurisdictions included in the major disaster declaration. More than 8,900 homes, businesses and public facilities were either destroyed, significantly damaged, or sustained moderate impacts. In addition to direct property damage, lost business revenues were estimated at $13.1 million, with the City of Franklin losing nearly $2 million in tax revenues. Direct crop losses were estimated at $17 million. FEMA reports allocating $8.9 million for assistance to families and individuals, and $19.8 million for public assistance.
- **Terrorist Attack, 2001.** American Airlines Flight 77 was hijacked and flown into the Pentagon in Arlington County, Virginia. The hijacking resulted in over 150 fatalities when it crashed into the west side of the building.

- **Southwest Virginia Flooding in 2001-2004.** A total of six federal disasters, primarily flooding and severe storms, have been declared in Southwest Virginia from 2001-2004 (Disasters 1386, 1406, 1411, 1458, 1502, and 1525). The worse hit counties were Tazewell (all 6 disasters), Buchanan (5 disasters), and Russell (4 disasters). Dickenson, Lee, Smyth, and Wise Counties were also declared in half of these six disasters. Many of these disasters have storm tracks along the mountain valleys, producing excessive localized flooding. Catastrophic flooding has been experienced in rural settlements as well as in Bluefield, Hurley, Appalachia, Pennington Gap, Norton, Dante and Wise.
- **Hurricane Isabel in 2003.** Hurricane Isabel entered Virginia September 18 after making landfall along the North Carolina Outer Banks. The Commonwealth sustained tropical storm winds for 29 hours with some maximum winds approaching 100 mph. The hurricane produced storm surge of 5 to 8 feet along the coast and in the Chesapeake Bay with rainfall totals between 2 to 11 inches along its track. Twenty-one inches of rainfall was measured near Waynesboro Virginia. Damages due to wind, rain, and storm surge resulted in flooding, electrical outages, debris, transportation interruption, and damaged homes and businesses. At the height of the incident approximately 6,000 residents were housed in 134 shelters and curfews were imposed in many jurisdictions. Further damages occurred when a series of thunderstorms and tornados came through many of the designated areas in the southeast portion of Virginia on September 23. There were a total of 36 confirmed deaths. More than 93,000 registrations were made for assistance. Residential destruction included 1,186 homes reported destroyed and 9,110 with major damage, 107,908 minor damage, with losses estimated over $590 million. Of the 1,470 businesses involved, 77 are reported destroyed, 333 suffered major damage and 1,060 businesses suffered minor or casual damage, with losses exceeding $84 million. Public assistance exceeds $250 million and continues to increase. More than two-thirds of the households and businesses within the Commonwealth were without power. Remote locations did not have power restored for three weeks.

This brief overview of major recent disasters shows how flood, wind, fire, and winter storms have a devastating impact on Virginia. The following sections will expand from this historical overview of hazards to specifics about prediction of their future occurrence.

Natural Hazard Overview

Table 3-2 provides an overview of all natural hazards included with this Plan. The relative risk category relates to a subjective ranking procedure, which will be described in Section 3.3. The Analysis Level shows how all of hazards were addressed in the Plan. An emphasis was made in the HIRA to conduct analysis for all high relative risk hazards, and for medium and low hazard when data was available.

Table 3-2. Natural Hazards Addressed in the Virginia Hazard Mitigation Plan

Hazard	Type	Relative Risk Category	Analysis Level	Data Reference
Blizzards/ Winter Storms	Including winter storms, Nor'easters, ice storms, and excessive cold	High	Covered by HIRA Winter Storm Analysis	NOAA National Weather Service Records (Ref. 4,6)
Coastal/ Shoreline Erosion		Medium	Described under Flooding	
Dam Failure		Low	Description Only	Virginia EOP Volumes 1 and 8
Drought	Including excessive heat	Medium	Description Only	Drought Monitor (Ref. 11)
Earthquake		Low	Description Only	USGS (Ref. 9)
Flooding	Coastal	Medium	Covered by HIRA Flood Analysis	FEMA DFIRM, Q3, and FIRM Mapping (Ref. 2)
	Riverine	High		
High Wind/ Windstorm	Including Thunderstorms and Lighning	Low	Covered by HIRA Wind Analysis	ASCE Design Wind Speed Maps (Ref. 1, 2)
Hurricane	Hurricane, generally	Medium	Covered by HIRA Flood and Wind Analyses	FEMA DFIRM, Q3, and FIRM Mapping and ASCE Design Wind Speed Maps (Ref. 1, 2)
	Tropical Depressions	Low		
	Tropical Storms	Medium		
	Category 1	Medium		
	Category 2	High		
	Category 3	Low		
Land Subsidence	Karst only	Low	Covered by HIRA Karst Analysis	USGS (Ref. 8)
Landslide		Low	Covered by HIRA Landslide Analysis	USGS (Ref. 7)
Tornado	Tornados, generally and hail	High	Covered by HIRA Tornado Analysis	NOAA National Weather Service Records (Ref. 3)
	F0	Medium		
	F1	High		
	F2	Low		
Wildfire		High	Covered by HIRA Wildfire Analysis	Virginia Department of Forestry (Ref. 10)

References:
1. American Society of Civil Engineers (ASCE), *Minimum Design Loads for Buildings and Other Structures*, ASCE 7- 98. 1998. Public Ballot Copy, American Society of Civil Engineers. Reston, VA.
2. Federal Emergency Management Agency (FEMA). 2003a. "The FEMA Map Store", *Federal Emergency Management Agency, Department of Homeland Security*, <http://store.msc.fema.gov/> (6/24/2004).
3. National Oceanic and Atmospheric Administration (NOAA) Storm Prediction Center. 1999. "Historical Tornado Data Archive", *National Oceanic and Atmospheric Administration Storm Prediction Center,* <http://www.spc.noaa.gov/archive/tornadoes/>, (6/24/2004).
4. National Oceanic and Atmospheric Administration (NOAA) National Climatic Snow Center. 2002. "United States Snow Climatology", *National Oceanic and Atmospheric Administration National Climatic Snow Center,* <http://lwf.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html>, (6/24/2004).
5. National Oceanic and Atmospheric Administration (NOAA) National Weather Service Tropical Prediction Center: National Hurricane Center. 2004. "NHC/TPC Archive of Past Hurricane Seasons.", *National Weather Service Tropical Prediction Center: National Hurricane Center,* <http://www.nhc.noaa.gov/>, (6/24/2004).
6. Southeast Regional Climate Center (SERCC). 2004. "Historical Climate Summaries for Virginia", *Southeast Regional Climate Center,* <http://www.dnr.state.sc.us/climate/sercc/climateinfo/historical/historical_va.html>, (6/24/2004).
7. United States Geological Survey (USGS). 2002a. "Landslide Incidence and Susceptibility of the Conterminous United States", *United States Geological Survey, Department of the Interior,* <http://nationalatlas.gov/lsoverm.html> (6/24/2004).
8. United States Geological Survey (USGS). 2002b. "Principal Aquifers of the 48 Conterminous United States, Hawaii, Puerto Rico, and the U.S. Virgin Islands", *United States Geological Survey, Department of the Interior,* << http://nationalatlas.gov/atlasftp.html> (6/24/2004).
9. United States Geological Survey (USGS). 2003. "Earthquake Hazards Program", *United States Geological Survey, Department of the Interior,* <http://earthquake.usgs.gov/> (6/24/2004).
10. Virginia Department of Forestry (VDOF). 2004. "Wildfire Risk Analysis", *Virginia Department of Forestry,* <http://www.vdof.org/gis/> (6/24/2004).
11. Drought Monitor. 2004. *Drought Monitor,* << http://drought.unl.edu/dm/archive/99/classify.htm> (6/24/2004).

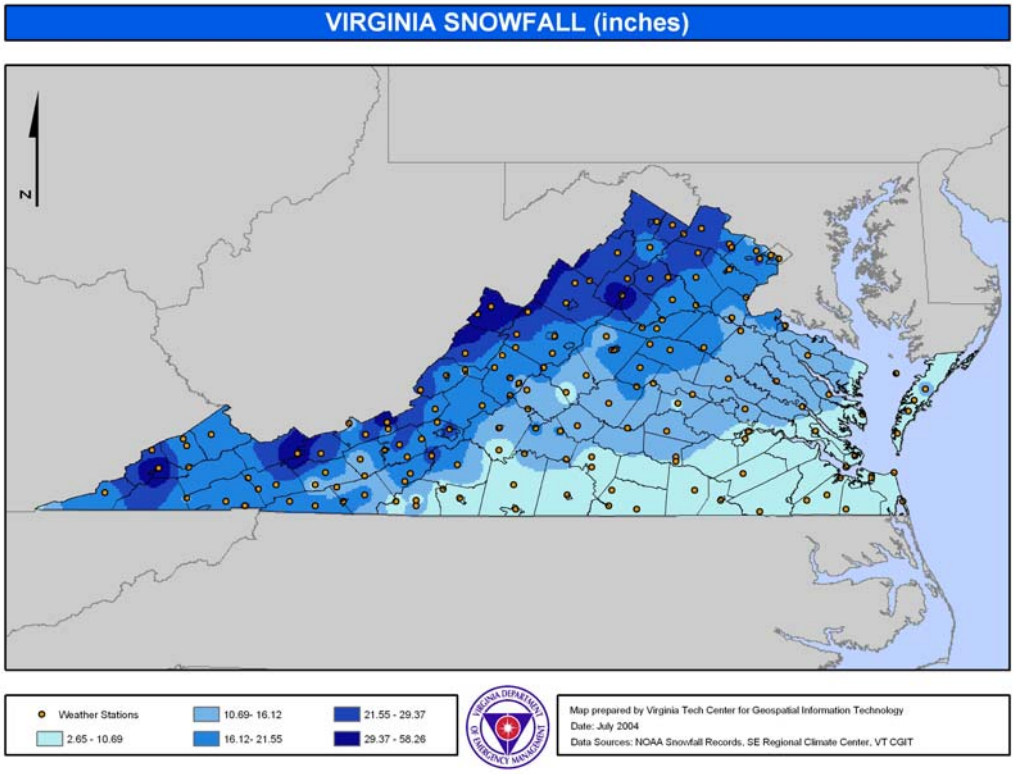
Blizzards Including winter storms, ice storms, excessive cold

Historic Occurrence

The following list, based on available records from VDEM and the NWS, denotes the major winter storms and blizzards in Virginia since 1900:

- Winter Storm, 1908
- Winter Storm, 1912
- Winter Storm, 1921
- "Knickerbocker Storm", 1922
- Winter Storm, 1927
- Winter Storm, 1936
- Winter Storm, 1938
- Winter Storm, 1940
- "Palm Sunday Snowstorm", 1942
- Winter Storm, 1943
- Winter Storm, 1956
- Winter Storm, 1958
- The Winter of 1960-1961
- Ash Wednesday Storm, 1962
- Winter Storm, 1966
- Winter Storm, 1977
- Winter Storm, 1978
- Winter Storm, 1979
- "The Presidents Day Storm", 1979
- Winter of 1980
- "Blizzard of '83"
- Winter Storm, 1984
- Winter Storm, 1985
- Winter Storm, 1989
- "Superstorm of March'93" or "The Storm of the Century" $15.5 million in property damages.
- Ice Storm, 1994
- "Blizzard of '96" or "Great Furlough Storm" Estimated property damages greater than $1.3 million.
- Winter of 1995 - 1996
- "Back to Back Nor'easters", 1998
- "Alberta Clipper" 1999

Figure 3-2 shows annual snowfall distribution in inches throughout Virginia, based on records from over 100 NWS stations.



Description

The winter months can bring a wide variety of natural hazards to the Commonwealth, including blizzards, snowstorms, ice, sleet, freezing rain, and extremely cold temperatures. All of these weather events can be experienced throughout the state, depending on the depth of cold air that is in place over the region when the storm event comes. Virginia's biggest winter weather threats come from Northeasters or Nor'easters. These large storms form along the southern Atlantic coast and move northeast into Virginia along the Mid-Altlantic coast. These events can bring strong winds and anything from rain to ice to snow to even blizzard conditions over a very large area. This combination of heavy frozen precipitation and winds can be quite destructive and lead to widespread utility failures and high cleanup costs. Nor'easters may occur from November through April, but are usually at their worst in January, February, and March.

The State Climatologist's Office reports the following winter extremes:

- Lowest temperature of -30°F, recorded on January 21, 1985 at the Mountain Lake Biological Station.
- Greatest 24-hour snowfall of 33 inches, recorded on March 6, 1962 at Big Meadows.
- Highest single storm snowfall of 48 inches, recorded January 6-7, 1996 at Big Meadows.
- Greatest seasonal snowfall of 124.2 inches during the 1995-1996 winter season, recorded in Wise County.

- Major winter storms typically affect large areas of the nation. In the 1990s, winter storms in Virginia resulted in more localities qualifying for major disaster declarations than any other hazard.

Excessively cold temperatures are not an annual event in the Commonwealth. Although wind chill advisories are issued nearly every year, especially in Western and Northern Virginia, life-threatening excessive cold, requiring wind chill warnings, is a rare occurrence in Virginia. The frequency of occurrence is dependent entirely upon the excessive cold criteria used (i.e. wind chill vs. air temperature).

Impacts and Measures of Magnitude

The impacts of winter storms are minimal in terms of property damage and long term effects. The most notable impact from winter storms is the damage to power distribution networks and utilities. Severe winter storms have the potential to inhibit normal functions of the state. Governmental costs for this type of event are a result of the needed personnel and equipment for clearing streets. Private sector losses are attributed to lost work when employees are unable to travel. Homes and businesses suffer damage when electric service is interrupted for long periods of time. Health threats can become severe when frozen precipitation makes roadways and walkways very slippery and due to prolonged power outages and if fuel supplies are jeopardized. Occasionally, buildings may be damaged when snow loads exceed the design capacity of their roofs or when trees fall due to excessive ice accumulation on branches. The primary impact of excessive cold is increased potential for frostbite, and potentially death as a result of over-exposure to extreme cold. Some secondary hazards extreme/excessive cold present is a danger to livestock and pets, and frozen water pipes in homes and businesses.

Additional Information

The VDEM online library at **www.vdem.state.va.us/library/stats.cfm** includes an extensive background on the history and impacts of snow, Nor'easters, wind, ice and cold in the Commonwealth by the National Weather Service.

Proposed projects (Information and Data Development: Identify data needs) for blizzards/winter storms and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database. Additional information regarding the projects can be found in Appendix H.

Dam Failure

Historic Occurrence

There are no established databases in Virginia of historical dam failures. Most dam failures occur due to lack of maintenance of dam facilities in combination with excess precipitation events, such as hurricanes and thunderstorms. Recent dam failures have included the Powhatan Lakes Dam, which failed due to a heavy storm during the summer of 2004, and the Swift Creek Dam, which was overtopped during Tropical Storm Gaston flooding in late summer 2004.

Description

Dam failure poses a risk when there are large potential areas with large populations surrounding dams. On-going dam inspections and Virginia's participation in the National Dam Safety Program maintained by FEMA and the U.S. Army Corps of Engineers serve as preventative measures against dam failures. Dams may also be targeted by terrorists and therefore represent a potential hazard.

The Virginia Department of Conservation and Recreation, Division of Dam Safety's mission is to conserve, protect, enhance, and advocate he wise use of the Commonwealth's unique natural, historical, recreational, scenic and cultural resources. The program's purpose is to provide for safe design, construction, operation and maintenance of dams to protect public safety. Disaster recovery programs include assistance to dam owners and local officials in assessing the condition of dams following a flood disaster and assuring the repairs and reconstruction of damaged structures are compliant with the National Flood Insurance Program (NFIP) regulations.

Impacts

Failure of dams may result in a localized major impact. Impacts include loss of human life, economic loss, lifeline disruption and environmental impact such as destruction of habitat.

Measures of Magnitude

In 2001 the dam inventory mapping and classification system was changed. The classes now range in descending order from Class I to Class IV with Class I having the greatest potential for adverse downstream impacts in event of failure. This classification is not related to the physical condition of the dam nor the probability of its failure. As a result of the updated classification system no data is available for the number of dams in each of the listed classes. DCR Division of Dam Safety is currently working on this.

Dams are classified with a hazard potential depending on the downstream losses estimated in event of failure. Hazard potential is not related to the structural integrity of a dam but strictly to the potential for adverse downstream effects if the dam were to fail. Frequency of dam inspection is dependent of how the dam is classified (see table below). The owner of each regulated Class I, II, and III dam is required to apply to the Soil and Water Conservation Board for an operation and maintenance certificate. Table 3-3 shows more information on these classes

Table 3-3 Dam Classification System in Virginia.

Class	**Description**	**Inspection**
Class I	Dams which upon failure would cause probable loss of life or excessive economic loss	Inspected every two years.
Class II	Dams which upon failure could cause possible loss of life or appreciable economic loss	Inspected every three years.
Class III	Dams which upon failure would not likely lead to loss of life or significant economic loss	Inspected every six years, upon renewal of the certificate.
Class IV	Dams which upon failure would not likely lead to loss of life or economic loss to others	Inspection not applicable for Class IV.

Secondary impacts from dam failure include flooding to the surrounding areas. Dam hazard classification indicates the possible effects on downstream areas if dam failure were to occur.

Additional Information

The Virginia Emergency Operation Plan for the Basic Plan and Terrorism (vol.1 & 8) provides information on this hazard. References from Virginia Department of Emergency Management Emergency Operations Plan Volume 6: part III; FEMA 333: National Dam Safety Program. Virginia DCR webpage www.dcr.virginia.gov.

Proposed projects (Information and Data Development: Identify data needs) for dam failure historical data and current information would provide data for future analysis in upcoming plans. Projects include: 3.1.2 Establish and Maintain the Virginia Mitigation Database; 3.1.5 Comprehensive Dam Information Database Development; 3.1.7 Dam Inundation Areas Mapping and Risk Assessment. Additional information regarding the projects can be found in Appendix H.

Drought Including Excessive Heat

Historic Occurrence

The following list, based on available records from VDEM and the NWS, denotes the major recorded droughts in Virginia's history:

- 1824-1826
- 1930-1932 categorized as the "drought of record"
- 1934
- 1962-1971 Less severe drought when compared to 1930. Cumulative stream flow deficit was greatest because of the duration of the drought.
- 1980-1982 Short duration of drought, less severe
- 1985-1988 SE USA Drought
- 1993 Dry and hot weather caused and estimated $75 million in crop damages in 23 counties.
- 1995 Suffolk City. Crop losses estimated at $13.3 million. City was declared a Drought Disaster Area.
- 1997 Northern, Central and Eastern Virginia. Crop damage estimated at $73.8 million.
- 1998 Eastern piedmont and northern neck of Virginia. Crop damage estimated at $66.5 million.
- 1999 Northern Virginia. Crop damages were estimated at $83 million
- 2000-2002

Description

Drought is a phenomenon that, in one form or another, affects the Commonwealth on nearly an annual basis. Drought has several definitions, depending upon the impact. **Agricultural drought** is the most common form of drought, and is characterized by unusually dry conditions during the growing season. **Meteorological drought** is defined as an extended period (generally 6 months or more) when precipitation is less than 75 percent of normal during that period. If coincident with the growing season, agricultural and meteorological drought can occur simultaneously. In general, hydrologic drought is the most serious, and has the most wide reaching consequences. Hydrologic drought occurs due to a protracted period of meteorological drought, which reduces stream flows to extremely low levels, and creates major problems for public (reservoir/river) and private (well) water supplies. This data should be obtained from the Virginia State Climatology office, in conjunction with the Virginia Dept. of Environmental Quality.

Associated with drought is excessive heat, which is a phenomenon that is generally confined to the months of July and August, although brief periods of excessive heat have occurred in June and September. The primary impact of excessive heat is increased potential for hypothermia, which can be fatal to the elderly and infirmed. In addition, there is an increased risk of dehydration, if proper steps are not taken to ingest adequate amounts of non-alcoholic fluids. Excessive heat can be defined either by actual air temperature, or by the heat index, which relates the combined effects of humidity and air temperature on the body. Excessive heat is not an annual event in the Commonwealth. Although heat advisories are issued near every year, especially in the urban areas of Northern Virginia, life-threatening excessive heat is a rare occurrence in Virginia. The frequency of occurrence is dependent entirely upon the excessive heat criteria used (i.e. heat index vs. air temperature).

Impacts

Extended periods of drought can impact crop yields and hay yields, and significant crop losses can result. The impact of meteorological drought can vary significantly, depending upon the length of the dry period, the time of year the dry period occurs, the antecedent moisture conditions prior to the onset of the dry period, and the relative dryness (in percent of normal precipitation) of the period in question.

The impact of excessive heat is most prevalent in urban areas, where urban heat island effects prevent inner-city building from releasing heat built up during the daylight hours. Secondary impacts of excessive heat are severe strain on the electrical power system, and potential brownouts or blackouts.

Measures of Magnitude

Table 3-4 provides a summary of drought categories and impacts. Notice that water restrictions start off as voluntary and then become required. For excessive heat, the National Weather Service utilizes heat index thresholds as criteria for the issuance of heat advisories and excessive heat warnings.

Table 3-4 Drought Severity Classification

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.
D1	Moderate Drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested
D2	Severe Drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed
D3	Extreme Drought	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions

Additional Information

Concurrent with develop of this Plan, Virginia had a Drought Task Force working on short and long term drought planning in Virginia. Although their report and results were not available for this HIRA, they will be used in future updates to this plan. The Virginia drought website is at http://www.deq.virginia.gov/watersupply/drought.html. More general information about drought is available at the Drought Monitor website at http://drought.unl.edu/dm/archive/99/classify.htm. Information about excessive heat comes from the National Weather Service.

Proposed projects (Information and Data Development: Identify data needs) for droughts and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database. Additional information regarding the projects can be found in Appendix H.

Earthquake

Historic Occurrence

The following list, based on available records from VDEM and the Virginia Tech Seismological Observatory, denotes the most significant earthquakes in Virginia's history:

- The first recorded earthquake was in 1774. Since that time there have been more than 300 events. Of the seismic events, 18 were measured 4 - 4.5 or higher on the Richter scale.
- Over 160 earthquakes have been detected in and around Virginia during the years between 1974 and 1993. The Virginia Department of Mines, Minerals and Energy has reported that many earthquakes were reported as being "felt" by local residents.
- 1907. February 11 Near Arvonia, Buckingham County, Va. Felt throughout southwest Virginia and south to Raleigh N.C.
- 1918 April 10(April 9) Luray, Page County, Va. Also felt in Maryland, Pennsylvania and West Virginia
- 1919 September 6 (September 5) Near Front Royal, Warren County, Va. Also felt in parts of Maryland and West Virginia.
- 1929 December 26 (December 25) Charlottesville, Albemarle County, Va. Felt in other parts of the county.
- 1959 April 23 Giles County, Va. Magnitude 3.8 Mfa DG. Also felt in West Virginia.
- 1975 November 11 Southwest Virginia. Also felt in Pulaski County.
- 1976 September 13 Southwest Virginia. Earthquake was observed in North Carolina, Virginia, South Carolina and West Virginia.

Figure 3-3 shows earthquake probability for Virginia.

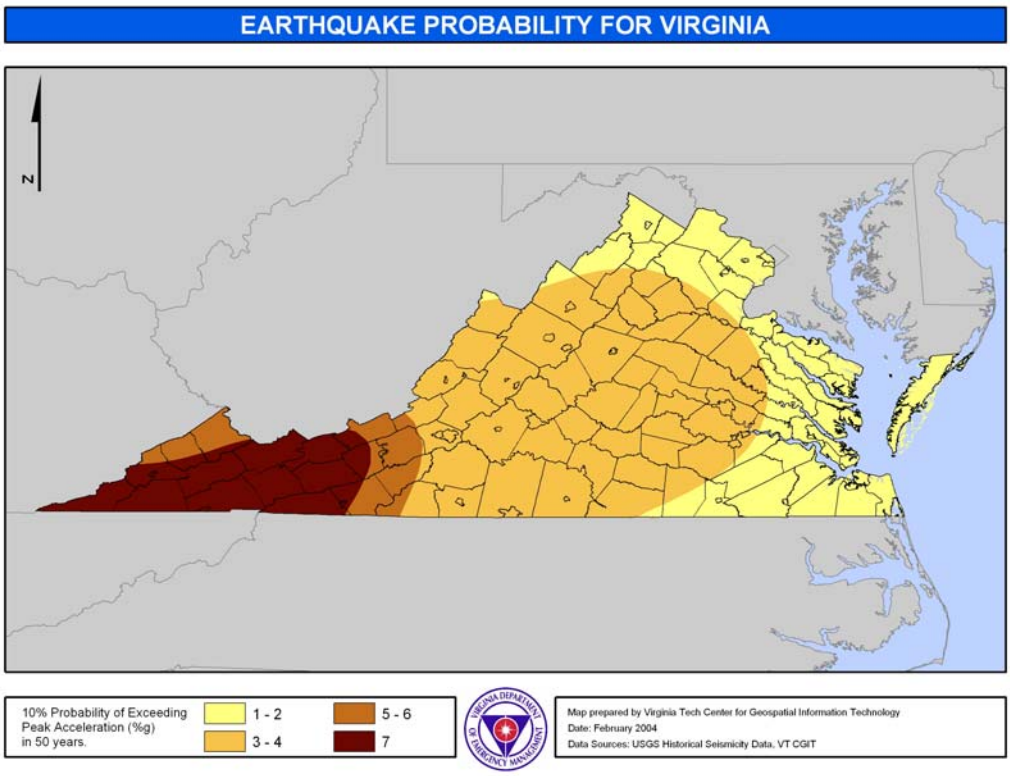


Figure 3-3 Earthquake Peak Acceleration for Virginia (Source: USGS).

Description

Earthquakes are described as a violent, sudden shaking of the earth's surface. This movement results from displacement of rock masses in the upper portion of the earth's surface. Earthquakes usually occur without warning. The risk of an earthquake event in Virginia is moderate.

In 2000, FEMA released a nationwide evaluation, *HAZUS 99 Estimated Annualized Earthquake Losses in the United States* (FEMA 366, 2000). The evaluation considers two measures of losses:

- Annualized Earthquake Losses in any single year; and
- Annualized Earthquake Loss Ratio, which is a measure of seismic risk in relation to the value of the building inventory. The ratio is considered a more accurate picture of seismic risk and makes it easier to compare between regions.

FEMA's evaluation ranked Virginia 34th in the nation. This validates that Virginia's risk of earthquakes is moderate compared to other hazards.

Impacts

Impacts from earthquakes can be severe and cause significant damage. Ground shaking can lead to the collapse of buildings and bridges; disrupt gas, life lines, electric, and phone service. Death, injuries and extensive property damage are possible impacts from this hazard.

Some secondary hazards may include fire, hazardous material release, landslides, flash flooding, avalanches, tsunamis and dam failure.

Measures of Magnitude

The magnitude of an earthquake is measured by the seismic waves that are the vibrations from the earthquake that travel through the earth. The measurements are expressed by the Richter Scale. The United States Geological Survey (USGS) indicates that earthquakes with a magnitude of about 2.0 or less are usually call microearthquakes; they are not commonly felt by people and are generally recorded only on local seismographs. Events with magnitudes of about 4.5 or greater are strong enough to be recorded by sensitive seismographs all over the world. Great earthquakes have magnitudes of 8.0 or higher. On the average, one earthquake of such size occurs somewhere in the world each year. The Richter Scale has no upper limit.

The magnitude of an earthquake as recorded by the Richter Scale does not necessarily imply the magnitude of damage. The extent of damage also depends on the amount of structure present in the area disrupted by the earthquake.

Additional Information

More information about Virginia earthquakes can be found at Virginia Tech Seismological Observatory website at http://www.geol.vt.edu/outreach/vtso/ and at the USGS website at http://earthquake.usgs.gov/.

Proposed projects (Information and Data Development: Identify data needs) for earthquakes and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database. Additional information regarding the projects can be found in Appendix H.

Flooding (Riverine & Coastal)

Historic Occurrence

The following list, based on available records from VDEM and the NWS, denotes the most significant floods in Virginia since 1930:

- March 18-19, 1936 "The Great Spring Flood" The Potomac, Shenandoah, Rappahannock, James and York Rivers flooded. The months prior to the flood were marked with low temperatures and heavy snowfalls. Warmer temperatures and rainfall in March resulted in melting snow and rivers to rise.
- April 26-27, 1937 Heavy rains caused widespread flooding. Damages to roads and bridges approached half a million dollars and agricultural losses around a million dollars.
- August 14-18, 1940
- October 15-17, 1942 This flood is considered the worst river flood in Virginia. Damages to the Rappahannock neared $2.5 million and $4.5 million on the Potomac River. Over 1,300 people were left without homes in Albemarle, Spotsylvania, Stafford and Warren Counties. Transportation was disrupted for three days and severe damages and losses occurred to Virginia agriculture.
- August 18-20, 1955 "Diane" Heavy rains resulted in flash flooding along the piedmont and in the Shenandoah Valley.
- Ash Wednesday Storm, 1962 Described earlier in the discussion on federally declared disasters
- August 20-22, 1969 "Camille" Described earlier in the discussion on federally declared disasters
- June 21-24, 1972 "Agnes" Described earlier in the discussion on federally declared disasters
- November 4-7, 1985 "Election Day Flood" Described earlier in the discussion on federally declared disasters
- January 19-22, 1996 "The Great Melt Down" Described earlier in the discussion on federally declared disasters
- September 6-8, 1996 "Fran" Described earlier in the discussion on federally declared disasters
- September 15-16, 1999 "Floyd" Described earlier in the discussion on federally declared disasters
- September 18-19, 2003 "Isabel" " Described earlier in the discussion on federally declared disasters

Figure 3-4 shows the locations of watershed within Virginia. The watersheds in the northern and eastern parts of the state (Potomac, Rappahannock, York, James) drain to the Chesapeake Bay and the Atlantic Ocean. The rivers in southeastern Virginia (Roanoke and Chowan, along with the Albemarle Basin) drain to Albemarle Sound in North Carolina. The southwestern rivers (New, Holston, Clinch, Powell, Big Sandy) eventually drain to the Mississippi River and the Gulf of Mexico.

Figure 3-5 shows the current status of FEMA floodplain maps in Virginia. A majority of communities only have paper Flood Insurance Rate Maps (FIRMs), although FEMA Region III and the Virginia Department of Conservation and Recreation (DCR) is taking part on Map Modernization efforts, which aim to have the entire national with Digital FIRMs (DFIRMs) by 2009. Since digital floodplain boundaries are unavailable statewide, Figure 3-4 provides the best indication of the location of the 100-yr floodplain statewide, with water bodies denoted by lines of a uniform weight.

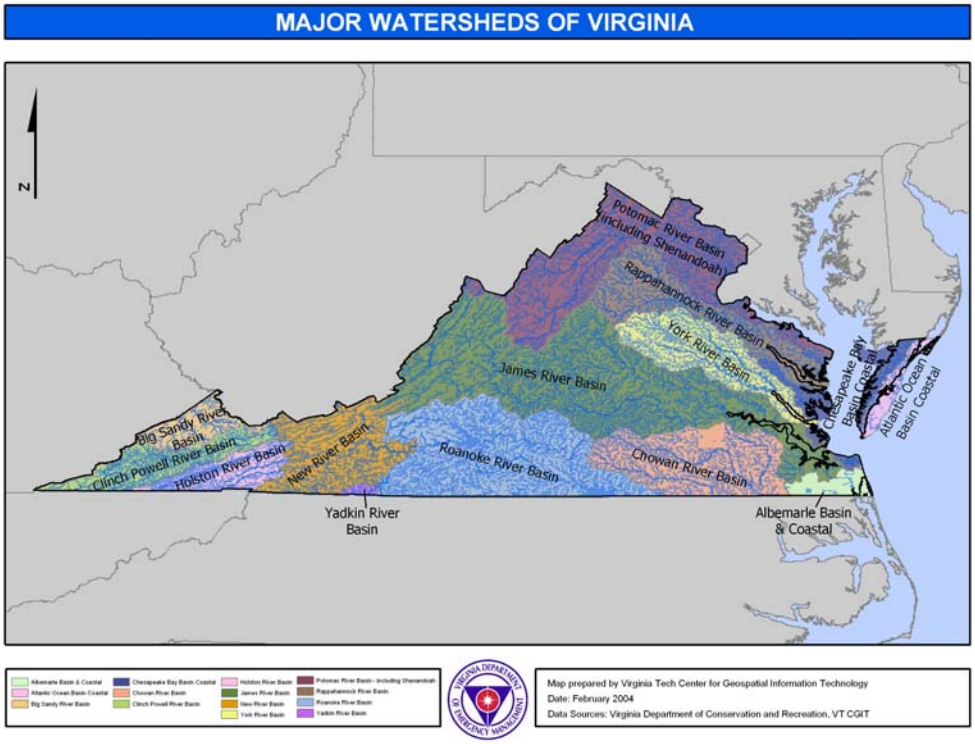


Figure 3-4 Virginia Watersheds.

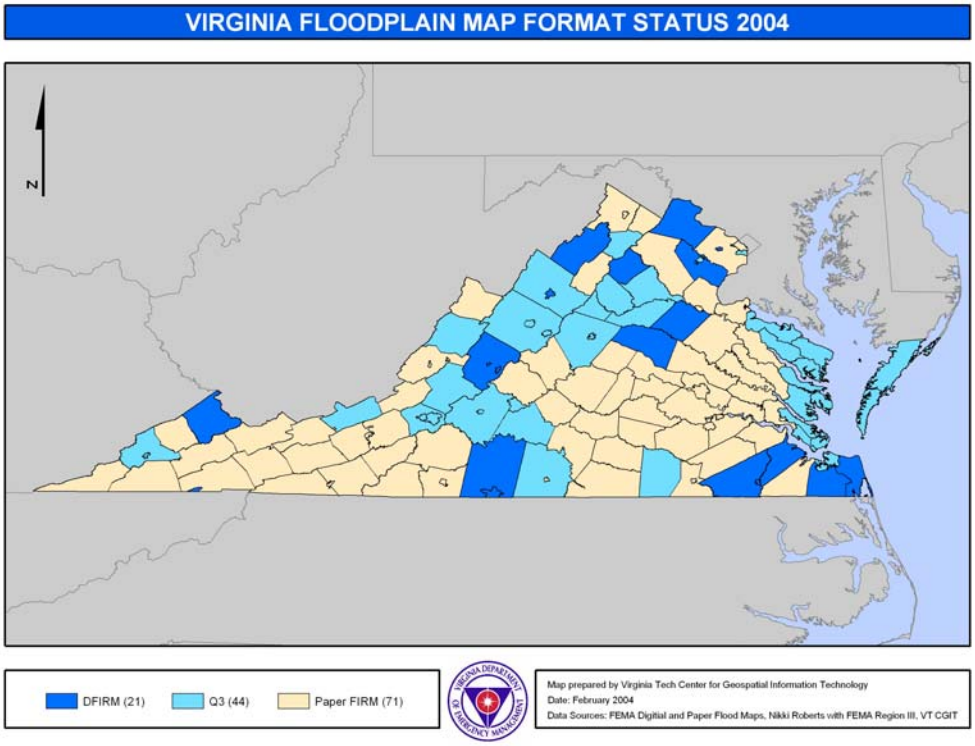


Figure 3-5 Virginia Floodplain Map Status.

Description

A flood occurs when an area that is normally dry becomes inundated with water. Floods may result from the overflow of surface waters, overflow of inland and tidal waters, or mudflows. Flooding can occur at any time of the year, with peak hazards in the late winter and early spring. Snowmelt and ice jam breakaway contribute to winter flooding, and torrential rains from hurricanes and tropical systems, and seasonal rain patterns contribute to spring flooding.

Flooding is one of the most common hazards that occur in Virginia. In the 35 years of federal disaster programs, 15 of the 23 major disasters in Virginia have been caused by floods (or hurricanes resulting in floods).

Floods typically are characterized by frequency, for example the "1%-annual chance flood," commonly referred to as the "100-year" flood. While more frequent floods do occur, as well as larger events that have lower probabilities of occurrence, for most regulatory and hazard identification purposes, the 1%-percent annual chance flood is used.

Impacts

Homes and business may suffer damage and be susceptible to collapse. Floods pick up chemicals, sewage, and toxins from roads, factories, and farms, therefore any property affected by the flood may be contaminated with hazardous materials. Debris from vegetation and man-made structures may also be hazardous following the occurrence of a flood. In addition, floods may threaten water supplies and water quality, as well as initiate power outages.

Measures of Magnitude

In the late 1960s and early 1970s, the federal government identified counties, cities, and towns in Virginia that have some level of flood risk. In the following years, production of flood hazard maps became a significant focus of the National Flood Insurance Program. The maps, known as FIRMs for Flood Insurance Rate Maps, are the best available source to delineate areas subject to flooding.

It is notable that many FIRMs are more than 20 years old, and that flooding can and does occur outside of the flood hazard areas. Older maps may not reflect manmade alterations to floodplains caused by development activities such as filling, excavation, or grading. Perhaps more significant is that upland watershed development is not accounted for on older maps. Development increases the amount of impervious areas and alters drainage patterns, which result in increased runoff and may increase flood hazards.

Riverine and coastal flooding poses significant risk to Virginia. Given the frequency of flooding throughout the state, and the extent of development in some parts of the low-lying tidewater area, flood damage accounts for Virginia's most significant risk.

Although coastal erosion is a continual process, it is accelerated by flooding conditions and therefore is considered a sub-category of flood hazards. Tidal surges caused continual small levels of erosion. When hurricane produce large storm surges, often developed tidal areas with insufficient protection (dunes, armoring, jetties) will cause major acceleration of the national process.

Coastal Flood Hazards

Coastal flooding occurs when strong onshore winds push water from an ocean, bay or inlet onto land. Coastal flooding may arise from tropical cyclones (hurricanes and tropical storms)

or Nor'easters (extratropical storms). In Virginia the Tidewater area is highly susceptible to coastal storms, and much of the Eastern Shore is less than 6 feet above mean sea level (MSL). The highest historical storm surge recorded at Norfolk was 8 feet above mean sea level during the 1933 hurricane. The March 1962 Nor'easter drove water to 7.4 feet above MSL.

Riverine Flood Hazards

Virginia has more than 27,000 miles of rivers and streams. All of these waterways have floodplains subject to inundation. Combining a 1987 estimate prepared by FEMA with other estimates from rural areas, the Plan's authors suggest that a "reasonable approximation of the total area that is subject to flooding by the 100-year flood would be 10 percent of the state or 3,970 square miles." Virginia partners with the National Weather Service and adjacent states to manage the Integrated Flood Observing and Warning System (IFLOWS), a wide area monitoring and communications network designed to improve local flash food warnings.

Additional Information

The FEMA Map Service Center website, http://store.msc.fema.gov/, provides access to currently available FEMA floodplain mapping. VDEM also maintains historical flood information in their library at http://www.vdem.state.va.us/library/.

Proposed projects (Information and Data Development: Identify data needs and sources and Identify data analysis methods) for flooding and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database; 3.1.4 Real Time Flood Inundation Mapping Program; 3.2.2 Update 100 and 500 year Flood Frequency statistics. Additional information regarding the projects can be found in Appendix H. In addition, as mentioned earlier, FEMA is undertaking their Flood Map Modernization program to update all floodplain mapping, include Virginia's, by 2009.

High Wind/Windstorm (Including Thunderstorms and Lightning)

Historic Occurrence

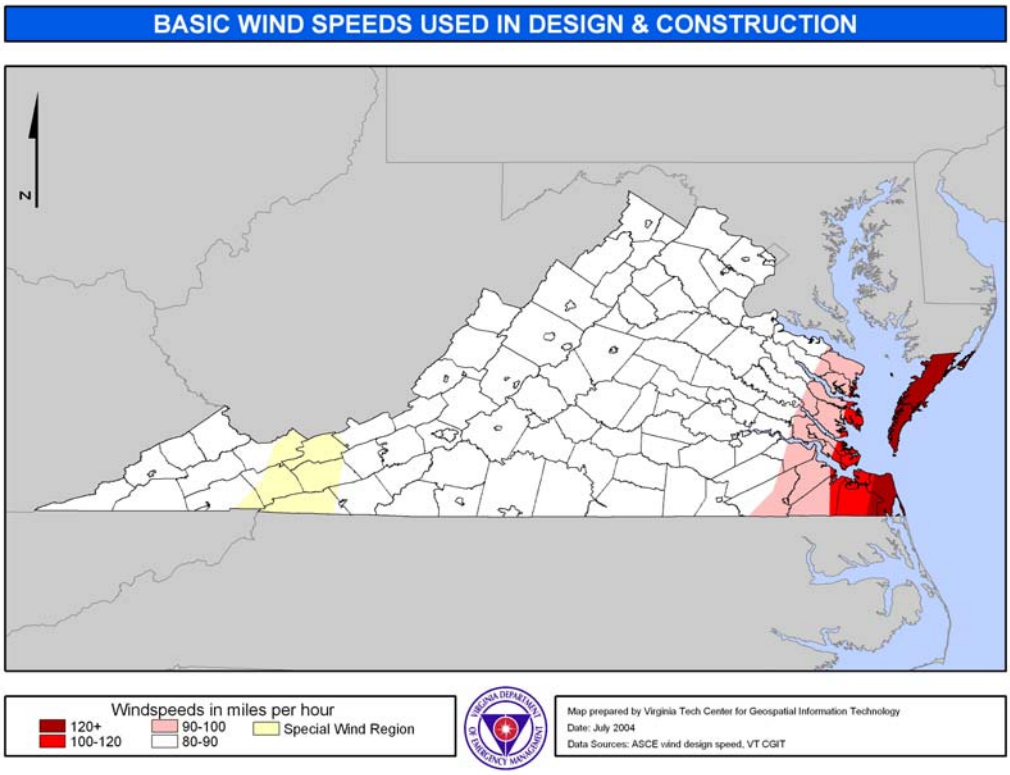


Figure 3-6. 50-yr Design Wind Speeds for Virginia (from ASCE 7-98).

Figure 3-6 shows the basic design wind speed used for design and construction in Virginia. This map not only applies to windstorms, but also hurricane winds and tornado winds, as a basis for structural design based on potential wind loads.

Most severe windstorms, thunderstorms, and lightning events are very localized and have not been documented. The NOAA National Climatic Data Center, http://www.ncdc.noaa.gov/oa/ncdc.html, has recently developed an online Storm Events database with some information about windstorms, thunderstorms, and lightning. The database included the following about Virginia:

- From the period of 1959 through 2000 lightning accounted for 58 fatalities and 208 injuries in Virginia. During 1995 through 2000 lightning accounted for approximately $6.5 million of damages.

- September 4, 1993. Southeast Virginia. Thunderstorms in southeast Virginia caused damage to homes and power lines. Golf ball sized hail was reported in Newport News, Property damages were estimated at $5 million.

- May 26, 1994 Hampton Roads area. A severe thunderstorm produced extensive structural damage. Power was knocked out to 10,700 people. Property damage was estimated at $5 million.

- June 12, 2000. Rockingham County. A thunderstorm which contained very heavy rainfall moved across the county. A large tent at the Rockingham County Fairgrounds collapsed under the weight of the deluge, resulting in $150, 000 of damages.

According to the NWS, Virginia averages 35 to 45 thunderstorm days per year. Thunderstorms can occur any day of the year and at any time of the day, but are most common in the late afternoon and evening during the summer months. A majority of the deaths and injuries from lightning in Virginia have occurred from May-September, with the most during July. About five percent of thunderstorms become severe and can produce tornadoes, large hail, damaging downburst winds, and heavy rains causing flash floods. All thunderstorms produce lightning which can be deadly. The National Weather Service does not issue warnings for ordinary thunderstorms nor for lightning.

Description

High windstorms, thunderstorms and lightning occasionally produce sustained winds or wind gusts that exceed 55 mph and produce damage (e.g. downed trees/power lines, structural damage to homes/businesses, etc.). Occasional severe storms can occur, developing in less than 30 minutes, and can produce heavy rains and flash flooding, damaging winds, tornadoes and hail. Such events are generally localized in nature, but occur on an annual basis in the Commonwealth. Damaging winds are generally not considered life threatening, but deaths and injuries have occurred in Virginia. Widespread and significant damaging wind events are a rare occurrence in Virginia.

Impact

Damaging winds (thunderstorms) are an annual threat for the commonwealth. Occurrences of a widespread thunderstorm producing damaging winds are rare (once every 2-3 years). The National Weather Service (since 1955) has recorded occurrences of thunderstorm produced wind damage.

Measures of Magnitude

Occasionally, corridors of thunderstorms will cause widespread, usually minor damage. In very rare cases, thunderstorm winds can exceed 100 mph, and produce damage comparable to an F2 tornado. The threats posed by an individual thunderstorm producing damaging winds are localized in nature, and generally affect an area less than 200 square miles.

Additional Information

Information about windstorms and thunderstorms can be found at the website for the NOAA Storm Prediction Center at http://www.spc.noaa.gov/software/svrplot2/ and at the NOAA National Climatic Data Center at http://www.ncdc.noaa.gov/oa/ncdc.html.

Proposed projects (Information and Data Development: Identify data needs) for high windstorms/thunderstorms/lightning and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database. Additional information regarding the projects can be found in Appendix H.

Hurricanes, including Tropical Depressions and Storms

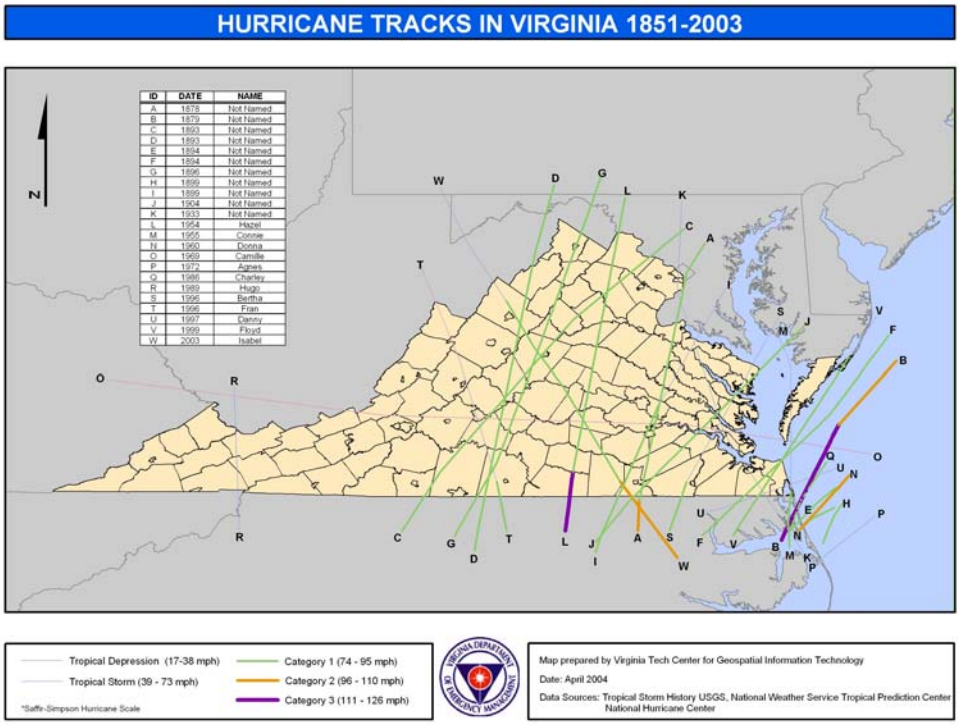


Figure 3-7. Major Virginia Hurricane Tracks 1851-2003 with Selected Tropical Depressions and Storms.

Figure 3-7 shows the location of the major hurricanes that have impact Virginia in the last 150 years. Most of these tracks have occurred east of the mountains, in central and eastern Virginia. Storms typically track to the northeast, with the notable exceptions of Camille (Track O), Hugo (Track R), Fran (Track T), and Isabel (Track W).

<u>Description</u>

Any weather development that begins over tropical waters and is characterized by significant rainfall and circulating winds around a low pressure center is defined as a tropical cyclone. A tropical cyclone with wind speed of less than 39 miles per hour is identified as a tropical depression. When the wind speed exceeds 39 miles per hour, but less than 75, the storm is designated as a Tropical Storm. Any storm winds 75 mph or higher is classified as a Hurricane. The low pressure center, or the “eye” of the storm, can range in size from 10 to 30 nautical miles in diameter. The surrounding storm can range anywhere from 100 to 500 nautical miles across.

Tropical Storms and Hurricanes are fueled by warm waters, thus the season for these storms begin June 1 and end November 30. Peak times for Virginia are in August and September when the Atlantic Ocean waters are the warmest. By default, once a storm system reaches land or cooler waters the storm strength lessens and the storm begins to dissipate.

Impacts

Tropical cyclones involve both atmospheric and hydrologic characteristics, such as severe winds, storm, surge flooding, high waves, coastal erosion, extreme rainfall, thunderstorms, lightning, and, in some cases, tornadoes. Storm surge flooding can push inland, and riverine flooding associated with heavy inland rains can be extensive. Many areas of the Tidewater region are flat, and intense prolonged rainfall tends to accumulate without ready drainage paths. High winds are also associated with hurricanes, with two significant effects: widespread debris due to damaged and downed trees and building debris; and power outages. The Tidewater region, including areas on tidal-influenced tributaries, is vulnerable to hurricanes and their effects.

As the storm moves into more shallow waters, the waves lessen, but water levels rise, bulging up on the storm's front right quadrant in what is called the "storm surge." This is the deadliest part of a hurricane. The storm surge and wind driven waves can devastate a coastline and bring ocean water several miles inland. Once inland, the hurricane's band of thunderstorms produces torrential rains and sometimes tornadoes. A foot or more of rain may fall in less than a day causing flash floods and mudslides. The rain eventually drains into the large rivers which may still be flooding for days after the storm has passed. The storm's driving winds can topple trees, utility poles, and damage buildings. Communication and electricity is lost for days and roads are impassable due to fallen trees and debris.

Secondary hazards from a hurricane event could include high winds, flooding, heavy waves, and tornadoes.

Measures of Magnitude

Hurricanes are categorized by the Safer-Simpson Hurricane Damage Scale listed below. Following the table are detailed descriptions of each category and the potential damage caused by each.

Table 3-5 Saffir-Simpson Hurricane Damage Scale

Hurricane Category	Sustained Winds (mph)	Damage Potential
1	74 - 95	Minimal
2	96 - 110	Moderate
3	111 - 130	Extensive
4	131 - 155	Extreme
5	> 155	Catastrophic

Category 1
A Category 1 hurricane poses minimal damage to unanchored mobile homes along with shrubbery and trees. There may be pier damage and coastal road flooding, with storm surge 4-5 feet about average.

Category 2
Category 2 hurricanes have a moderate damage potential to mobile homes and piers, as well as significant damage to shrubbery and tress with some damages to roofs, doors and windows. Impacts include flooding 2-4 hours before arrival of the hurricane in coastal and low lying areas. Storm surge can be 6-8 feet above average.

Category 3
Category 3 hurricanes have an extensive damage potential. There will be structural damage to small residences and utility buildings. Extensive damage is to mobile homes and trees and shrubbery. Impacts include flooding 3-5 hours before the arrival of the hurricane cutting off the low lying escape routes. Coastal flooding has the potential to destroy the small structures, with significant damage to larger structures as a result of the floating debris.

Land that is lower than 5 feet below mean sea level can be flooded 8 or more miles inland. Storm surge can be 6-12 feet above average.

Additional Information

The VDEM online library at **www.vdem.state.va.us/library/stats.cfm** includes an extensive background on the history and impacts of hurricanes in the Commonwealth by the National Weather Service.

Proposed projects (Information and Data Development: Identify data needs) for hurricanes and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database. Additional information regarding the projects can be found in Appendix H.

Land Subsidence (Karst)

Historic Occurrence

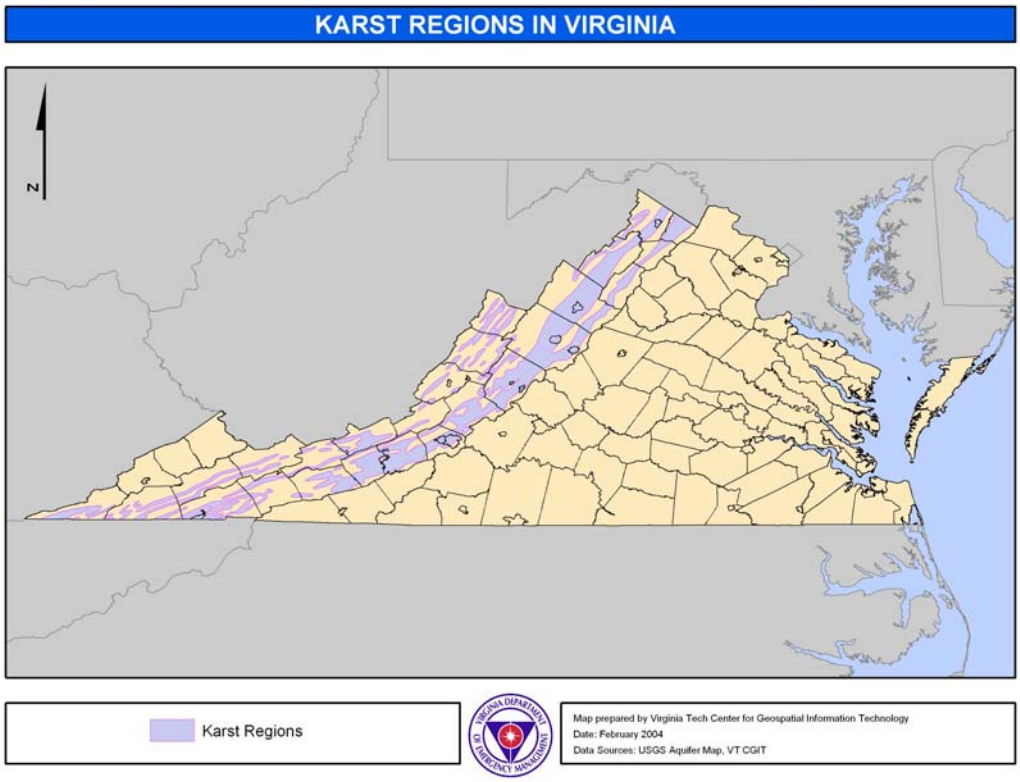


Figure 3-8. Karst Regions in Virginia.

The area of karst in Virginia, as shown in Figure 3-8, are primarily limited to the mountainous regions of the state.

Because land subsidence caused by karst is very site-specific and often occurs in undeveloped areas, there is no existing long-term record for Virginia. A few recent occurrence include the following:

- 1992 Clarke County house collapsed inside of a sinkhole after the drilling of a new well on the property.
- March 2001, Interstate 81 was closed for a nine mile stretch near Augusta County because of the sudden appearance of three sinkholes. The largest of the three sinkholes was measured at 20 feet long, 11 feet wide and 22 feet deep. Since Interstate 81 runs along the karst region of Virginia, most of the impact from sinkhole have been seen on this roadway.

Description

Land subsidence is the lowering of surface elevations due to changes made underground. The USGS notes that land subsidence is usually caused by human activity such as pumping of water, oil, or gas from underground reservoirs. Land subsidence often occurs in regions with mildly acidic groundwater and the geology is dominated by limestone, dolostone, marble or gypsum. Karst is the term used to refer to geology dominated by limestone and similar soluble rocks. The acidic groundwater dissolves the surrounding geology creating sinkholes.

Sinkholes are classified as natural depressions of the land surface. Areas with large amounts of karst are characterized by the presence of sinkholes, sinking streams, springs, caves and solution valleys.

Impacts

The USGS recognizes four major impacts caused by land subsidence:

- changes in elevation and slope of streams, canals, and drains
- damage to bridges, roads, railroads, storm drains, sanitary sewers, canals, and levees
- damage to private and public buildings
- failure of well casings from forces generated by compaction of fine-grained materials in aquifer systems

Measures of Magnitude

The most important current and future environmental issue with respect to karst is the sensitivity of karst aquifers to groundwater contamination. The effect of man on karst is most severe in cases where polluted surface waters enter karst aquifers. This problem is universal among all karst regions in the United States that underlie populated areas. The country's karstic groundwater problems are accelerated with the advent of (1) expanding urbanization, (2) misuse and improper disposal of environmentally hazardous chemicals, (3) shortage of suitable repositories for toxic waste (both household and industrial), and (4) ineffective public education on waste disposal and the sensitivity of the karstic groundwater system.

Occasionally the land surface in karst regions may collapse. Most of these events are triggered by man's activities in the karstic environment. Excessive pumping of groundwater from karstic aquifers may rapidly lower the water table and calls a sudden loss of buoyant forces that stabilize the roofs of cavernous openings. Man-induced changes in surface water flow and infiltration also may cause collapse. Most sinkholes that form suddenly occur where soil that overlies bedrock collapses into the pre-existing void.

More Information

More information about Virginia karst can be found at the Virginia DCR karst website at http://www.dcr.state.va.us/dnh/karsthome.htm and at the USGS website at http://nationalatlas.gov/atlasftp.html.

Proposed projects (Information and Data Development: Identify data needs) for land subsidence (karst) and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database; 3.1.8 Produce and Accurate and Highly detailed Map of Virginia's Karst; 3.1.9 Delineation of Watersheds and Recharge Areas for Karst Aquifers in Virginia and Compilation of a GIS based Comprehensive Karst Hydrology for Virginia. Additional information regarding the projects can be found in Appendix H.

Landslides

Historical Occurrence

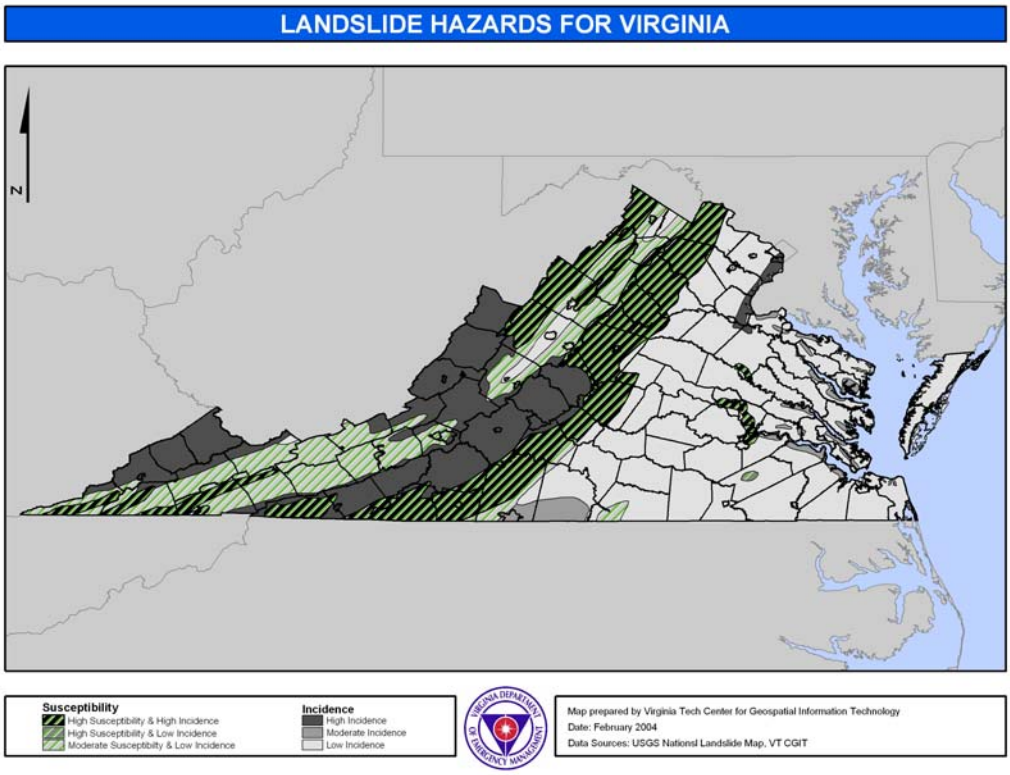


Figure 3-9. Landslide Susceptibility and Incidence in Virginia.

Similar to karst, Figure 3-9 shows that most landslide hazards are located in western and southwestern Virginia. Also like karst, there are no existing database with landslide occurrences within the state. As reported by the USGS in 1995, several notable recent landslide and debris flow in Virginia have resulted in extensive damage:

- In 1969, Hurricane Camille stalled over the Blue Ridge Mountains of Nelson County, dropping more than 30 inches of rain in under 8 hours. Flooding and numerous landslides and debris flows led to the deaths of more than 150 people, destruction of more than 100 bridges, and more than $150 million in property damage.
- Affecting both Virginia and West Virginia, a November 1985 storm in the Potomac and Cheat River watersheds produced record floods and extensive landslide and debris flow activity, causing 70 deaths and a total of $1.3 billion in damage to homes, businesses, roads, and farmlands.
- Madison County experienced hundreds of landslides in June 1995, which combined with widespread flooding killed eight people, affected as many as 2,000 homes, and damaged 35,000 acres of crops. Total property damages were estimated at $112 million.

Definition

The term “landslide” is used to describe the downward and outward movement of slope-forming materials reacting under the force of gravity. The term covers a broad category of events, including mudflows, mudslides, debris flows, rock falls, rock slides, debris

avalanches, debris slides, and earth flows. These terms vary by the amount of water in the materials that are moving.

Several natural and human factors may contribute to or influence landslides. How these factors interrelate is important in understanding the hazard. The three principal natural factors are topography, geology, and precipitation. The principle human activities are cut-and-fill construction for highways, construction of buildings and railroads, and mining operations.

Impacts

Landslides can cause serious damage to highways, buildings, homes, and other structures that support a wide range of economies and activities. Landslides commonly coincide with other natural disasters. Expansion of urban development contributes to greater risk of damage by landslides.

Measures of Magnitude

The magnitude of landslides is dependent on the amount of liquid and landmass in motion and the amount of development in the area. Often a landslide will be more severe in areas with higher slopes with poorly draining soils.

More Information

More information about landslides can be found at the USGS website at http://nationalatlas.gov/lsoverm.html.

Proposed projects (Information and Data Development: Identify data needs) for landslides and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database. Additional information regarding the projects can be found in Appendix H.

Tornado Including Hail

Historic Occurrence

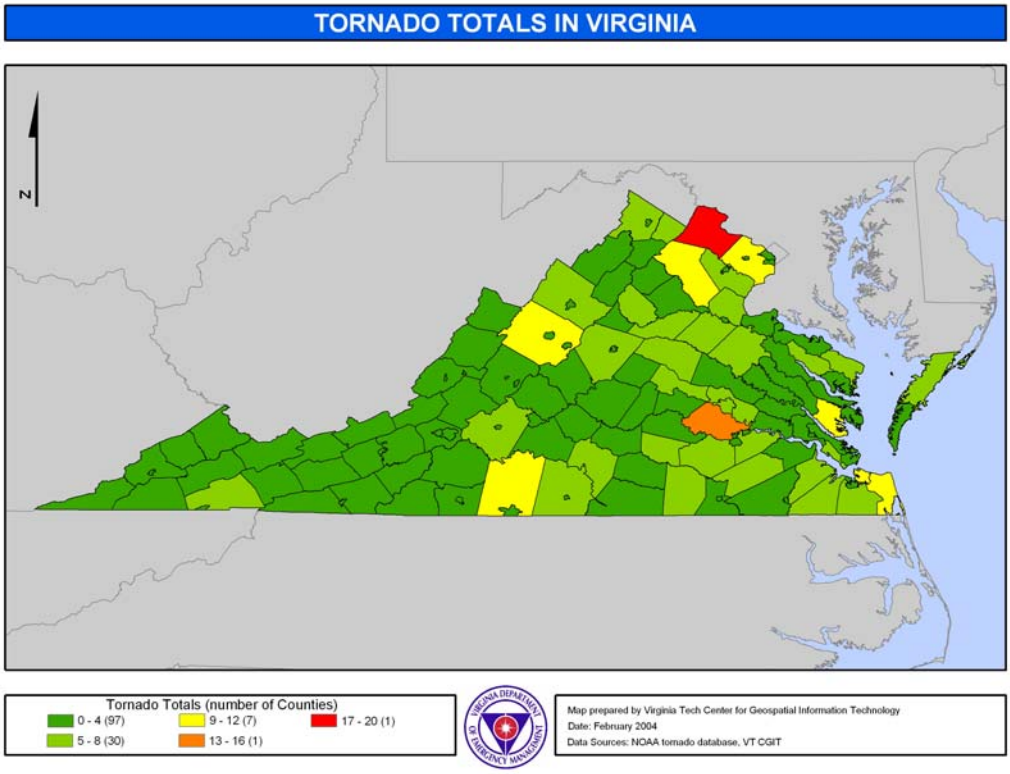


Figure 3-10. Recorded Tornado Counts from 1950-2003 in Virginia.

Figure 3-10 shows that most Virginia communities have had few tornadoes occur over the past 50 years.

The following list, based on available records from VDEM and the NWS, includes the dates of significant tornadoes in Virginia since 1900:

- September 22, 1900
- August 6, 1901
- February 21, 1912
- August 3, 1915
- October 29, 1917
- August 7, 1922
- April 29, 1923
- April 30, 1924
- November 26, 1926
- November 17, 1927
- May 2, 1929 “Virginia’s Deadliest Tornado Outbreak”
- January 5, 1931
- March 28, 1932
- September 5, 1935
- May 20, 1938
- August 19, 1939

- March 4, 1944
- May 21, 1947
- June 13, 1951 “Richmond Tornado” Property damage estimated at $250,000 (F2)
- April 5, 1952 Augusta County and Rockingham County. Property damage estimated at $275,000. (F2)
- August 31, 1952
- September 30, 1959
- September 10, 1960
- April 8, 1963
- July 12, 1964
- November 2, 1966
- July 4, 1967
- March 24, 1969
- November 3, 1971
- April 1, 1973
- April 4, 1974 “Super Outbreak” Property damage estimated over $2.5 million. (F2)
- December 1, 1974
- January 25, 1975
- April 25, 1975
- July 8, 1977
- July 19, 1977
- August 12, 1977
- January 26, 1978
- April 19, 1978
- September 5, 1979 “Hurricane David” Property damage estimated over one million dollars. (F2)
- March 30, 1981
- October 13, 1983 Property damages estimated over five million dollars. (F2)
- May 8, 1984
- July 25, 1985
- October 14, 1986
- August 29, 1988
- November 28, 1988
- April 2, 1990
- May 4, 1990
- October 18, 1990
- August 6, 1993 “Petersburg/Colonial Heights Tornado” Property damages estimated over $10 million.
- August 17, 1994 Martinsville. The thunderstorm that produced the tornado was part of the remnants of Tropical Storm Beryl. Property damages estimated over $50 million.
- October 5, 1995
- November 11, 1995
- September 6, 1996
- July 24, 1997
- April 1, 1998
- May 7, 1998
- March 3, 1999
- July 24, 1999
- September 4, 1999 Hampton City. Extensive structural damage, property damage estimated at $7.7 million. There were 6,600 people without power as a result of the tornado.
- May 13, 2000
- September 24, 2001

Description

Damaging winds typically are associated with tornadoes or landfalling hurricanes. Isolated "downburst" or "straight-line" winds associated with any common thunderstorm can also cause extensive property damage.

Tornadoes are classified as a rotating column of wind that extends between a thunderstorm cloud and the earth's surface. Winds are typically less than 100 mph, with severe tornado wind speeds exceeding 250 mph. The rotating column of air often resembles a funnel shaped cloud. The widths of tornados are usually several yards across, with infrequent events being over a mile wide. Tornadoes and their resultant damage can be classified into six categories using the Fujita Scale. This scale assigns numerical values for wind speeds inside the tornado according to the type of damage and degree of the tornado. Most tornadoes are F0 and F1, resulting in little widespread damage. Tornado activity normally spans from April through July but tornados can occur at any time throughout the year. In Virginia, peak tornado activity is in July. Hot, humid conditions stimulate the tornadoes growth.

Strong tornadoes may be produced by thunderstorms and often are associated with the passage of hurricanes. On average, about seven tornadoes are reported in Virginia each year. The total number may be higher as incidents may occur over areas with sparse populations, or may not cause any property damage.

Tornadoes also produce hail. Hailstorms are also outgrowths of severe thunderstorms. During summer months, when the difference between ground and upper level temperatures is significant, hail may develop. The size of the hailstones is directly related to the severity and size of the storm. Based on average annual days with hailstorms, most areas of Virginia can expect to see fewer than two hailstorms a year. The far southwestern part of the state may have more hail generating events, as it also experiences more thunderstorms. Hail is described as chunks of ice, often in a spherical or oblong shape, that are produced by thunderstorms.

Impacts and Measures of Magnitude

Tornado damage is computed using the Fujita Scale, as shown in Figure 3-5. Classification is based on the amount of damage caused by the tornado, where the measure of magnitude is based on the impact.

Table 3-6. Fujita Tornado Intensity Scale (From National Weather Service)

Classification	Max. Winds (mph)	Path Length (mi.)	Path Width (mi)	Damage
F0	less than 73	less than 1.0	less than 0.01	Chimneys damaged, trees broken
F1	73-112	1.0-3.1	0.01-0.03	Mobile homes moved off foundations or overturned
F2	113-157	3.2-9.9	0.03-0.09	Considerable damage, mobile homes demolished, trees uprooted
F3	158-206	10-31	0.10-0.29	Roof and walls torn down, trains overturned, cars thrown
F4	207-260	32-99	0.30-0.90	Well-constructed walls leveled
F5	261-318	100-315	1.0-3.1	Homes lifted off foundations and carried some distance, cars thrown as far as 300 ft

The classification of the tornado gives an approximate depiction of what the corresponding damage of the tornado will be. A majority of Virginia's tornadoes are F0 and F1 on the Fujita Scale, shown in Table 3-7. These result in minimal extensive damage. Damage that is

likely to occur would be damage to trees, shrubbery, signs, antennas, with some damage to roofs and unanchored trailers.

Figure 3-7. Virginia Tornado Statistics 1950-2001

Fujita Scale	Class.	MPH	Damage Description	# in VA	%	Deaths / Injuries	Damages ($ Mil)
F0	Weak	40-72	Light damage. Tree branches snapped; antennas and signs damaged.	99	26	0 / 0	7
F1	Moderate	73-112	Moderate damage. Roofs off; trees snapped; trailers moved or overturned.	186	50	1 / 85	57
F2	Strong	113-157	Considerable damage. Weak structures and trailers demolished; cars blown off road.	66	18	3 / 72	75
F3	Severe	158-206	Roofs and some walls torn off well constructed buildings; some rural buildings demolished; cars lifted and tumbled.	23	6	19 / 102	140
F4	Devastating	207-260	Houses leveled leaving piles of debris; cars thrown some distance.	2	0.1	4 / 248	50
F5	Incredible	261-318	Well built houses lifted off foundation and disintegrated with debris carried some distance.	0	0	n/a	n/a

Virginia's most notable tornadoes in recent years struck the Petersburg and Colonial Heights area on August 6, 1993, killing four people and injuring 28 others. Based on damage, the tornadoes were F3 and F4, with maximum winds of nearly 210 mph. Major damage occurred in the Old Towne section of Petersburg, and several stores and businesses in Colonial Heights were destroyed. Other tornadoes hit the same day in the cities of Newport News and Chesapeake. Total damages were estimated to be $52.5 million, making it the most costly tornado outbreak in Virginia to date.

Damage also comes from hail. While hail occurs on an annual basis in the Commonwealth, it is generally not considered a major threat to life and property. There are, however, instances where hail can cause property/crop damage, and can be a threat to life. Very large hail (i.e. 2 inches in diameter or larger) is an uncommon occurrence, and has the greatest threat for injury and/or possible death, and an increased threat for property damage. In addition, thunderstorms which produce significant quantities of hail, regardless of size, can damage crops and forests. The threats posed by an individual hail-producing thunderstorm are localized in nature, and generally affect an area less than 200 square miles. The size of the hail greatly affects the magnitude or severity of damage. Storms can produce hail from as small as ¼ inch in diameter to up to 4 ½ inches. Depending on the size of hail determines the potential damage.

Additional Information

The VDEM online library at **www.vdem.state.va.us/library/stats.cfm** includes extensive background information on tornadoes and hail in Virginia.

Proposed projects (Information and Data Development: Identify data needs) for tornadoes and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database. Additional information regarding the projects can be found in Appendix H.

Wildfire

Historic Occurrence

The following list, based on available records from Virginia Department of Forestry (VDOF), includes the dates of significant wildfire in Virginia since 1960:

- 1963 Historical data unavailable at this time.
- 1987 Historical data unavailable at this time.
- 1995 April 9. Fueled by dry conditions, dead trees and limbs and gusty winds. More than 66 acres of forest burned in Buckingham County; 150 acres of forest in Franklin County burned with the evacuation of 65 residents; 24 acres of forest in Pittsylvania County burned. Total property damage from the fires was greater than $50,000.
- 1999 Virginia Department of Forestry reported the Fire Season (January – July) recorded 1,320 fires burning 6,146 acres of land. Cumulative Severity Index (1 - 800 rating for fire danger) rated Northern Virginia at 628 by end of July. On April 2, fire burned over 400 acres on Afton Mountain. The fire was fueled by strong winds, dead vegetation and very dry conditions. Property damage estimated at $2,000. On July 9, White Post, Clarke County. A combine working in a wheat field overheated and started a fire which spread rapidly as a result of the extremely dry conditions. The fire destroyed the combine ($92,000) and 60 acres of wheat ($6,700), 5 acres of farmland and 2 acres of woodland. Six firefighters were treated for heat exhaustion.

Since wildfire occurrence is based on some many different factors, the VDOF developed a fire ranking map to assist to wildfire prevention efforts, as shown in Figure 3-11.

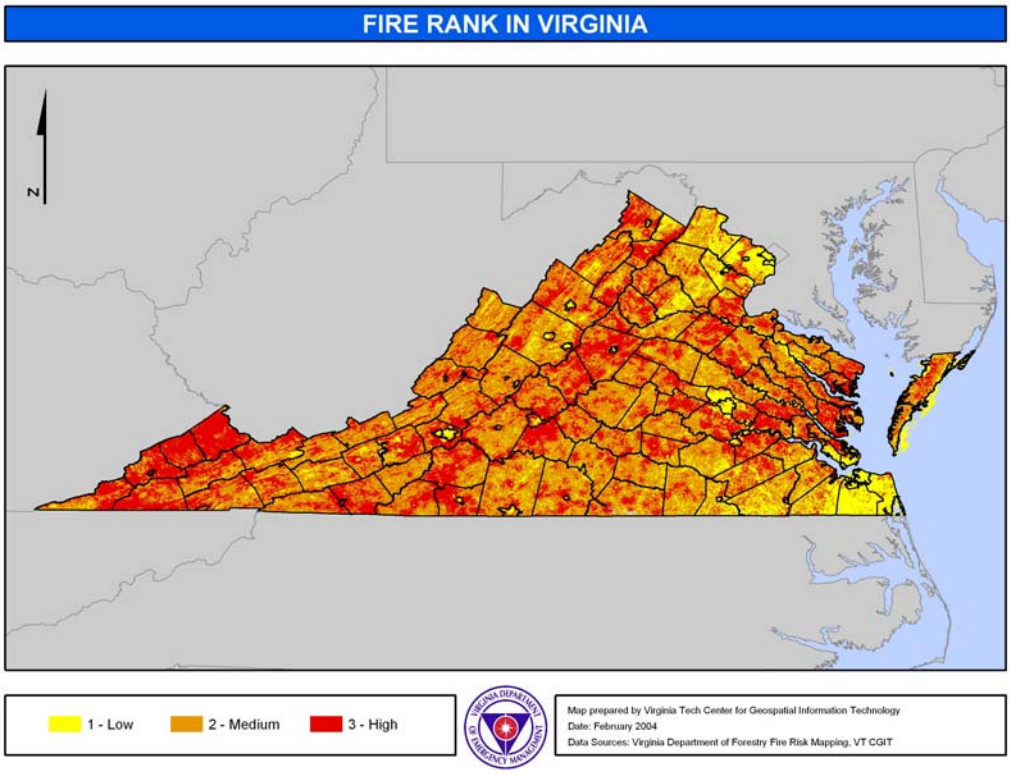


Figure 3-11. Virginia Wildfire Risk Hazard Mapping from VA Department of Forestry.

Description

Wildfire is a unique hazard in that it can be significantly altered based on efforts to control its course during the event. Spring (March and April) and fall (October and November) are the two seasons for wildfires. The Virginia Department of Forestry (VDOF) indicates that there are three principle factors that can lead to the formation of wildfire hazards: topography, fuel, and weather. The environmental conditions that exist during these seasons exacerbate the hazard. When relative humidity is low and high winds are coupled with a dry forest floor (brush, grasses, leaf litter), wildfires may easily ignite. Years of drought can lead to environmental conditions that promote wildfires. In Virginia, accidental or intentional setting of fires by humans is the largest contributor to wildfires. Residential areas that expand into wildland areas also increase the risk of wildfire threats.

Impacts

The impacts of wildfires can be widespread leading to many secondary hazards. During a wildfire, the removal of groundcover that serves to stabilize soil can lead to hazards such as landslides, mudslides, and flooding. In addition, the leftover scorched and barren land may take years to recover and the resulting erosion can be problematic.

Measures of Magnitude

Figure 3-11 shows the wildfire hazard map developed by VDOF. In 2002 and 2003, VDOF examined which factors influence the occurrence and advancement of wildfires and how these factors could be represented in a GIS model. VDOF determined that historical fire incidents, land cover (fuels surrogate), topographic characteristics, population density, and distance to roads were critical variables in a wildfire risk analysis. The resulting high, medium, and low risk category reflect the results of these analysis.

Additional Information

The VDOF website, http://www.dof.virginia.gov/gis/, has more information about wildfire hazards and their mapping and prediction.

Proposed projects (Information and Data Development: Identify data needs) for wildfires and natural hazards information would provide data for future analysis in upcoming plans. Projects include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Mitigation Database; 3.1.10 Hazard Mitigation for Virginia Department of Fire Programs. Additional information regarding the projects can be found in Appendix H.

3.3 *Assessing Vulnerabilities*

After identifying hazards in the Commonwealth and gathering background information, the next step in the HIRA was assessing vulnerabilities. DMA 2000 states the following:

> *§201.4(c)(2)(ii) [The state plan shall have] An overview and analysis of the State's vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State risk assessment. The State shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State owned critical or operated facilities located in the identified hazard areas shall also be addressed;*

As mentioned at the beginning the chapter, no completed local plans were available to use as part of this Virginia Plan. Therefore, all vulnerability assessments made exclusive use of information gathered for the statewide plan. Appendix G contains information about the current status of the local plans. The following subsections in this chapter will give the background information about the vulnerably assessment techniques used, followed by the jurisdiction analysis and the state facility analysis (including critical facilities).

The next update to this plan in 2007 will include information from local risk assessments, which will be included in the new Mitigation Database (Project 3.1.2 Establish and Maintain the Virginia Mitigation Database in Appendix H).

Vulnerability Assessment Techniques

Probability versus Relative Risk

A major distinction was made in this Plan between hazards that had known, established techniques for assigning hazard probability and those that had less specific hazard recurrence information. For example, FEMA floodplain maps provide 100-yr recurrence interval location for flooding, while USGS landslide mapping give general indications of landslide susceptibility or occurrence. Table 3-8 details whether probabilistic or relative risk for each HIRA analysis type.

Table 3-8. HIRA Hazard Analysis Overview

Hazard	Analysis Name	Vulnerability Method	Technique
Blizzard (Winter Storm)	Winter Storm	Relative Risk	Kaiser-Permanente
Earthquake	None	None	None
Flooding (Riverine & Coastal)	Flood	Flood Policies/Probability	GIS Intersection
Hurricane (Wind)	Wind	Probability	GIS Intersection
Land Subsidence (Karst)	Karst	Relative Risk	Kaiser-Permanente
Landslide	Landslide	Relative Risk	Kaiser-Permanente
Tornado (Wind)	Tornado	Probability	Tornado Statistics
Wildfire	Wildfire	Relative Risk	Kaiser-Permanente

Note: Flooding vulnerability method refers to flood policies being used for the jurisdictional analysis and probability used for the state facility analysis.

For some hazards, such as hurricane wind, probabilistic methods were used intersecting locations of interest with mapping within a GIS. For other hazards, a relative risk method was used based on a tool developed by Kaiser Permanente.

Kaiser-Permanente Relative Risk Technique

Table 3-9 shows the use of a relative risk technique developed by Kaiser-Permanente (KP).

Table 3-9. Kaiser-Permanente Technique for Relative Risk Assessment

COMMONWEALTH OF VIRGINIA HAZARD AND VULNERABILITY ASSESSMENT TOOL
NATURALLY OCCURRING EVENTS

EVENT			SEVERITY = (MAGNITUDE - MITIGATION)						UNMITIGATED		MITIGATED	
		PROBABILITY	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	RISK	RANKING	RISK	RANKING
		Likelihood this will occur	*Possibility of death or injury*	*Physical losses and damages*	*Interruption of services*	*Preplanning*	*Time, effectiveness, resources*	*Community / Mutual Aid staff and supplies*	*Relative Threat (w/out preparedness)*	*Based only on probability and threat*	*Relative threat* (w/magnitude and mitigation)*	*Based on probability, magnitude, & mitigation*
SCORE	EOP Volume(s)	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = High 2 = Moderate 3 = Low or none*	*0 = N/A 1 = High 2 = Moderate 3 = Low or none*	*0 = N/A 1 = High 2 = Moderate 3 = Low or none*	*0 - 100%*		*0 - 100%*	
Blizzards/Icestorms/Winter Storms	6, 7	2	2	2	3	2	2	2	52%	2	48%	3
Coastal/Shoreline Erosion	1, 5, 6	2	1	2	1	2	2	2	30%	15	37%	10
Dam Failure	1, 6	1	2	2	2	2	2	2	22%	23	22%	26
Drought	6	2	1	1	2	2	2	2	30%	15	37%	10
Earthquake	6	1	1	2	2	3	2	2	19%	28	22%	26
Flooding-Coastal	2, 5, 6	2	1	2	2	2	2	1	37%	9	37%	10
Flooding-Riverine	2, 5, 6, 7	3	2	2	2	2	1	2	67%	1	61%	1
High Wind / Windstorms	2, 5, 6	2	1	2	1	2	2	2	30%	15	37%	10
Hurricanes, generally	2, 5, 6, 7	2	2	2	2	1	2	2	44%	3	41%	8
Tropical Depressions	5, 6, 7	2	1	1	1	1	1	2	22%	23	26%	22
Tropical Storms	5, 6, 7	2	1	2	2	2	1	2	37%	9	37%	10
Hurricanes, Category 1	2, 5, 6, 7	2	2	2	2	1	2	2	44%	3	41%	8
Hurricanes, Category 2	2, 5, 6, 7	2	2	2	2	2	2	2	44%	3	44%	4
Hurricanes, Category 3	2, 5, 6, 7	1	2	3	3	2	2	2	30%	15	26%	22
Land Subsidence/Karst	6	1	1	1	1	2	2	2	11%	30	17%	30
Landslides	6	1	1	1	1	2	2	2	11%	30	17%	30
Northeasters	4, 6, 7	2	1	1	1	2	2	2	22%	23	33%	17
Tornadoes, generally	2, 6	2	2	2	2	2	2	2	44%	3	44%	4
Tornadoes, F0	2, 6	2	2	1	1	2	2	2	30%	15	37%	10
Tornadoes, F1	2, 6	2	2	2	2	2	2	2	44%	3	44%	4
Tornadoes, F2	2, 6	1	2	2	2	2	2	2	22%	23	22%	26
Wildfire	1, 6	2	2	2	2	2	2	2	44%	3	44%	4
AVERAGE SCORE		1.61	1.64	1.82	1.85	1.94	1.91	1.97	32%		33%	

**Threat increases with percentage.*

UNMITIGATED RISK=	PROBABILITY * MAGNITUDE	
0.32	0.54	0.59

MITIGATED RISK =	PROBABILITY * SEVERITY	
0.33	0.54	0.62

***This calculation requires data to be entered into the green Preparedness columns to have an accurate assessment.**

Spreadsheet developed by: KAISER PERMANENTE.

Modifications by: VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

Revised: 3/25/04

First, the probability of a hazard is assigned a low, medium, or high value. Then the severity of this hazard is evaluated based on magnitude and mitigation. Magnitude relates to impact on people, property, and businesses. Mitigation relates to preparedness, internal response and external response. The final columns give the unmitigated and mitigation relative risks for each hazard. The different scores shown in Table 3-9 for each hazard were developed by VDEM as part of the Emergency Management Accreditation Program (EMAP) process in Spring 2004.The mitigated relative risks shown in Table 3-9 were used to develop the high (purple), medium (yellow), and low (blue) relative risk categories shown in Table 3-2. A version of this technique was used for all relative risk hazard analyses, where the probability was not known precisely, but could be assigned a high, medium, or low value.

Winter Storm Analysis

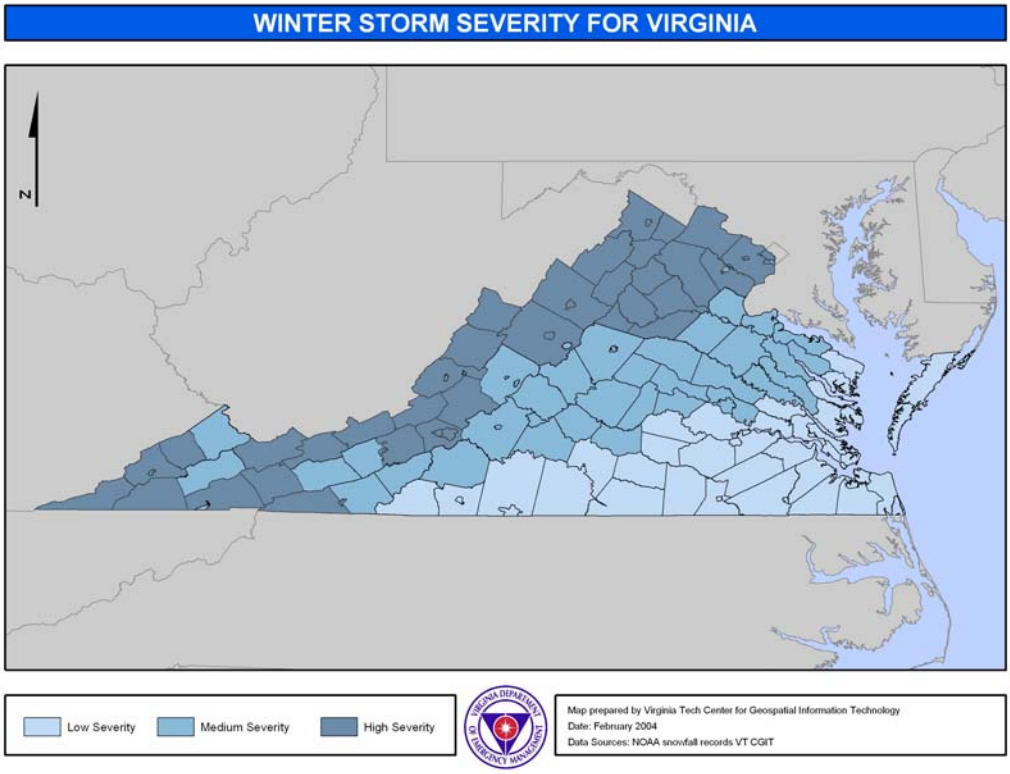


Figure 3-12. Winter Storm Relative Severity Based in Annual Snowfall Statistics.

The KP technique was used for winter storm vulnerability analysis. Figure 3-12 shows where Virginia counties and cities are split into 3 severity values based on annual snowfall statistics. These values were used for both the jurisdictional analysis and the state facility analysis. Table 3-10 shows the values for each jurisdiction for winter storm hazards, along as other hazards.

Earthquake Analysis

Table 3-7 shows no analysis being conducted for earthquake hazards in Virginia. Although there is some variation on predicted earthquake severity, this does not translate into building codes (I-Codes) with different building standards within Virginia. The typical minimum design standards in Virginia provide adequate protection from the infrequent earthquakes in the state. Therefore, VDEM decided to remove earthquakes from the HIRA analysis for jurisdictions and state facilities.

Table 3-10. Hazard Severity for Virginia Jurisdictions.

COMMUNITY_	POP 2000	HOUSE HOLDS_ 2000	Wint. KP	# FloodPol. 01/04	Wind 90 MPH Prob	Karst KP	Land slide KP	Tornado Prob	Wild-fire KP
ACCOMACK COUNTY	32095	12653	1	3415	0.216	0.000	1.000	1.254E-05	1.893
ALBEMARLE COUNTY	81066	24433	2	127	0.020	1.000	2.827	1.692E-05	2.542
ALEXANDRIA	119130	53280	3	1629	0.020	0.000	2.935	1.374E-04	1.011
ALLEGHANY COUNTY	12117	4942	3	3542	0.020	2.164	1.000	0.000E+00	2.296
AMELIA COUNTY	10830	3131	1	9	0.020	0.000	1.000	1.330E-04	2.050
AMHERST COUNTY	30616	9827	2	36	0.020	1.000	3.000	0.000E+00	2.383
APPOMATTOX COUNTY	13480	4531	2	6	0.020	0.000	2.470	1.712E-07	2.276
ARLINGTON COUNTY	175361	78520	3	187	0.020	0.000	1.679	0.000E+00	1.046
AUGUSTA COUNTY	61921	19781	3	240	0.020	2.457	1.910	5.095E-05	2.060
BATH COUNTY	4944	1895	3	32	0.020	2.249	3.000	0.000E+00	2.198
BEDFORD	6808	2475	2	3	0.020	1.000	3.000	0.000E+00	2.464
BEDFORD COUNTY	58483	17292	2	65	0.020	1.000	3.000	2.643E-05	2.222
BLAND COUNTY	6795	2244	3	58	0.020	2.211	1.000	0.000E+00	2.175
BOTETOURT COUNTY	29668	9148	3	199	0.020	2.449	2.896	0.000E+00	2.248
BRISTOL	16460	7591	2	62	0.020	2.960	2.200	2.228E-02	2.426
BRUNSWICK COUNTY	18442	5499	1	12	0.020	0.000	1.000	1.839E-04	1.961
BUCHANAN COUNTY	28014	11061	2	384	0.020	1.000	3.000	2.611E-06	2.882
BUCKINGHAM COUNTY	14884	4341	2	6	0.020	0.000	2.404	1.315E-05	2.134
BUENA VISTA	6390	2404	2	75	0.020	2.863	1.308	0.000E+00	2.139
CAMPBELL COUNTY	50591	17952	2	32	0.020	0.000	2.543	1.422E-05	2.456
CAROLINE COUNTY	22269	6631	2	27	0.020	0.000	1.184	2.184E-05	2.239
CARROLL COUNTY	27835	10463	2	19	0.020	1.000	3.000	4.508E-06	2.510
CHARLES CITY COUNTY	7359	2161	1	11	0.020	0.000	1.102	2.891E-07	2.418
CHARLOTTE COUNTY	12505	4312	1	3	0.020	0.000	1.000	2.194E-04	2.093
CHARLOTTESVILLE	36557	16009	2	41	0.020	1.000	3.000	6.692E-04	1.283
CHESAPEAKE	206316	51965	1	7108	0.133	0.000	1.000	2.768E-05	1.108
CHESTERFIELD COUNTY	256665	73441	1	309	0.020	0.000	1.124	1.023E-04	2.299
CLARKE COUNTY	13026	4236	3	49	0.020	2.631	1.332	3.393E-05	1.973
COLONIAL HEIGHTS	16163	6363	1	86	0.020	0.000	1.750	0.000E+00	1.651
COVINGTON	6747	2998	2	127	0.020	1.000	3.000	0.000E+00	1.884
CRAIG COUNTY	4986	1676	3	61	0.020	2.100	2.575	0.000E+00	2.195
CULPEPER COUNTY	34073	9757	3	29	0.020	0.000	2.079	3.106E-05	1.864
CUMBERLAND COUNTY	7892	2813	2	37	0.020	0.000	1.000	1.016E-05	2.044
DANVILLE	50076	21712	1	68	0.020	0.000	1.907	0.000E+00	1.838
DICKENSON COUNTY	16535	6457	3	91	0.020	1.000	3.000	3.887E-06	2.801
DINWIDDIE COUNTY	25886	7492	1	16	0.020	0.000	1.000	8.779E-05	1.903
EMPORIA	5580	2031	1	47	0.020	0.000	1.000	1.274E-02	1.730
ESSEX COUNTY	9112	3258	2	135	0.020	0.000	1.082	0.000E+00	1.995
FAIRFAX	20715	7362	3	224	0.020	0.000	1.000	0.000E+00	1.049
FAIRFAX COUNTY	961877	292345	3	1479	0.020	0.000	1.347	2.419E-04	1.536
FALLS CHURCH	10086	4195	3	60	0.020	0.000	1.000	2.298E-04	1.000
FAUQUIER COUNTY	56435	16509	3	100	0.020	1.000	2.139	3.043E-05	1.864
FLOYD COUNTY	13415	4763	2	11	0.020	1.000	2.984	3.016E-07	2.096
FLUVANNA COUNTY	20401	4518	2	30	0.020	0.000	1.416	4.445E-04	2.217

COMMUNITY_	POP 2000	HOUSE HOLDS_ 2000	Wint. KP	# FloodPo l. 01/04	Wind 90 MPH Prob	Karst KP	Land slide KP	Tornado Prob	Wild-fire KP
FRANKLIN	7934	3006	1	161	0.031	0.000	1.000	1.077E-04	1.908
FRANKLIN COUNTY	45868	14655	2	96	0.020	1.000	3.000	0.000E+00	2.456
FREDERICK COUNTY	57678	16470	3	67	0.020	2.331	2.211	2.420E-05	2.395
FREDERICKSBURG	18374	7450	2	181	0.020	0.000	1.111	2.172E-04	1.897
GALAX	6393	2750	3	0	0.020	1.000	3.000	0.000E+00	2.951
GILES COUNTY	16346	6461	3	102	0.020	2.399	1.481	0.000E+00	2.208
GLOUCESTER COUNTY	36051	10966	1	1037	0.060	0.000	1.133	5.514E-05	2.546
GOOCHLAND COUNTY	17952	4880	2	17	0.020	0.000	1.000	1.647E-05	2.234
GRAYSON COUNTY	16489	6468	3	22	0.020	1.000	3.000	0.000E+00	2.288
GREENE COUNTY	15277	3749	3	21	0.020	1.000	3.000	8.108E-05	2.426
GREENSVILLE COUNTY	11308	3150	1	4	0.020	0.000	1.000	6.628E-05	1.663
HALIFAX COUNTY	29883	10728	1	48	0.020	0.000	1.411	8.021E-06	2.113
HAMPTON	137069	49673	1	9626	0.091	0.000	1.232	7.747E-05	1.250
HANOVER COUNTY	88325	22628	2	58	0.020	0.000	1.031	1.749E-04	1.950
HARRISONBURG	34376	10310	3	97	0.020	2.999	1.286	0.000E+00	1.658
HENRICO COUNTY	246589	89138	2	421	0.020	0.000	1.679	1.114E-04	1.868
HENRY COUNTY	55424	21771	1	88	0.020	0.000	2.900	5.989E-05	2.559
HIGHLAND COUNTY	2462	1081	3	22	0.020	2.313	3.000	0.000E+00	1.992
HOPEWELL	22453	9014	1	27	0.020	0.000	3.000	8.922E-03	1.472
ISLE OF WIGHT COUNTY	30091	9032	1	228	0.055	0.000	1.116	6.999E-05	1.887
JAMES CITY COUNTY	47293	12968	1	472	0.041	0.000	1.032	4.068E-05	2.194
KING AND QUEEN COUNTY	6590	2339	2	23	0.031	0.000	1.000	2.859E-05	2.154
KING GEORGE COUNTY	18143	4736	2	17	0.020	0.000	1.216	2.490E-05	2.165
KING WILLIAM COUNTY	13290	3834	2	75	0.020	0.000	1.042	1.574E-04	2.052
LANCASTER COUNTY	11361	4564	1	425	0.060	0.000	1.385	9.820E-05	2.575
LEE COUNTY	23732	9231	3	107	0.020	2.271	2.048	1.690E-06	2.458
LEXINGTON	7393	2172	2	10	0.020	2.621	1.000	0.000E+00	1.182
LOUDOUN COUNTY	167265	30490	3	255	0.020	1.000	2.260	4.571E-05	1.640
LOUISA COUNTY	25578	7427	2	18	0.020	0.000	1.000	4.589E-05	2.167
LUNENBURG COUNTY	11637	4423	1	N/A	0.020	0.000	1.000	3.477E-05	2.033
LYNCHBURG	63622	25143	2	92	0.020	0.000	3.000	0.000E+00	2.218
MADISON COUNTY	12695	4144	3	33	0.020	1.000	3.000	8.014E-06	2.357
MANASSAS	8066	2182	2	59	0.020	0.000	1.000	0.000E+00	1.499
MANASSAS PARK	34099	9481	2	10	0.020	0.000	1.000	0.000E+00	1.046
MARTINSVILLE	14757	6839	1	23	0.020	0.000	3.000	0.000E+00	2.178
MATHEWS COUNTY	9350	3530	1	1290	0.084	0.000	1.000	1.505E-04	2.184
MECKLENBURG COUNTY	31016	11244	1	29	0.020	0.000	1.000	5.153E-07	2.155
MIDDLESEX COUNTY	9891	3530	1	328	0.065	0.000	1.268	3.519E-05	2.292
MONTGOMERY COUNTY	77259	26241	3	197	0.020	2.684	1.391	1.347E-06	2.389
NELSON COUNTY	14409	4807	2	80	0.020	1.000	3.000	1.873E-07	2.495
NEW KENT COUNTY	13517	3718	1	33	0.025	0.000	1.160	5.374E-05	2.410
NEWPORT NEWS	179671	63952	1	1677	0.071	0.000	1.183	5.924E-04	1.390
NORFOLK	223565	89478	1	8532	0.115	0.000	1.000	2.249E-03	1.044

COMMUNITY_	POP 2000	HOUSE HOLDS_ 2000	Wint. KP	# FloodPo l. 01/04	Wind 90 MPH Prob	Karst KP	Land slide KP	Tornado Prob	Wild-fire KP
NORTHAMPTON COUNTY	12824	5129	1	488	0.165	0.000	1.000	6.609E-06	1.808
NORTHUMBERLAND COUNTY	11819	4492	1	428	0.065	0.000	1.000	3.069E-05	2.360
NORTON	3974	1697	3	35	0.020	1.000	3.000	0.000E+00	2.877
NOTTOWAY COUNTY	15319	5244	1	0	0.020	0.000	1.000	9.818E-05	2.310
ORANGE COUNTY	26137	7930	3	19	0.020	0.000	1.609	1.532E-05	1.987
PAGE COUNTY	23280	8055	3	209	0.020	2.288	1.604	3.329E-06	2.334
PATRICK COUNTY	18659	6908	1	18	0.020	0.000	3.000	2.154E-06	2.352
PETERSBURG	34064	14730	1	88	0.020	0.000	1.273	1.841E-03	1.929
PITTSYLVANIA COUNTY	56930	20613	1	19	0.020	0.000	2.281	3.807E-05	2.058
POQUOSON	11644	3769	1	2596	0.084	0.000	1.000	0.000E+00	1.498
PORTSMOUTH	97452	38741	1	3017	0.091	0.000	1.000	2.767E-04	1.039
POWHATAN COUNTY	23285	4672	2	10	0.020	0.000	1.000	1.551E-05	2.392
PRINCE EDWARD COUNTY	19308	5373	2	41	0.020	0.000	1.006	9.152E-07	2.234
PRINCE GEORGE COUNTY	29113	8250	1	44	0.020	0.000	1.252	2.699E-04	2.446
PRINCE WILLIAM COUNTY	278554	69709	3	735	0.020	0.000	1.194	3.409E-05	1.753
PULASKI COUNTY	34427	13349	2	116	0.020	2.636	1.132	0.000E+00	2.199
RADFORD	15703	5207	3	18	0.020	2.516	1.000	0.000E+00	1.964
RAPPAHANNOCK COUNTY	7698	2496	3	38	0.020	1.000	3.000	1.075E-06	2.287
RICHMOND	188911	85337	2	188	0.020	0.000	2.190	5.546E-04	1.197
RICHMOND COUNTY	8784	2645	2	45	0.031	0.000	1.106	1.541E-05	1.914
ROANOKE	92707	41030	3	613	0.020	2.673	1.871	3.806E-04	1.387
ROANOKE COUNTY	81185	30355	3	380	0.020	2.346	2.006	8.253E-05	2.481
ROCKBRIDGE COUNTY	19779	7202	2	282	0.020	2.596	1.697	0.000E+00	2.134
ROCKINGHAM COUNTY	63085	20750	3	481	0.020	2.454	2.199	3.347E-06	2.256
RUSSELL COUNTY	28619	10641	2	82	0.020	2.226	1.568	4.369E-06	2.422
SALEM	23988	9161	3	488	0.020	3.000	1.000	0.000E+00	1.540
SCOTT COUNTY	22388	8966	3	74	0.020	2.265	1.960	1.911E-06	2.634
SHENANDOAH COUNTY	35660	12452	3	267	0.020	2.507	2.396	1.878E-05	2.190
SMYTH COUNTY	32619	12234	3	180	0.020	2.198	1.557	2.722E-05	2.298
SOUTHAMPTON COUNTY	17780	6009	1	134	0.034	0.000	1.000	1.541E-05	1.668
SPOTSYLVANIA COUNTY	90690	18945	2	104	0.020	0.000	1.067	1.386E-04	2.445
STAFFORD COUNTY	96835	19415	2	248	0.020	0.000	1.581	3.458E-05	2.370
STAUNTON	24419	9432	3	97	0.020	2.839	1.000	0.000E+00	1.767
SUFFOLK	66845	18516	1	492	0.071	0.000	1.013	4.834E-05	1.581
SURRY COUNTY	6514	2283	1	42	0.038	0.000	1.251	4.751E-05	1.991
SUSSEX COUNTY	12312	3795	1	62	0.022	0.000	1.069	9.489E-05	2.107
TAZEWELL COUNTY	46144	17309	3	359	0.020	2.138	1.526	0.000E+00	2.380
VIRGINIA BEACH	435329	135566	1	19835	0.177	0.000	1.000	3.099E-04	1.206
WARREN COUNTY	30946	9879	3	296	0.020	2.235	1.615	5.506E-05	2.538
WASHINGTON COUNTY	50072	17483	3	99	0.020	2.364	1.977	2.739E-05	2.330
WAYNESBORO	19372	7568	2	166	0.020	2.829	1.000	0.000E+00	1.596
WESTMORELAND COUNTY	16235	6057	2	200	0.020	0.000	1.140	1.162E-05	2.006

COMMUNITY_	POP 2000	HOUSE HOLDS_ 2000	Wint. KP	# FloodPol. 01/04	Wind 90 MPH Prob	Karst KP	Land slide KP	Tornado Prob	Wild-fire KP
WILLIAMSBURG	12537	3468	1	28	0.034	0.000	1.000	0.000E+00	2.435
WINCHESTER	22576	9084	3	15	0.020	2.999	1.000	0.000E+00	2.047
WISE COUNTY	40125	14513	3	399	0.020	1.000	2.814	0.000E+00	2.704
WYTHE COUNTY	26639	9852	2	39	0.020	2.378	1.173	0.000E+00	2.033
YORK COUNTY	59416	14474	1	1947	0.065	0.000	1.307	1.948E-04	2.406

Flood Analysis

Analysis techniques for flood hazards made use of flood policy information for the jurisdiction analysis and available floodplain mapping for the state facility analysis. The flood policy technique first scaled the number of flood insurance policies in a county or city by the number of households from the 2000 Census. Then a population weighted score was developed and ranked to represent the relative flood impacts at a jurisdictional level. For state facilities, when flood mapping was available, each facility was assigned a probability of being in a floodplain based on the intersection of the facility location and the floodplain mapping.

Wind (Hurricane) Analysis

The wind design map from ASCE 7-98 (Figure 3-6) was used within a GIS to determine each county's and city's maximum 50-yr wind speed. For a majority of Virginia, this relates to 90 mph. Based on calculations within ASCE 7-98, 90 mph was used as a standard for determining wind hazard probability. In Table 3-9, jurisdictions closer to the cost will have a higher probability than 2% (50-yr) for the 90 mph wind speed.

Karst

Figure 3-13 shows how the USGS karst mapping (Figure 3-8) was converted to use with the KP technique. For jurisdictions with some karst area, a hazard from 3 (high) to 2 (medium) was calculated based on an area weighted average. Jurisdictions neighboring these counties were assign 1 (low) and all others were assigned 0 (none).

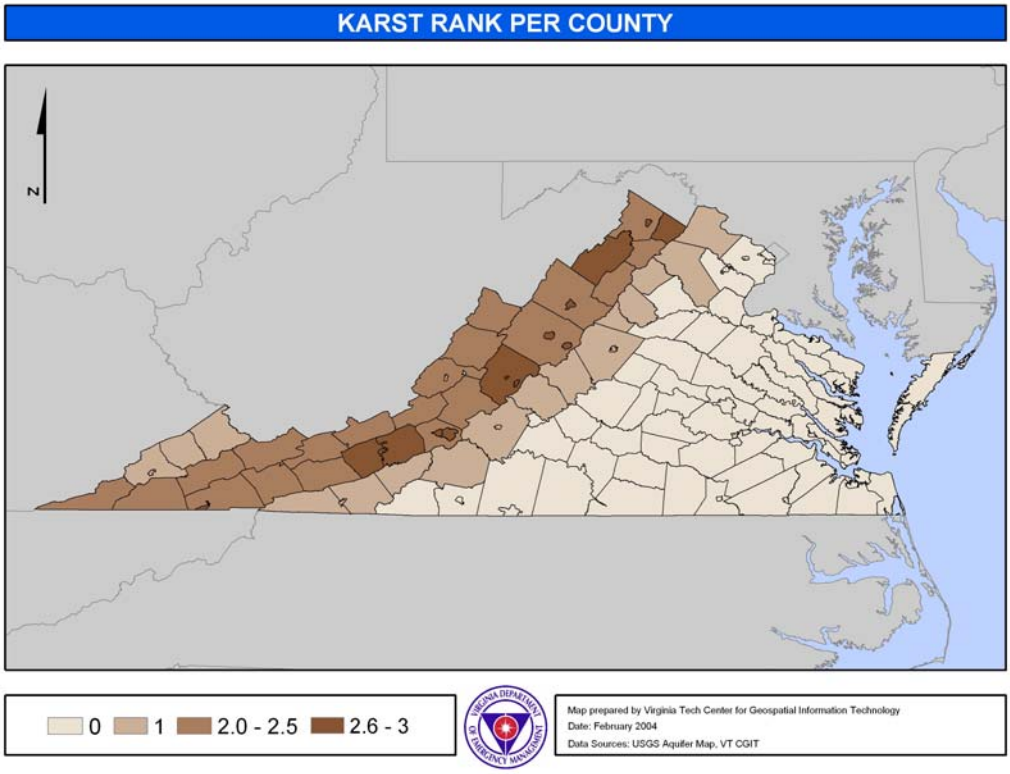


Figure 3-13. Karst Relative Severity Based on USGS Aquifer Mapping.

Landslide

Landslide Analysis also made use of the KP technique, as shown in Figure 3-14. Landslide hazards were ranked 1-3 based on the landslide susceptibility and incidence class from the USGS landslide mapping. Low susceptibility and moderate susceptibility & low incidence were assigned ranks of one. Moderate susceptibility and high susceptibility & low incidence were assigned ranks of two. High susceptibility and high susceptibility & high incidence were assigned ranks of three.

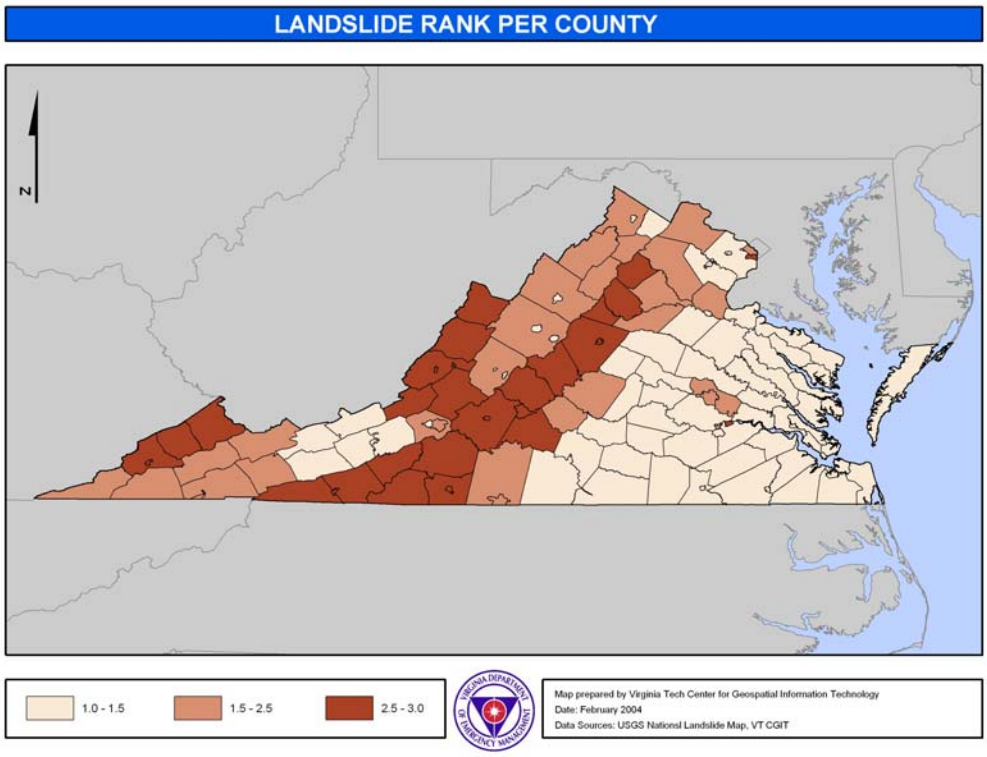


Figure 3-14. Landslide Relative Severity Based in USGS Landslide Mapping.

Tornado

Tornado Analysis made use of historical tornado statistics (counts, path length and width) to determine annual probably for each jurisdiction. Most of the source data came from NOAA Storm Prediction Center at http://www.spc.noaa.gov/archive/tornadoes/ and the method used was based on FEMA 361 Design and Construction of Community Shelters.

Wildfire

Wildfire Analysis made use of the Virginia DOF fire hazard mapping, as shown in Figure 3-11, to utilize the KP technique. The three hazards levels of high (3), medium (2), and low(1) were uses unchanged.

Jurisdiction Vulnerability Analysis

The Jurisdiction Vulnerability Analysis made use of the jurisdiction hazard vulnerabilities to assess the impact of hazards on the population of Virginia. Table 3-9 showed for the seven hazard analysis types (winter, flood, wind, karst, landslide, tornado, and wildfire) either the probability or relative risk for each hazards. For the Jurisdiction Vulnerability Analysis, each of these hazard levels were weighted by the population of the jurisdiction and then ranked. For flooding, the number of policies was first weighted by the number of households before weighting by population. The jurisdictions with the higher hazards were given the higher rank. The final overall ranking was then develop by adding all of the individual ranks with a weighting given based on the high, medium, or low statewide relative risk (shown in Table 3-2). Figure 3-15 and Table 3-11 shows the results of this analysis.

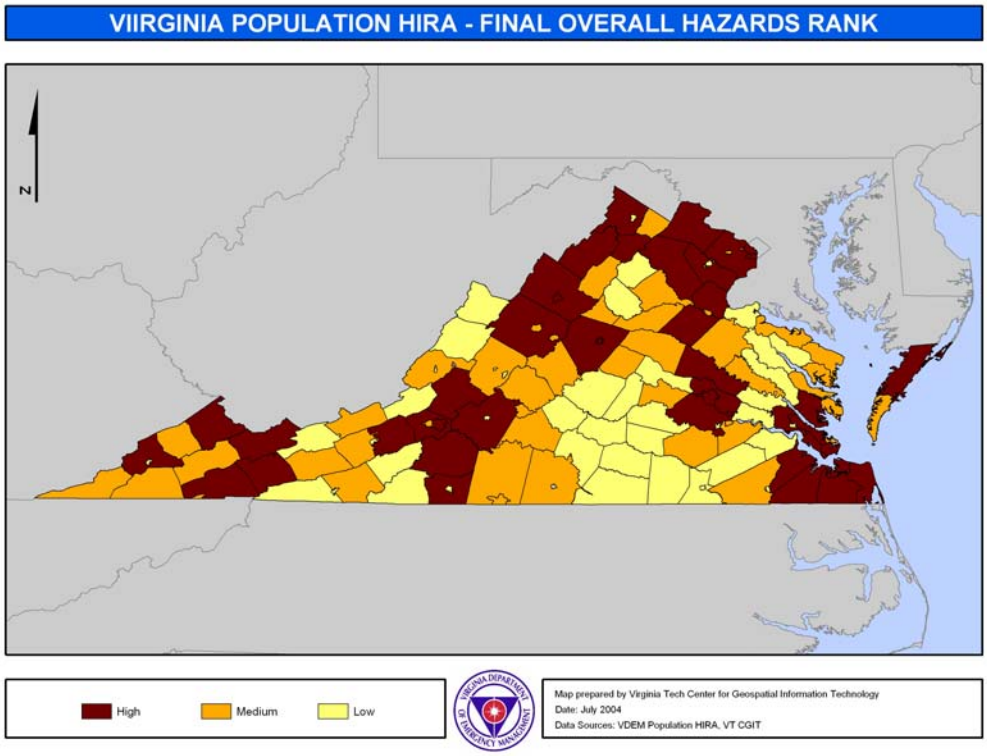


Figure 3-15. Jurisdiction Vulnerability Analysis Hazard Rankings

The top ten jurisdictions for overall hazard vulnerability (based on population weighting) were the following:

1. Virginia Beach
2. Norfolk
3. Fairfax County
4. Roanoke City
5. Newport News
6. Loudoun County
7. Alexandria
8. Henrico County
9. Roanoke County
10. Portsmouth

Table 3-11. Jurisdiction Vulnerability Analysis Hazard Rankings (Higher values more severe).

COMMUNITY_	Winter Rank	Flood Rank	Wind Rank	Karst Rank	Land Rank	Tornado Rank	Wildfire Rank	Final Rank
ACCOMACK COUNTY	52	129	127	39.5	61	61	81	99
ALBEMARLE COUNTY	112	87	108	122	125	69	122	113
ALEXANDRIA	**127**	**123**	**118**	**39.5**	**129**	**111**	**107**	**128**
ALLEGHANY COUNTY	59	130	22	96	22	19.5	35	53
AMELIA COUNTY	8	10	19	39.5	16	110	26	19
AMHERST COUNTY	84	43	77	99	100	19.5	90	63
APPOMATTOX COUNTY	44	7	31	39.5	62	39	42	16
ARLINGTON COUNTY	132	86	120	39.5	127	19.5	119	100
AUGUSTA COUNTY	118	98	104	129	108	93	109	118
BATH COUNTY	26	33	3	86	30	19.5	5	7
BEDFORD	23	4	10	83	45	19.5	16	3
BEDFORD COUNTY	106	65	103	113	120	74	111	103
BLAND COUNTY	38	57	9	90	3	19.5	13	15
BOTETOURT COUNTY	97	97	74	121	98	19.5	85	91
BRISTOL	54	49	42	106	67	134	60	78
BRUNSWICK COUNTY	35	15	49	39.5	38	116	55	44
BUCHANAN COUNTY	80	105	71	98	96	50	95	94
BUCKINGHAM COUNTY	47	8	35	39.5	66	62	45	27
BUENA VISTA	18	60	6	94	11	19.5	11	9
CAMPBELL COUNTY	102	35	98	39.5	111	63	108	85
CAROLINE COUNTY	67	36	57	39.5	56	71	71	49
CARROLL COUNTY	79	20	70	97	95	55	88	62
CHARLES CITY COUNTY	3	14	11	39.5	9	41	20	2
CHARLOTTE COUNTY	16	5	25	39.5	23	119	32	25
CHARLOTTESVILLE	94	37	89	101	106	129	69	101
CHESAPEAKE	121	133	133	39.5	122	77	125	120
CHESTERFIELD COUNTY	125	108	125	39.5	126	107	133	123
CLARKE COUNTY	64	54	27	100	35	82	30	54
COLONIAL HEIGHTS	31	64	39	39.5	57	19.5	33	24
COVINGTON	21	78	8	82	43	19.5	9	20
CRAIG COUNTY	27	58	4	85	27	19.5	6	12
CULPEPER COUNTY	103	40	84	39.5	93	81	83	87
CUMBERLAND COUNTY	29	41	14	39.5	6	59	15	18
DANVILLE	75	56	97	39.5	101	19.5	97	65
DICKENSON COUNTY	74	70	44	93	86	53	68	69
DINWIDDIE COUNTY	41	23	67	39.5	55	103	70	50
EMPORIA	1	47	5	39.5	1	133	3	32
ESSEX COUNTY	34	83	16	39.5	14	19.5	21	21
FAIRFAX	85	96	55	39.5	46	19.5	25	60
FAIRFAX COUNTY	**134**	**125**	**131**	**39.5**	**134**	**121**	**134**	**132**
FALLS CHURCH	50	51	17	39.5	15	120	4	47
FAUQUIER COUNTY	113	82	100	112	109	79	100	110
FLOYD COUNTY	43	9	29	88	72	42	37	22
FLUVANNA COUNTY	66	50	54	39.5	58	126	66	75
FRANKLIN	5	89	23	39.5	7	108	14	43

COMMUNITY_	Winter Rank	Flood Rank	Wind Rank	Karst Rank	Land Rank	Tornado Rank	Wildfire Rank	Final Rank
FRANKLIN COUNTY	98	80	93	105	113	19.5	104	92
FREDERICK COUNTY	114	71	102	128	110	72	112	108
FREDERICKSBURG	60	90	48	39.5	44	118	50	83
GALAX	37	1	7	81	40	19.5	23	6
GILES COUNTY	72	74	41	102	52	19.5	54	48
GLOUCESTER COUNTY	57	121	117	39.5	73	96	96	104
GOOCHLAND COUNTY	56	26	46	39.5	37	68	61	34
GRAYSON COUNTY	73	24	43	92	85	19.5	58	33
GREENE COUNTY	68	34	36	91	82	101	57	68
GREENSVILLE COUNTY	9	6	20	39.5	17	98	22	13
HALIFAX COUNTY	48	48	75	39.5	75	58	82	52
HAMPTON	109	132	129	39.5	118	100	117	124
HANOVER COUNTY	115	68	111	39.5	99	115	118	112
HARRISONBURG	104	81	86	126	79	19.5	78	90
HENRICO COUNTY	**130**	**111**	**124**	**39.5**	**132**	**109**	**130**	**127**
HENRY COUNTY	78	67	99	39.5	116	97	114	96
HIGHLAND COUNTY	4	19	1	80	4	19.5	1	1
HOPEWELL	39	30	59	39.5	90	132	49	70
ISLE OF WIGHT COUNTY	49	99	110	39.5	64	99	77	95
JAMES CITY COUNTY	71	118	115	39.5	84	88	99	105
KING AND QUEEN COUNTY	20	28	18	39.5	2	78	12	17
KING GEORGE COUNTY	58	29	47	39.5	47	73	59	39
KING WILLIAM COUNTY	42	75	28	39.5	29	114	34	58
LANCASTER COUNTY	10	107	82	39.5	34	106	38	76
LEE COUNTY	92	76	63	110	83	47	79	82
LEXINGTON	25	11	12	95	5	19.5	2	4
LOUDOUN COUNTY	**131**	**116**	**119**	**131**	**130**	**89**	**129**	**129**
LOUISA COUNTY	76	25	66	39.5	54	90	75	61
LUNENBURG COUNTY	11	3	21	39.5	18	85	29	10
LYNCHBURG	108	69	106	39.5	121	19.5	113	88
MADISON COUNTY	61	38	26	87	70	57	40	37
MANASSAS	30	63	15	39.5	8	19.5	8	11
MANASSAS PARK	89	12	85	39.5	65	19.5	52	42
MARTINSVILLE	24	17	34	39.5	80	19.5	46	8
MATHEWS COUNTY	6	122	91	39.5	12	113	24	86
MECKLENBURG COUNTY	51	31	79	39.5	59	43	86	41
MIDDLESEX COUNTY	7	102	80	39.5	25	86	27	67
MONTGOMERY COUNTY	123	94	107	133	105	46	120	111
NELSON COUNTY	45	72	33	89	76	40	53	45
NEW KENT COUNTY	22	46	45	39.5	32	94	48	35
NEWPORT NEWS	**116**	**124**	**130**	**39.5**	**123**	**128**	**128**	**130**
NORFOLK	**122**	**131**	**132**	**39.5**	**124**	**131**	**127**	**133**
NORTHAMPTON COUNTY	19	112	116	39.5	26	56	28	74
NORTHUMBERLAND COUNTY	13	110	90	39.5	20	80	36	72
NORTON	14	32	2	79	21	19.5	7	5
NOTTOWAY COUNTY	28	2	37	39.5	31	105	51	30

COMMUNITY_	Winter Rank	Flood Rank	Wind Rank	Karst Rank	Land Rank	Tornado Rank	Wildfire Rank	Final Rank
ORANGE COUNTY	96	27	68	39.5	74	64	72	64
PAGE COUNTY	91	95	61	109	69	51	74	89
PATRICK COUNTY	36	16	50	39.5	89	49	65	28
PETERSBURG	55	62	83	39.5	77	130	84	93
PITTSYLVANIA COUNTY	81	21	101	39.5	112	87	106	80
POQUOSON	12	128	95	39.5	19	19.5	18	57
PORTSMOUTH	**100**	**126**	**128**	**39.5**	**103**	**123**	**98**	**125**
POWHATAN COUNTY	69	18	62	39.5	50	67	76	46
PRINCE EDWARD COUNTY	62	52	51	39.5	42	44	63	40
PRINCE GEORGE COUNTY	46	55	73	39.5	68	122	89	77
PRINCE WILLIAM COUNTY	133	120	126	39.5	128	83	131	122
PULASKI COUNTY	90	79	87	124	71	19.5	92	81
RADFORD	70	22	38	103	33	19.5	43	29
RAPPAHANNOCK COUNTY	40	44	13	84	49	45	19	26
RICHMOND	128	85	121	39.5	131	127	124	121
RICHMOND COUNTY	32	53	30	39.5	13	66	17	31
ROANOKE	**126**	**115**	**113**	**134**	**119**	**125**	**110**	**131**
ROANOKE COUNTY	**124**	**106**	**109**	**132**	**117**	**102**	**121**	**126**
ROCKBRIDGE COUNTY	65	101	53	108	63	19.5	62	66
ROCKINGHAM COUNTY	119	117	105	130	114	52	115	115
RUSSELL COUNTY	82	66	72	115	81	54	87	79
SALEM	93	114	64	120	51	19.5	56	84
SCOTT COUNTY	87	59	58	107	78	48	80	73
SHENANDOAH COUNTY	105	100	88	123	97	70	93	106
SMYTH COUNTY	101	91	81	119	88	75	91	102
SOUTHAMPTON COUNTY	33	84	76	39.5	36	65	39	59
SPOTSYLVANIA COUNTY	117	92	112	39.5	102	112	123	116
STAFFORD COUNTY	120	113	114	39.5	115	84	126	117
STAUNTON	95	73	65	118	53	19.5	64	71
SUFFOLK	86	119	123	39.5	91	92	101	114
SURRY COUNTY	2	45	24	39.5	10	91	10	23
SUSSEX COUNTY	15	61	32	39.5	28	104	31	36
TAZEWELL COUNTY	110	104	94	125	92	19.5	103	98
VIRGINIA BEACH	**129**	**134**	**134**	**39.5**	**133**	**124**	**132**	**134**
WARREN COUNTY	99	103	78	117	87	95	94	109
WASHINGTON COUNTY	111	77	96	127	104	76	105	107
WAYNESBORO	63	88	52	111	41	19.5	44	56
WESTMORELAND COUNTY	53	93	40	39.5	39	60	47	55
WILLIAMSBURG	17	39	56	39.5	24	19.5	41	14
WINCHESTER	88	13	60	116	48	19.5	67	38
WISE COUNTY	107	109	92	104	107	19.5	102	97
WYTHE COUNTY	77	42	69	114	60	19.5	73	51
YORK COUNTY	83	127	122	39.5	94	117	116	119

State Facility Vulnerability Analysis

Besides looking at vulnerability to jurisdictions, the HIRA also looked at vulnerability to state facilities. The HIRA was not able to include local assessment information, because no local plans were available when the HIRA was being complete.

Facility Database and Locations

This Plan only looked at state owned, leased, or managed facilities. The most comprehensive source of this information was the Virginia Agency Property System (VAPS) database, maintained by the Division of Risk Management in the Virginia Department of the Treasury. VAPS contains information for almost 13,000 locations for around 230 state agencies in Virginia. The term "locations" was used instead of "structures", because VDEM decided that all analyses needed to be summarized by locations of state agencies. Certain structures, especially in Richmond, VA (the state capitol), have multiple state agency locations in the same structure.

VAPS only contains structure information. The database does contain a field labeled "critical type", which contains a code that describes the type of facility at that location. Table 3-12 lists the descriptions of the different types of facilities accounted for in the database. **The critical facilities were taken into account when using the KP methodology, where critical facility locations received a higher score in assessing their vulnerability as compared to other state owned or operated facilitie**s. Following the completion of the HIRA, state agencies were given building-specific and hazard-specific information for their agencies. These were provided to the agencies at the 2nd meeting and through a password-protected website. Due to security issues with the release of this information, maps of the locations of the various type of critical facilities and counts of the various types of facilities can not be included in this section.

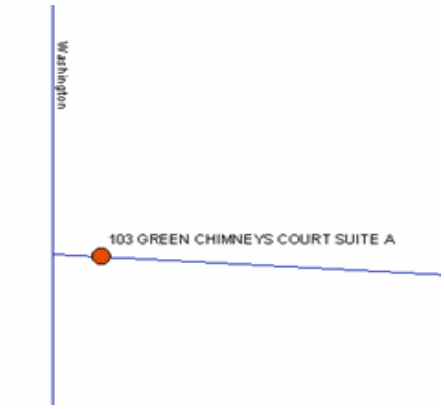
Table 3-12. Critical Building Types within the VAPS Database.

Code	Facility Type	Description
CE	Essential	Facilities are essential to health and welfare of the whole population and are especially important following hazard events. These include hospitals and other medical facilities, police and fire stations, emergency operations centers, and evacuation shelters.
CT	Transportation Systems	Including Airways (airports, heliports); Highways (bridges, tunnels, roadbeds, overpasses, transfer centers); Railways (trackage, tunnels, bridges, rail yards, depots); and Waterways (canals, locks, seaports, ferries, harbors, dry-docks, piers).
CL	Lifeline Utility Systems	Including potable water supplies and treatment facilities; wastewater lines and treatment facilities; oil and natural gas lines and supplies; electric power lines and generators; and communications systems.
CP	High Potential Loss	Facilities are facilities that would have a high loss associated with them, such as nuclear power plants, dams, and military installations.
CH	Hazardous Materials	Facilities, including facilities housing industrial/hazardous materials, such as corrosives, explosives, flammable materials, radioactive materials, and toxins.
CV	Vulnerable	Facilities, including the following: a. schools (all age groups); b. facilities that house special populations, such as nursing homes, prisons, etc.; c. major employers and/or financial intuitions/centers; d. high density residential or commercial centers that, if damaged, may result in high death tolls and injury rates.
CA	Archival	Include facilities that: a. house irreplaceable artifacts, records, equipment, or research (e.g., museums); b. have some special or unique cultural/historic value (i.e., historic landmarks or districts); c. represent some special or unique natural resource value, including public recreation areas, parks, forests, important natural habitats, etc.; d. are areas protected under state or federal law.
CI	Important	Facilities that help to ensure a full recovery of the jurisdiction following a hazard event. These would include some government functions and certain commercial establishments such as grocery stores, hardware stores, and gas stations.

The VAPS database did not address critical infrastructure. The Virginia Department of Transportation (VDOT) is currently in the process of developing a road infrastructure database and the Virginia Information Technology Agency (VITA) is compiling information on other critical infrastructure. These will be added to the Mitigation Database being developed for the updated plan for 2007. Unfortunately, neither database was available during the HIRA.

Proposed projects address the need for a more complete state facility database which addresses the need for a standardized database for identifying and tracking community assets including critical and non-critical facilities. Project 3.5.2 Comprehensive State Facility Inventory Database would consolidate and enhance the existing data into one database.

In the attempt to locate these facilities spatially, several methods were utilized. The two main locating methods that were implemented were geocoded facilities and polygons outlining facilities. Geocoding or "address matching" uses nonspatial information of locations (i.e. VAPS database) and converts the location information into a spatial address (i.e. the geocoded point). In geocoding, information from the VAPS database was compared against the information in the StreetMap USA database. When the two databases had matching information a point location was assigned to the entry in the VAPS database. Figure 3-16 below shows an example of geocoding.



Geocoding Example:
Probation & Parole District # 41
103 Green Chimneys Court Suite A
Ashland, VA 23005

Figure 3-16. Geocoding Example

The lack of or presence of inaccurate information in the databases resulted in some facilities not being identified with a point location. Only about 1/3 of the locations in the VAPS database produced geocoded points. Many of the VAPS address fields were incomplete or not in an E911 style format. Also, many of the higher value structures in the state (the Governor's Mansion, State Capitol Building, major university buildings) did not have detailed state addresses or only contained the administrative address of the agency. Figure 3-17 shows the locations of geocoded facilities within Virginia.

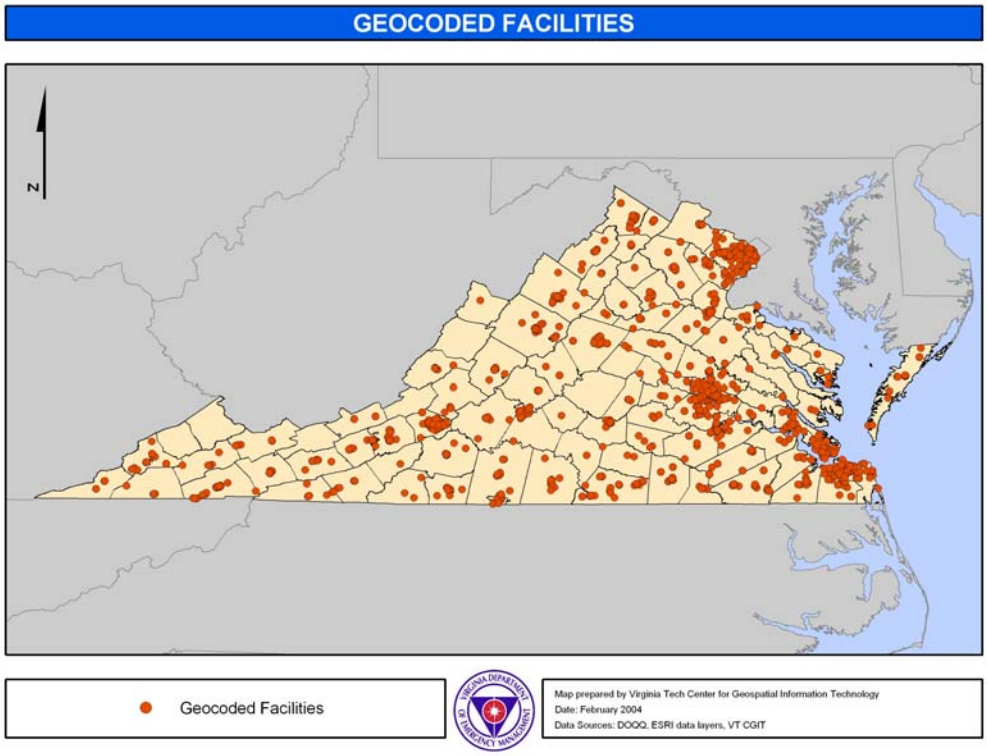


Figure 3-17. Geocoded State Facility Locations in Virginia.

When geocoding did not work, an alternative approach was needed. Therefore, an alternative approach for detailing polygons was used for the higher value locations. First, the VAPS database was sorted by property and contents values. Those locations that could be considered "institutions", such as hospitals, correctional facilities, state parks, community colleges and state colleges/universities, were lumped together and spatially located to an appropriate location using various methods (such as ESRI data and online map search engines). After the institution was located, USGS DOQQ imagery was added to the GIS editing tools were used to draw a "polygon" around the perimeter of the facilities. The resulting facility polygon was then used in analyses to represent all the appropriate locations listed in the VAPS database. Figure 3-18 shows an example of the polygon method and Figure 3-19 shows statewide polygons.

Polygon Example:
James River Corrections Center
DOQQ: Perkinsville SW 37077f78

Figure 3-18. Polygon Location Example.

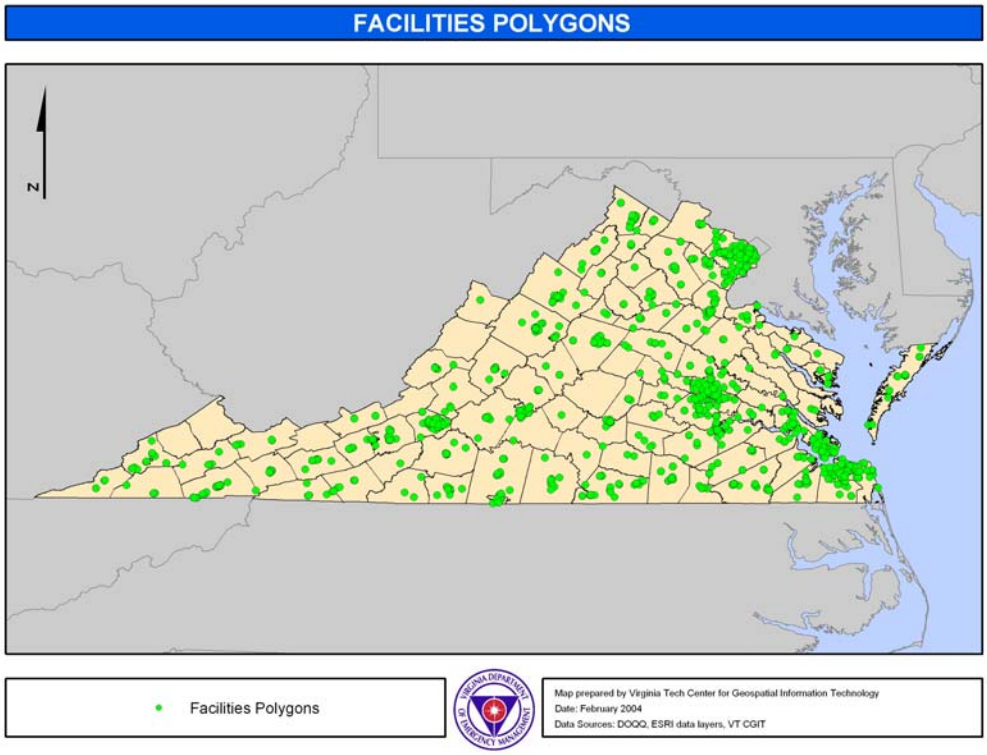


Figure 3-19. Polygon State Facility Locations in Virginia.

If a VAPS database entry could not be located by the polygon or geocode method, then the "county" method was used to at least assign a county or independent city to the location. Table 3-13 summarizes the number and dollar value of location using the geocode, polygon, or county methods.

Table 3-13. Virginia Agency Property System (VAPS) Database Location Summary

Location Method	Number of Locations	Percent of Total Value in Virginia
Geocode	2,406	22%
Polygon	5,081	73%
County	5,431	5%
Totals	12,918	100%

Facility Analysis

To conduct the state facility HIRA, the scale of the hazard mapping and the facility location had to be compared. Table 3-14 shows the analysis level used for each hazard and the technique used.

Table 3-14. Analysis Methods Used for the Facility Analysis

Hazard Analysis	Analysis Level	Technique
Winter Storm	County	KP w/critical adjustment
Flooding	Geocode	Probability (Yes, no, partial, unknown)
Wind	County	Probability
Karst	County	KP w/critical adjustment
Landslide	County	KP w/critical adjustment
Tornado	County	Probability
Wildfire	Geocode	KP w/critical and fire building adjustment

For hazards with detailed location information (flood and wildfire), the limiting factor was the location mapping. For flooding with geocoded locations, locations were “yes”, “no”, or “unknown” for being in a floodplain. For polygon locations, flooding was calculated as the portion of the polygon area that intersected with a floodplain boundary polygon. The percent of the polygon in the floodplain was used, along with the damage level assumption, to provide a weighted damage approach for all actual locations assigned to a polygon. For example, if 10% of a polygon was in a floodplain and the polygon represented 40 structures, then it was assumed that 4 structures were in the floodplain. For all polygon location, floodplain boundaries were taking from existing digital floodplain data or digitized to allow for analysis. Figure 3-20 show the jurisdictions where floodplain mapping was available, completed digitized, partially digitized, or none. For county locations, the VAPS database already indicated “yes”, “no”, or “unknown” for being in a floodplain, so these used, since no other site specific information was available.

Fire hazards presented a different challenge. For geocoded locations, relative risk levels (low=1, medium=2, high=3) were assigned. For polygons and counties, an area-weighted average was calculated and assigned to the location.

For all other hazards, the limiting factor was the hazard mapping precision at only the county or jurisdiction level. For these hazards, each location was assigned the probability or relative risk value from Table 3-10 based on the pertinent jurisdiction. Therefore, the only “unknown” hazards for all of these locations was for flooding where the mapping was not in the vicinity of a geocoded location, or for county locations where the VAPS database did not have a value. For all other hazards, every location was assigned either a hazard probability or relative risk. Table 3-14 shows the technique used for each hazard. Proposed projects would increase the data availability for analysis in future revisions of this plan. Some of the proposed data projects from Information and Data Development objectives one (Identify data needs and sources) and two (Identify data analysis methods) include: 3.1.1 Climate and Natural Hazard Information Collection; 3.1.2 Establish and Maintain the Virginia Hazard Mitigation Database; 3.3.1 State Hazard Mitigation Website Maintenance. These data deficiencies are addressed in Appendix H.

The KP technique used for relative risk for these other hazards took into account the relative probability of hazard occurrence (low=1, medium=2, high=3) and the possible relative impact of that hazard on a structure, contents, and continuity of business operations. When supplemental information was available, it was used to differentiate between locations. For example, the VAPS database included fire construction rating for all locations and noted if a location was a critical facility. For the fire relative risk calculation, a better fire rating for a location lowered the overall relative risk. For all relative risk calculations, a critical facility was given a higher relative risk for continuity of business operations.

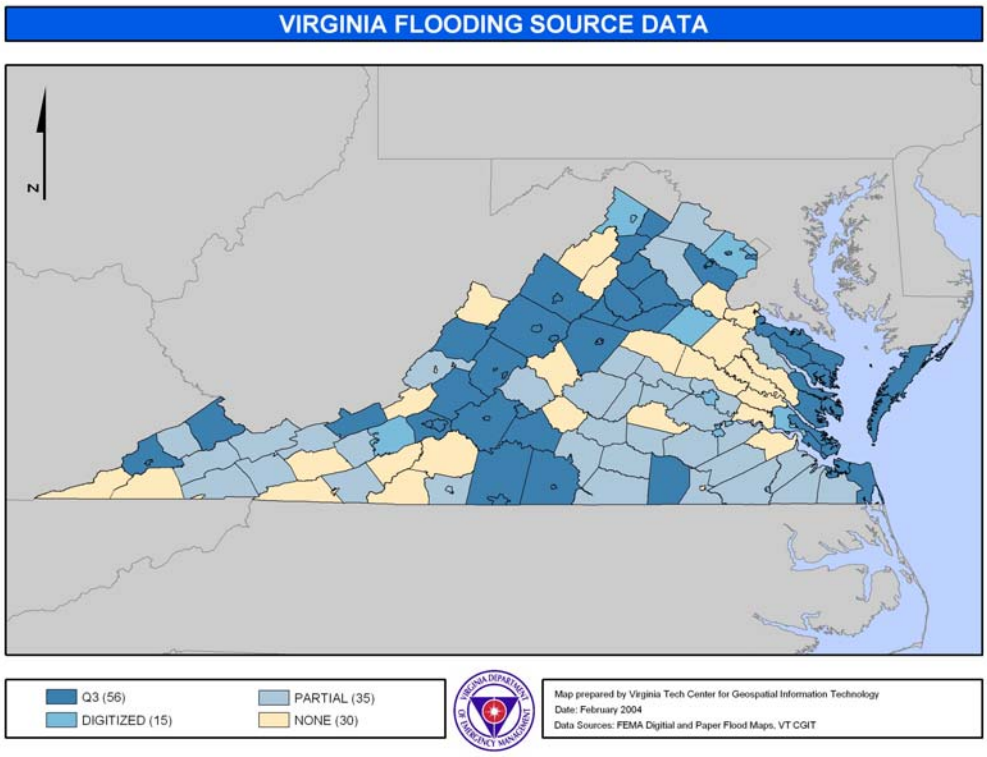


Figure 3-20. Digital Floodplain Data Used for Facility Analysis.

Facility Summaries

The final step in the state facility analysis was summarizing these results for each of the approximately 230 state agencies. Appendix F contains the overall state facility summary and the individual summary for each agency. Since each hazard had a unique combination of analysis level and risk method, there was a need to provide some sort of common basis to compare between hazard and between agencies. Therefore, each state agency was ranked versus all other agencies using the average probability or relative risk for all locations of that agency. These rank percentiles were then presented with the actual probability or relative risk values in the HIRA report. This allowed each agency to see how they fared internally (what was the highest hazard risk) and externally (what hazards were above the 50th, 75th, etc. statewide). By providing this common basis, the HIRA gave each agency valuable information that was then used to develop mitigation strategies and projects. Table 3-15 provides the average value for each hazard for all state facility locations.

Table 3-15. State Facility Analysis Methods Summary

Hazard Analysis	Analysis Level	Average Facility Value
Winter Storm	Relative Risk	0.33
Flooding	Probability (% locations)	25%
Wind	Probability (exceeding 90 mph)	3.30%
Karst	Relative Risk	0.13
Landslide	Relative Risk	0.33
Tornado	Probability	0.02%
Wildfire	Relative Risk	0.40

3.4 Estimating Potential Losses

This Plan had inadequate information to develop potential loss estimates for most hazards. The two primary limitations were no completed local plans, which limited jurisdiction loss estimates, and incomplete state facility information. As mentioned earlier, the next update to this plan in 2007 will include information from local risk assessments and new statewide information, which will be included in the new Mitigation Database (Project 3.1.2 Establish and Maintain the Virginia Mitigation Database in Appendix H). Table 3-16 summarizes what information will be needed to perform these calculations in future plans.

Table 3-16. Loss Estimate Data Needs

Hazard Analysis	Loss Estimation Limitation	Data Needs
Winter Storm	Defined hazard and damage criteria	Jurisdiction: Local Plans State Facility: Structure Design Information
Flooding	Incomplete Information	Jurisdiction: Local Plans State Facility: Elevation, Flood Profiles
Wind	Defined damage criteria	Jurisdiction: Local Plans State Facility: Structure Design Information
Karst	Defined damage criteria	Jurisdiction: Local Plans State Facility: Structure Site Information
Landslide	Defined damage criteria	Jurisdiction: Local Plans State Facility: Structure Site Information
Tornado	Defined damage criteria	Jurisdiction: Local Plans State Facility: Structure Design Information
Wildfire	Defined damage criteria	Jurisdiction: Local Plans State Facility: Structure Site Information

Many of the hazards do not have defined damage estimate criteria. The HAZUS-MH model currently only addresses flood and earthquakes, with a preliminary hurricane wind model. If the hurricane wind model is fully developed within the next few years, it could be used for future plan. All other hazards besides flooding and hurricane wind require some standard, established method for estimating losses. For many hazards that are very site specific, like karst, fire, and landslide, some sort of site and building assessment method will be needed to estimate the true risk from those hazards. Tornado hazards can be defined with a probability, but for Virginia these probabilities are so low that standard wind design standards address that need. Winter storms need both the hazard and the damage better defined. Virginia often gets winter weather with a mixture of snow, ice, sleet, and freezing rain. A method of estimating losses for each of these types of storms is currently not known.

<u>Flood Loss Estimation for State Facilities</u>

Even with incomplete information, a loss estimate was developed for flood losses to state facilities. If the state owned the facility, then dollar losses were estimated based on the structure and contents values. If the state leased the location, only contents losses were estimated. The VAPS database had insufficient information (no employee number or annual budget) to estimate loss of function or displacement costs.

Since building elevation and flood profile information was not known for the 3230 locations in the floodplain (25% of all state locations), the lookup table shown in Table 3-17 was used to approximate flood depth. Historical, high-value buildings were assumed be at or above the 100-yr elevation. Structures built pre-FIRM that were not historical were assume to have more damage than post-FIRM structures. Lower valued structures were also assumed to have more damage than higher value ones.

Table 3-17. 100-yr Flood Depth Estimation based on Available VAPS Database

Value	Built before 1950	Built between 1950 and 1973 (Pre-FIRM)	Built after 1973 (Post-FIRM)
> $500,000	0 feet	2 feet	1 foot
< $500,000	1 foot	3 feet	2 feet

Values in Table 3-17 were then assigned default depth-damage relationships from FEMA's Benefit-Cost Riverine Full Data Module software for 1 or 2 story without basement structures. It was assumed that damage begins with a 25-yr flood with $0 damage for structure and contents. The amount of damage at 100-yr flood is maximum dollar amount of damage for all flood frequencies, as shown in Figure 3-21.

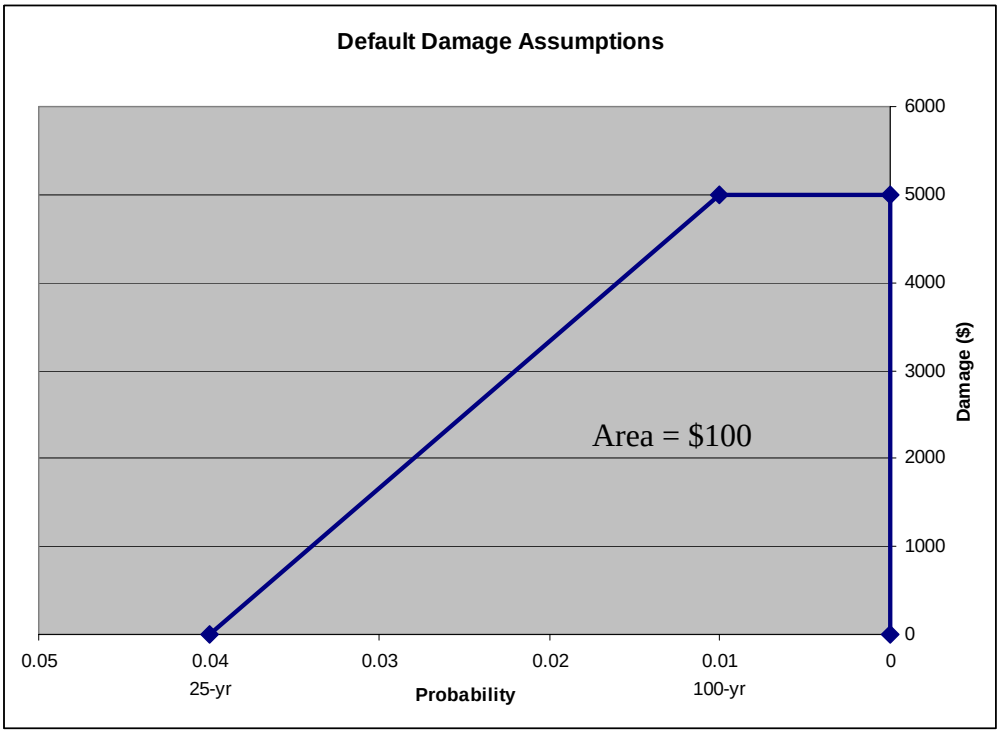


Figure 3-21. Default Flood Damage Assumption used for Flood Loss Estimation.

When the VAPS database contained information in the fields needed to calculate this loss estimate, a dollar loss was calculated for each structure. These were summarized for each agency, with an indication of how many of the flood structures had sufficient data for the estimate. For example, the HIRA analysis may have found 10 locations were shown to be in the floodplain, but the VAPS database may have only had information for 7 of the structures to estimate the annual loss. When an agency had a polygon with only a partial area in the floodplain, the number of structures used to develop the loss estimate could exceed the number of estimated flooded locations, since analysis uses the partial floodplain area to weight the flood impact. Appendix F contains in the agency facility HIRA summaries the loss estimation for each agency, including the number of structures that have sufficient information.

The total annual flood loss potential to state facilities and their contents was estimated to be at least $1,894,882.

Chapter 4 Mitigation Strategies

Disaster Mitigation Act of 2000

§201.4(c)(3)(i): A Mitigation Strategy that provides the State's blueprint for reducing the losses identified in the risk assessment. This section shall include: A description of State goals to guide the selection of activities to mitigate and reduce potential losses."
§201.4(c)(3)(ii): A discussion of the State's pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: and evaluation of State laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas; a discussion of State funding capabilities for hazard mitigation projects; and a general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities.
§201.4(c)(3)(iii): An identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section should be linked to local plans, where specific local actions and projects are identified.
§201.4 (d): Review and updates. Plan must be reviewed and revised to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities and resubmitted for approval to the appropriate Regional Director every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible. We also encourage a State to review its plan in the post-disaster time frame to reflect changing priorities, but it is required.

4.1 *Virginia Hazard Mitigation Strategies*

The Mitigation Plan is structured with a traditional hierarchy that begins with a Mitigation Vision supported by four major goals. Each goal is further defined by a series of objectives. Accomplishment of objectives will depend on successful implementation of supporting strategies and projects.

The Mitigation Vision presented in the *2001 Emergency Operations Plan, Volume 6 Mitigation* was reviewed and revised at the Second Steering Committee Meeting. The Vision that encompasses this plan and four supporting goals were adopted by the Steering Committee following the second meeting. The Vision and Goals are supported by a series of objectives that were refined and finalized at the Third Steering Committee Meeting. Strategies and projects were developed during the second and third steering committee meetings but have largely been developed by participating agencies and organizations that have entered project data sheets onto the Mitigation Plan website. Strategies and projects support accomplishment of objectives. The term "strategy" is used specifically to describe efforts such as legislative change or an educational campaign whereas "projects" generally describe structural mitigation work.

4.2 *Vision, Goals, Objectives and Strategies & Projects*

VISION:

It is one of the Commonwealth's visions to reduce the impacts of hazards on human, economic and natural resources throughout the state.

Table 4.1 Mitigation Goals and Objectives

Goal 1: Structural Mitigation Projects *Identify and implement physical projects that will directly reduce impacts from hazards*	1. Continue implementation of warning and detection systems to notify the Commonwealth of impending hazards. 2. Elevate, retrofit and relocate existing structures and facilities in vulnerable locations. 3. Construct hazard-resistant buildings and infrastructure. 4. Modify sites near structures to reduce exposure to hazards; better select sites for new state facilities. 5. Require emergency utility systems and redundant communication systems for functionally critical facilities. 6. Implement "in place" contracts to provide mitigative measures for functionally critical facilities. 7. Maintain Continuity of Operations of critical facilities through reduction of hazard impacts on communication networks and information infrastructure.
Goal 2: Policy, Planning and Funding *Incorporate mitigation concepts and objectives into existing and future policies, plans, regulations and laws in the Commonwealth*	1. Identify current policies, plans, regulations and laws that require or should require mitigation intervention. 2. Add hazard assessment to new, remodeled and relocated state facilities. 3. Incorporate mitigation planning concepts into Continuity of Operations Plans (COOP) for state agencies. 4. Standardize the critical facility definition across the state. 5. Incorporate mitigation planning concepts into state legislation and zoning. 6. Promote coordination between federal, state and local organizations. 7. Perform a hazard mitigation analysis on all current and potential Commonwealth leased properties. 8. Identify appropriate funding sources.
Goal 3: Information and Data Development *Build capacity with information and data development to refine hazard identification and assessment, mitigation targeting and funding identification*	1. Identify data needs and sources. 2. Identify data analysis needs. 3. Develop strategies to convert data to information for decision-making. 4. Identify mitigation analysis strategies. 5. Gather information on mitigation effectiveness. 6. Develop a common system for information storage. 7. Develop data distribution standards for the mitigation database to address data security, sharing and Freedom of Information Act (FOIA) issues.
Goal 4: Education and Outreach Activities *Through education and training, increase awareness of hazards and potential mitigation strategies.*	1. Evaluate impacts of on-going educational efforts to determine unmet needs. 2. Identify target audiences in the general public and state agencies for hazards awareness education and training. 3. Identify and develop resources to provide training and education to targeted audiences. 4. Provide hazard awareness, preparedness and mitigation information through various communication channels. 5. Create connection between "Secure Virginia" efforts with existing agency functions.

4.2.1. Strategy & Project Prioritization

The strategies and projects were developed within the context of the vulnerability assessment conducted for more than 10,000 Commonwealth of Virginia facilities. Projects and strategies were developed during two Steering Committee meetings where participants were sub-divided into the Goal Sub-committees. The Institute for Environmental Negotiation provided professional facilitation by four facilitators experienced in natural resources management, strategic planning and consensus development. Base-line criteria for projects were determined before project and strategy ideas were solicited. The criteria defining projects included environmentally sound projects that are technically feasible. Cost-effectiveness was emphasized during project solicitation and was also a ranking criterion for some of the goals. These have been prioritized through a points-based ranking that was assigned by Steering Committee members who chose to rank projects using a web-based ranking system. Consensus was mathematical based on the average score assigned through ranking to each strategy or project. The strategies and projects are now characterized as having priorities of:

- Critical
- High
- Medium
- Low

Ranking was conducted through the website by assigning points (0 -low, 1 -medium, or 2 -high) to each strategy/project based on five criteria specific to each of the four goals. Table 4.2 describes the ranking criteria used for each goal set to prioritize strategies and projects. Ranking criteria, established by the steering committee, included measures that the committee established as cost-effective, environmentally sound and technically feasible. Once the ranking was completed, strategy and project data entry resumed. New strategies and projects could not be ranked in time for prioritization in the current plan, but any additional projects and strategies submitted after the initial strategy and project set were ranked are included in the complete listing within Appendix H.

Table 4.2 Project Ranking Criteria

Goal 1: Structural Mitigation Projects *Identify and implement physical projects that will directly reduce impacts from hazards*	1. Maintenance of critical communication, transportation or supply chain management operations. Project protects the Commonwealth's ability to maintain continuity of operations and emergency management functions during a disaster. 2. Beneficial impacts for multiple agencies/organizations. Project benefits a number of groups, communities, or state agencies covering a large geographic area. 3. Feasibility. Project is feasible in terms of political support, timeliness, ability to be completed in a timely fashion, availability of expertise and technical support, and ease of implementation. 4. Cost and Funding. Project is feasible in terms of cost effectiveness and available funding. 5. Multi-Hazard mitigation. Project mitigates damage to critical resources from one or more hazards.
Goal 2: Policy, Planning and Funding *Incorporate mitigation concepts and objectives into existing and future policies, plans, regulations and laws in the Commonwealth*	1. Human health and safety. Strategy protects human health, enhances public safety, protects vulnerable populations, or mitigates significant potential risk to health and safety. 2. Preparedness. Strategy enhances the Commonwealth's ability to plan for and be prepared for a disaster. 3. Economic recovery. Strategy will reduce economic risk and promote rapid economic recovery. 4. Multi-Hazard mitigation. Strategy mitigates damage to critical resources from one or more hazards. 5. Health care and shelter. Strategy addresses need for public and private health care and shelters.

Goal 3: Information and Data Development *Build capacity with information and data development to refine hazard identification and assessment, mitigation targeting and funding identification*	1. Human health, safety or economic stability. Project uses data development to protect human health, enhance public safety, provide economic stability, protect vulnerable populations, or mitigate significant damage potential. 2. Multi Hazard Mitigation. Project mitigates damage to critical resources from one or more hazards. 3. Beneficial impacts for multiple agencies/organizations. Project benefits a number of groups, communities, or state agencies covering a large geographic area. 4. Feasibility. Project is feasible in terms of political support, timeliness, ability to be completed in a timely fashion, availability of expertise and technical support, and ease of implementation. 5. Information quality and security. Project provides ability for information to be maintained, fits into a larger information warehouse structure, is appropriately protected and secure, and has integrity/validity/high quality information.
Goal 4: Education and Outreach Activities *Through education and training, increase awareness of hazards and potential mitigation strategies.*	1. Number of people and property affected. Strategies for education efforts are directed to where a significant number of people and property will be affected by a hazard occurrence. 2. Beneficial impacts for multiple agencies/organizations. Strategy benefits a number of groups, communities, or state agencies covering a large geographic area with hazard planning responsibilities. 3. Multi Hazard Mitigation. Strategies for educational efforts are tailored to regions with a high likelihood of a particular hazard occurrence. 4. Transferability and adaptability. Strategies for educational efforts will be carried out in a timely and relevant manner, and in the appropriate media format. 5. Simplicity and consistency. Strategies for educational message are simple and straightforward, with a consistent message.

4.3 *State Capability Assessment*

A comprehensive capability assessment includes an examination of administrative, political and financial support for the proposed strategies and projects. It will be impossible to fund all of the strategies and projects entered into the Mitigation Database by the Steering Committee members throughout the planning process (through July 1, 2004). In some instances, individual strategy or project data entry sheets, which can be viewed on-line at www.cgit.vt.edu, identified potential funding sources. A partial listing of traditional mitigation and conservation programs available to fund some types of mitigation efforts follows. This is not a complete listing but is intended to initiate discussion of funding. It should be recognized that since the plan focuses on mitigation of state facilities, funding may be available through capital improvement budgets that each agency submits as part of the biennial budgeting process tied to the legislature.

A grants database that is web-based has been developed as a repository for grant information. The database is operational and provides a resource for funding availability for mitigation strategies and projects. It is maintained by the Finance Section of the Department of Emergency Management. This is available at the Virginia Department of Emergency Management website http://www.vdem.state.va.us/library/grants.

The tables that follow use the following phrases to describe the program's support or relevance to mitigation. It must be noted that some of the federal programs have not been used in Virginia due to timing, funding or appropriateness. The programs are listed however, as resources that have potential for use in the state's mitigation programs. As implementation of the plan begins, all relevant programs will be explored as potential funding sources or technical support resources to assist successful funding and implementation of projects and strategies ranked "critical" and "high."

Effectiveness Regarding Loss Reduction:

Support - programs, policies, funding or other assistance that helps implement mitigation.

Facilitate - programs, policies or technical assistance that assists implementation of mitigation measures.

Hinder – programs, policies or other deficiencies that compromise or block full implementation of mitigation measures

4.3.1 Pre-disaster Mitigation Programs

Mitigation programs reduce the vulnerability of citizens, property and natural resources to the destructive forces of natural events and human actions. Temporary measures are often implemented in emergency situations during response. Permanent measures use structural and non-structural approaches to reduce hazards.

The listed programs were created by Congress and state governments to address specific natural hazards. *When adequately staffed and funded*, these programs are comprehensive and extremely effective in reducing the effects of natural hazards. However, during the past decade of state and federal budget challenges, full funding and staffing of programs has been rare. The result is inadequate application of mitigation programs, in particular those addressing stream and riverbank restoration, channel maintenance and stormwater management.

Table 4.3 Pre-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
US Army Corps of Engineers	Flood Control Projects	√		√	Design and construction of local flood control projects not specifically authorized by Congress State, political subdivisions and other local agencies established within state law with full authority and ability to undertake required legal and financial responsibilities.
	Riverbank Protection	√	√	√	Design & construction of stream and river bank protection projects to safeguard highways, highway bridges, essential public works, churches, hospitals, schools and other non-profit public critical facilities endangered by flood-caused erosion. State, political subdivisions and other local agencies established within state law with full authority and ability to undertake required legal and financial responsibilities.
	Flood Control Clearing	√	√	√	Design and construction of snagging and clearing projects for navigable waters and their tributaries to reduce potential flood damage State, political subdivisions and other local agencies established within state law with full authority and ability to undertake required legal and financial responsibilities.
U.S. Department of Agriculture	Watershed Protection Loans	√	√	√	Loans to assist local sponsors provide the local share of the cost of watershed improvements for flood prevention, irrigation, drainage, water quality management, sediment control, fish and wildlife management, public water supplies and water storage. Sponsoring local organizations such as soil and water conservation districts with authority under state law to obtain, give security for and raise revenues to repay loans.

Table 4.3 Pre-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
	Emergency Watershed Protection	√	√		Technical services to determine eligibility and to plan needed measures. Financial assistance to construct approved measures. Any state agency, county (or group of counties), municipality, town, soil and water conservation district, flood prevention or control district or any other non-profit agency with authority under state law to carry out, maintain and operate watershed improvement works.
	Resource Conservation & Development	√	√	√	Grants and technical assistance to aid public agencies in implementing long-range resource conservation and development programs, including flood control projects. Public agencies and non-profit organizations having legal authority to plan, install, operate and maintain community projects benefiting the public.
	Forest Land Flood Prevention	√	√		Technical assistance in planning and application of measures to protect public health and safety, reduce flood hazards and control sedimentation from forest and related lands when existing local, state and federal programs do not provide adequate facilities and funds for immediate protective action. Also provides assistance in preparing requests for Section 216 funds for emergency treatment of watersheds impaired by fire, flood, earthquake or other natural disasters. State and local governments
U.S. Army Corps of Engineers	Floodplain Management	√	√		Technical assistance in identification of flood-prone areas, potential losses and the flood hazard of proposed building sites; guidance in land use management to prevent flood damage. Funding limitations set be District Office. State, political subdivisions and other public organizations.
FEMA	National Flood Insurance Program (NFIP):	√	√	√	Insurance at a reasonable rate is provided to properties within communities participating in the National Flood Insurance Program. In Virginia, 270 cities, counties and towns participated in the NFIP as of July 1, 2004. Property owners in communities participating in the National Flood Insurance Program.
	Flood Mitigation Assistance (FMA)	√	√	√	FMA may be used both to enhance State mitigation planning, implementation of flood mitigation programs and to directly assist communities to reduce flood losses. State or communities that need support for flood mitigation planning, implementation of flood mitigation projects, and technical assistance by states to communities. Must be used for repetitive loss properties that are covered through the NFIP.
	Community Assistance Program – State Support Services Element (CAP-SSSE)	√	√	√	Identify, prevent, resolve floodplain management issues and reduce flood hazards Communities participating in the National Flood Insurance Program are supported by the state NFIP coordinator's office.

Table 4.3 Pre-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
U.S. Department of Commerce	Fire Accident Analysis	√	√		Detailed on-site studies of uncontrolled fires or the remains of fires by teams of experienced fire investigators, scientists and engineers to determine the causes, character of and ways of avoiding serious fire accidents. Elected or appointed state and local officials concerned with fire disasters and authorized to request such assistance.

4.3.2 Disaster Response, Recovery and Community Preparedness

This section features programs that can improve state and local disaster response capabilities through planning, training, personnel, information and equipment assistance. Again, the programs are designed to address specific areas to support preparedness for natural disasters as well as adequate emergency response. The programs are extremely effective when adequately staffed and funded but budget challenges continue on the state and federal level. In addition, many programs require a 25% to 50% local match. Local governments have been equally challenged during the past decade, so lack of local match can impede successful use of some programs to provide hazard mitigation.

Table 4.4 Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
U.S. Department of Housing and Urban Development	Comprehensive Planning Assistance	√	√		Grants to strengthen planning and decision-making capabilities of chief executives of state, regional and local agencies to promote more effective use of natural, economic and physical resources. Disaster mitigation and recovery planning are eligible activities. For state agencies designated by the Governor; counties, cities, regional and local planning agencies, local development districts, economic development districts and localities that suffered a major disaster.
NOAA National Weather Service	Forecasts and Warnings	√	√	√	Pubic forecasts and warnings of hazardous weather phenomena and floods, and training programs on disaster safety rules. Available to agencies and the general public.
FEMA	National Dam Safety Program (NDSP):	√	√	√	Grants to reduce the risks to life and property from dam failure, through the establishment and maintenance of an effective dam safety program. States with new and existing impoundment structures.

Table 4.4 Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
	Disaster Preparedness Improvement Grant (DPIG):	√	√	√	Grants to encourage the maintenance and improvement of disaster preparedness plans and activities. State and local governments.
	State and Local Assistance (SLA):	√		√	Funding to maintain state and local governments plans, facilities, equipments, training and exercising. For state and local emergency services organizations.
FEMA, EPA	Superfund Amendment and Reauthorization Act (SARA), Title III	√	√		Support programs that are designed to improve emergency planning, preparedness, mitigation, response and recovery capabilities with special emphasis on emergencies associated with hazardous materials. For state and local governments and university-sponsored programs.
USDOT	Hazardous Materials Emergency Preparedness (HMEP) Grant Program			√	Planning and training grants to help local governments carry out Emergency Planning and Community Right-to-Know activities (SARA Title III) throughout the state. HMEP Planning Grants: Eligible LEPCs Used by VDEM to provide HAZMAT First Responder Training to public sector firefighters, emergency medical and law enforcement personnel. Other public sector personnel with HAZMAT response requirements are also eligible for the training.

4.3.4 Emergency Services

The programs described within this section provide special assistance to state and local authorities once an emergency or disaster has occurred. These programs are designed to supplement state and local efforts to protect the public from the effects of an emergency and to identify those killed in a disaster. These programs, while not often needed or used, are considered adequate to provide specific assistance in response to natural or, in some cases, human-caused hazards.

Table 4.5 Emergency Response & Disaster Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
U.S. Department of Health and Human Services	Contaminated Food and Drugs	√	√	√	Through coordinated planning, advice, technical information, assistance and expertise can be provided to establish public health controls and to protect citizens from contaminated and unsafe food and drugs. Assists state and local agencies through the Department of Agriculture and Consumer Services and the Department of Health.

Table 4.5 Emergency Response & Disaster Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
U.S. Department of Energy	Radiological Emergency Assistance		√	√	Provision of specialized services, advisory services, counseling and dissemination of technical information to assist in responding to incidents involving loss of control of radioactive materials and supporting efforts to protect public health and safety. For any person or organization with knowledge of an incident believed to involve ionizing radiation or radioactive material hazardous to health and safety.
U.S. Department of Health and Human Services, Public Health Service	Vector Control			√	Advice and technical assistance to prevent the spread of communicable diseases by disease-carrying animals or insects in the aftermath of a disaster. State and local public health authorities coordinated by the Virginia Department of Health.
Federal Bureau of Investigation	Victim Identification	√	√	√	Fingerprint identification of disaster victims For any authorized state or local law enforcement agency.
U.S. Army Corps of Engineers	Floodplain Management	√	√	√	Technical assistance in identification of flood-prone areas, potential losses and the flood hazard of proposed building sites; guidance in land use management to prevent flood damage. Funding limitations set be District Office. State, political subdivisions and other public organizations.
FEMA	National Flood Insurance Program	√	√	√	Insurance at a reasonable rate is provided to properties within member National Flood Insurance Program communities. 270 cities, counties and towns participated in the NFIP as of July 1, 2004. Property owners in participating communities. Provides up to $30,000 to substantially damaged properties within the Special Flood Hazard Area (SFHA) to mitigate property to meet current NFIP and building code requirements.

4.3.5 Federally Funded Assistance under a Presidential Declaration

At the time this plan was developed, eight federal declared disasters had occurred in the Commonwealth following the 2000 revision of the Stafford Act. This program revision impacted several key disaster assistance programs. Funds available through the FEMA Individual and Family Grant Program have been reduced. HMGP, formerly determined as 15% of the total costs of eligible federal disaster assistance, has been reduced to 7.5%, limiting post-disaster assistance available to reduce residential, commercial and property damage from flooding through structural mitigation or removal of properties from the regulated floodplain. Again, the programs are adequate as designed, but monetary demand for assistance will likely never be met to completely address impacts of disasters on families, businesses and local governments.

Table 4.6 Post-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction			Description
		Support	Facilitate	Funding	
U.S.D.A. Farm Service Agency (FSA)	Drought Assistance	√	√	√	Provide assessments of drought damages. Coordinate requests for drought related Presidential Declaration of Drought Emergency. Recommend federal drought assistance declaration to the Governor through Department of Emergency Management. Implement federal drought assistance programs. Administer drought-related relief in coordination with the Virginia Department of Agriculture and Consumer Services. The following agencies may also assist in drought emergencies with a variety of loans, grants and programs for material and personal support: USDA US Department of Commerce Internal Revenue Service Small Business Administration FEMA US Department of Interior US Department of Labor US Army Corps of Engineers General Services Administration
US Department of Agriculture	Emergency Food Stamp Program		√	√	Provides emergency food stamps to disaster victims Coordinated with state social services and the Virginia Department of Agriculture and Consumer Services
FEMA	Disaster Housing	√	√	√	Residents within Presidentially declared areas are eligible for temporary housing assistance: The FEMA Administrator or their designee determines that other circumstances necessitate temporary housing assistance. **Home Repair Program:** Home repairs may be provided to those eligible applicants: Who are owner-occupants of the primary residence to be made habitable Whose property can be made habitable by repairs to the essential living area within 30 days following feasibility determination. The FEMA Region III Director may extend this period.
Small Business Administration	Emergency Loans	√	√	√	The SBA offers three types of loans: **Home Disaster Loans** for homeowners and tenants to repair or replace disaster damages to real estate and/or personal property. Tenants are eligible for personal property losses only. **Business Physical Disaster Loans** are for businesses to repair or replace disaster damages to property owned by the business. These losses could be to real estate, machinery and equipment, leasehold improvements, inventory and supplies. Businesses of any size are eligible to apply. **Economic Injury Disaster Loans** are working capital loans for small businesses and small agricultural cooperatives to assist them through the disaster recovery period. These loans are available to applicants without credit available elsewhere.

Table 4.6 Post-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
Department of Housing and Urban Development	Housing Grants and Mortgage Insurance:	√	√	√	**Community Development Block Grants** – grants to entitlement communities. Preferred use of funding is for long-term needs but may be used for emergency response activities. **Multi-family home mortgage insurance** – Guaranteed/insured loans to finance the acquisition of proposed, under construction or existing single-family units. Homeowners are permitted to make a low down payment. For any person able to meet the cash investment, the mortgage payments and credit requirements. **Special Mortgage Insurance for Low and Moderate Income Families**: Mortgage insurance for low and moderate-income families. The program can be used to finance rehabilitation of sub-standard properties. Anyone may apply; displaced households qualify for special terms. **Co-insurance:** Joint mortgage insurance by the federal government and private lenders to facilitate homeownership financing Everyone eligible for mortgage insurance under the full insurance programs may apply for co-insured loans to lenders approved by HUD as co-insurers. The co-insuring lender (any mortgage approved by FSA), based upon the characteristics of the property and the credit qualifications of the borrower, determines whether to make the loan. **Manufactured Home Loan Insurance to Finance Purchase of Manufactured Homes**: To make reasonable financing of manufactured home purchases. Provided private lending institutions with federal insurance when they make loans for the purchase of manufactured homes to be used as primary residences. All families are eligible to apply. **Major Home Improvements Loan Insurance:** Federal insurance of loans to help families repair or improve existing residential structures outside urban renewal areas. The program provides for long-term insured mortgage financing of major improvements or alterations to structures containing up to four family units. For any owner of the property to be improved or the lessee under a 99-year renewable lease or a lease having an expiration date at least ten years beyond the maturity date of the mortgage. **Home Improvement Loan Insurance:** For tenants whose leases are at least six months.

Table 4.6 Post-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
US Rural Development	Rural Housing Service (RHS) Homeownership Loans	√	√	√	Loans for the purchase, construction, rehabilitation or relocation of a dwelling and related facilities for low or moderate-income persons in rural areas. RHS can help subsidize monthly mortgage payments, limiting these costs to n o more than 30 percent of the adjusted monthly income of the applicant.
Rural Housing Service (RHS)	Very Low Income Housing Repair Loans and Grants: USDA Rural Development	√	√	√	Home improvement and repair loans and grants enable very-low and low-income rural homeowners to remove health and safety hazards from their homes and to make homes accessible for people with disabilities. Grants are available for people 62 years old and older who cannot afford to repay the part of the assistance received as a loan. An applicant must own and occupy a home in a rural area, be without sufficient income to qualify for a Section 502 loan, have sufficient income to repay the loan, and be a citizen of the U.S. or reside in the U.S. after having been legally admitted for permanent residence.
FEMA	Forest Fire Suppression			√	Federal assistance under Section 420 of the Act is provided in accordance with continuing Federal-State agreement for Fire Suppression (the Agreement) signed by the Governor and Regional Director. The Agreement contains the necessary terms and conditions consistent with the provisions of applicable laws, Executive orders, and regulations, as the Associate Director may require and specifies the type and extent of Federal Assistance.
U.S. Army Corps of Engineers	Drought Assistance			√	Coordinate the development of drought plans and procedures for lakes and dams within the Commonwealth under the jurisdiction of the Corps of Engineers. Provide information and reports as needed. Coordinate USACOE drought related activities. Provide water from USACOE reservoirs and dams, as available during emergencies.
U.S. Department of Energy	Disaster-related Power Outage			√	Implements emergency related functions under the Federal Response Plan.
	Emergency Health Assistance			√	Federal agencies including, but not limited to, the U.S. Public Health Service, provide emergency health care assistance as required. The Virginia Department of Health requests this assistance as needed.

Table 4.6 Post-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
FEMA	Individual and Family Grant Program (IFGP)	√	√	√	Federal law authorizes grants to disaster victims with disaster related expenses and needs that cannot be met through other available governmental disaster assistance programs. The Federal share of a grant to an individual family under this program shall be equal to 75% of the actual cost of meeting such an expense or need and shall be made only on condition that the remaining 25% of such costs is paid to the individual or family from funds made available by the State. No individual or family shall receive any grant or grants under this program aggregating more than a maximum amount established by Federal regulation with respect to any one major disaster. The Commonwealth: Maintains an Individual and Family Grant Program Administrative Plan Coordinates administration of the Individual and Family Grant Program through VDEM supervised by the State Coordinating Officer.
FEMA	Public Assistance	√	√	√	Preliminary Damage Assessment (PDA) This process is used to determine the magnitude and impact of a disaster. A FEMA/Commonwealth team will visit each affected jurisdiction to view damage first-hand, assess the scope of the damages and estimate repair costs. PDA data forms are completed that provide additional information to streamline the process. Immediate Needs Funding (INF) These funds are earmarked for the most urgent work in the initial period following the disaster event. If damage sites have been surveyed during the PDA, eligible applicants may apply for INF within days of the disaster. INF may by up to 50% of the Federal share of the PDA estimate for emergency work (Categories A and B). Any up-front funds received by an applicant will be offset later against actual emergency work projects as they are received.
FEMA	Community Disaster Loans	√	√	√	Disaster-related expenses during the year of occurrence and the three succeeding fiscal years.
Office of Domestic Preparedness	State Homeland Security Grant Program	√	√	√	Provides financial assistance to states and territories to prepare for terrorist attacks involving weapons of mass destruction (WMD). Grants are administered through the Virginia Department of Emergency Management.
US Department of Homeland Security	High Threat Urban Area Grant Program	√	√	√	A discretionary grant program that provides funding to metropolitan areas, including counties and mutual aid partners, to prepare for, prevent and respond to terrorist incidents.
FEMA	Emergency Management Performance Grants	√	√	√	The Emergency Management Grant assists in the development, maintenance and improvement of state and local emergency management capabilities. These also include an Urban Search and Rescue and Interoperable Communications Grant.

Table 4.6 Post-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction			Description
		Support	Facilitate	Funding	
FEMA	Community Emergency Response Teams	√	√	√	Provides grant funding to volunteer organizations that make local communities sage and prepare to respond to any emergency situation. CERT trains people to respond to communities in their own local communities.
US Department of Agriculture	Disaster Assistance	√	√	√	Emergency Conservation program shares with agricultural producers the cost of rehabilitating eligible farmlands damaged by natural disaster. . Farm Service Agency provides emergency loans to assist producers recover from production and physical losses due to drought, flooding, other natural disasters or quarantine. Natural Resources Conservation Service's Emergency Watershed Protection Program (EWP) provides emergency measures, including purchase of floodplain easements for runoff retardation and soil erosion prevention to safeguard lives and property from floods, drought, and the products of erosion on the watershed. Food and Nutrition Service's Food Distribution division has the primary responsibility of supplying food to disaster relief organizations.
Virginia Department of Emergency Management	The *Emergency Operations Plan – Volumes 1 – 8*	√	√		Directs emergency operations in response to any large-scale disaster impacting the Commonwealth. It assigns duties and responsibilities to agencies and support organizations for disaster preparedness, response, recovery and mitigation. Funding is achieved through appropriations in the biennial budget development process orchestrated by the Virginia General Assembly, and is supplemented in response to disaster declarations through sum-sufficient provisions that can provide state match to federal funding for individual assistance, public assistance and mitigation programs
FEMA Commonwealth of Virginia	Public Assistance Program	√	√	√	Subsequent to a disaster declaration by the President, FEMA provides assistance to state agencies, local governments and some private non-profit organizations for the repair and restoration of damaged public facilities. A grant is made to the state, which then authorizes sub-grants to eligible applicants. Funding is then provided on a cost share basis with percentages established in the FEMA-State Agreement, but requiring a federal share of no less than 75%. The purpose of this Annex is to identify the roles and responsibilities of the State in administering the Public Assistance program and to outline staffing requirements and the policies and procedures to be used.

Table 4.6 Post-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction			Description
		Support	Facilitate	Funding	
VDEM	Disaster Recovery Programs	√	√	√	The Virginia Department of Emergency Management (VDEM) is established as the agency responsible for the management and administration of disaster relief for the Commonwealth. The Governor appoints its director, the State Coordinator for Emergency Services. During a Presidentially declared major disaster, the Governor's Authorized Representative (GAR) is designated by the Governor as the official responsible for administration of the disaster recovery effort, to include Human Services, Public Assistance and Mitigation. The Governor's Authorized Representative serves as the State Coordinating Officer (SCO) for the disaster. The following efforts are coordinated by the SCO and implemented by VDEM staff and reservists, cooperating state agencies and organizations
VDEM	Commonwealth Public Assistance Program	√	√	√	When the threshold of damage to public infrastructure is not reached to qualify for FEMA Public Assistance, the Commonwealth Emergency Relief for Localities program can provide reimbursement to local governments. This program can be used for localized major disasters or emergencies that do not result in sufficient total damages to warrant a Presidential disaster declaration. Cities, counties and towns are eligible to reimbursement of costs incurred; State agencies are not eligible. There are thresholds of costs incurred per capita, insurance must be maintained and each locality must certify that they have not other means to cover disaster-related costs.
American Red Cross, Salvation Army, Virginia Volunteer Organizations (VOLAG)	Collection and Distribution of Donated goods		√	√	Establish and manage centers for receipts and distribution of donated goods such as food, clothing, furniture, medical supplies, building materials, cleaning supplies, bedding, utensils and tools. This is usually organized with a designated distribution center.
DMHMRSA, Department of Social Services, DCJS; Red Cross, Salvation Army, VOLAG	Counseling		√	√	Crisis intervention counseling designed to assist disasters victims and responders in coping with their situation to avoid serious psychological impairment.

Table 4.6 Post-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction			Description
		Support	Facilitate	Funding	
American Red Cross, Salvation Army, Department of Agriculture and Consumer Services, VOLAG, food banks, Meals-on-Wheels	Food			√	Food can be provided to disaster victims and workers in several ways: Direct provision of foodstuffs donated by individuals and groups to disaster victims through distribution centers as described above. Direct grants for food purchase or food stamp allotments (through section 409) provided to disaster victims (described earlier in the Federal Assistance section). Meals provided at feeding centers of from mobile distribution canteens. Through section 410, provision of food stocks for emergency mass feeding or distribution to an area suffering a major disaster or emergency.
VOLAG, Virginia Guard, Americorps, Others	Personnel	√	√	√	Provision of personnel to supplement the labor necessary to respond to emergency disaster events, especially for clean-up and damaged home repair.
Department of Health, VDEM, State Police, Virginia Guard, American Red Cross, Medical Examiner's Office,	Medical Assistance			√	Professional medical aid in the treatment of disaster victims, prevention or control of disease and handling and identification of persons killed during the event.
VOLAG, Department of Health, AmeriCorps,	Repair of Homes	√	√	√	Aid to homeowners to repair their homes in the absence of or to supplement FEMA's Minimal Repair Program. The ability of the listed agencies to provide assistance may vary for each event and is tied to the income level and demonstrated need of each victim.
Local governments, Virginia National Guard, American Red Cross, Salvation Army, VOLAG.	Shelter	√	√	√	Establishment of shelters to protect the lives and health of persons forced to evacuate their homes due to an emergency or disaster occurs on a local, as needed basis. Shelters are short-term facilities (a few days to one week); families are returned to their homes or are placed in temporary housing locations as quickly as possible. Shelter locations are pre-designated in local Emergency Operations Plans.
Department of Forestry	Wildfire Prevention & Suppression	√	√	√	The Department provides training & equipment to local fire departments that fight brush and forest fires. A network of dry hydrants throughout the state to supplement water sources such as rivers, reservoirs, lakes and ponds. An aggressive woodland homes prevention program is also managed.

Table 4.6 Post-Disaster Mitigation Programs Capacity Assessment

Agency	Programs, Plans, Policies, Regulations, Funding and Practices	Effect on Loss Reduction		Funding	Description
		Support	Facilitate		
Department of Housing and Community Development		√	√		Through the 2000 International Building Code, adopted by the state and local governments, along with the provisions of local floodplain management ordinances, buildings that are substantially damaged, i.e. repair costs are equal to or exceed 50% of the current appraised value of the structure, must be re-constructed or repaired to be compliant to current code requirements. The state floodplain management program, in partnership with the Department of Emergency Management and FEMA, has increased visibility of NFIP and building code requirements following disasters through aggressive contacts and educational programs directed to building officials, the insurance industry and contractors. While the code provisions and program requirements are adequate, future mitigation plans should address strengthening of educational efforts to ensure that every opportunity is used to strengthen structures through the substantial damage / substantial improvement element of the building code and NFIP. The continued weakness of the program is the International Building Code's reliance of manufacturer's installation guidelines to ensure proper installation of manufactured homes in regulated floodplains or velocity zones. In addition, protective measures in areas with high winds rely on manufacturer's manuals, not state law or the 2000 International Building Code.

Following Hurricane Isabel, Governor Mark Warner appointed a task force to report on the Commonwealth's response to the disaster. The task force provided numerous specific recommendations for improvement of Commonwealth disaster response programs. At the writing of the Hazard Mitigation Plan during summer, 2004, all of the recommendations of the task force had been reviewed and were in the process of implementation as recommended or with slight refinement or improvement. The report primarily addressed disaster response and recovery specific to Hurricane Isabel. Released in December 2003, the report did not really address mitigation, which is acknowledged as a long-term effort. The Isabel After Action Report and the process used by the Commonwealth's Department of Emergency Management to improve disaster response will likely be a model for evaluation of program delivery to specific events and continued improvement of preparedness, response and recovery by local and state government. The recommendations and actions from the report are available to be downloaded from the Virginia Department of Emergency Management website: http://165.176.249.147/library/Hurricane_Isabel_Assessment.pdf.

4.4 *Objectives and Strategies & Projects*

The following table provides a listing for each of the four goals that include the goal, its supporting objectives and the 48 strategies & projects ranked ***critical*** and ***high***. The complete listing of all strategies and projects, organized by each goal, may be found in Appendix H. No local strategies were included at this time.

Table 4.7
Goals, Objectives and Strategies & Projects Ranked Critical and High

APPENDIX H: MITIGATION PROJECTS – CRITICAL/HIGH						
GOAL 1: STRUCTURAL MITIGATION PROJECTS – Identify and implement physical projects that will directly reduce impacts from hazards						
#	PROJECT NAME/ STRATEGY	ACTION	AGENCIES INVOLVED	PROJECT COST	TIME SPAN	RANK
Objective 1: Continue implementation of warning and detection systems to notify the Commonwealth of impending hazards						
1.1.1	Evacuation Interstate Ramp Barrier Gates	Installation of fixed barriers at interstate ramps that can be manually operated to improve evacuations for needed hazards with limited preparation for mobilization and limited state resources.	VDOT	$580,000	ASAP	Critical
1.1.2	HVAC Systems Protection of Capitol Complex Buildings	Study the feasibility and options to protect HVAC system on critical buildings on the Capitol Square Complies. Develop the design for system modifications at four of the highest risk buildings including Supreme Court, General Assembly and other select facilities.	Department of General Services	$500,000	One Year	Critical
1.1.3	Real time flood warning system	Construct and instrument stream gages to provide real time flood stage and discharge information to at least 10 underserved priority flood prone communities.	US Geological Survey			High
Objective 2: Elevate, retrofit and relocate existing structures and facilities in vulnerable locations						
1.2.1	Evaluation of DEQ Buildings for Flooding	Evaluation of DEQ locations to determine if offices and monitoring stations are within 100 year flood zone.	DEQ	$1,000	One Year	High
1.2.2	Window and Door Glass Protection	Install 8 mil film with wet glaze attachment on glass windows and doors at 36 State owned National Guard armories throughout the	Department of Military Affairs	$356,250	As funding	High

		Commonwealth.			avail.	
Objective 4: Modify the geographic setting near structures to reduce exposure to hazards						
1.4.1	Install Security Barriers	Install security barriers with automated access control/monitoring systems to protect the Capitol Square accesses and the facilities in Capitol Square.	Dept. of General Services & VDOT	$1,000,000	As funding avail.	High
Objective 5: Require emergency utility systems and redundant communication systems for functionally critical facilities						
1.5.1	Electrical wiring for future emergency generator hook-up	Provide necessary electrical hook-up, wiring, and switches to allow readily accessible connections to emergency generators at 34 State owned National Guard armories throughout the Commonwealth.	Department of Military Affairs	$204,000	As funding avail.	Critical
1.5.2	Emergency Power Systems for 9 Regional Agency Cooler Facilities	Provide emergency back-up power at 9 of the agencies largest cooler facilities that can be utilized for refrigeration functions associated with the emergency response needs of the Commonwealth. The cooler facilities are already in place and include drive in type facilities for the storage and distribution of tree seedlings during early spring. These sites are generally available for most of the summer and fall seasons, and would allow for multiple tractor-trailer sized cold storage facilities for critical food, health and ice needs.	Virginia Department of Forestry	$225,000	As funding avail.	Critical
1.5.3	Supplemental Power for Government Data Centers	Establish a real-time off-site data center for DGS survey of mission critical applications and communications. The center would house a 3 terabyte mass storage device, 2 database servers, 2 email servers, 5 application servers, 2 domain servers, 5 Citrix servers, software and telecommunications circuits required to support real-time fail over capabilities for DGS applications.	Department of General Services	$500,000	One Year	Critical
1.5.4	Emergency hardware and software procurement	Procurement of hardware and software as needed to conduct business in the event of an emergency or disaster.	DMHMRSAS & VITA	$500,000	As funding avail.	High
1.5.5	Provide uninterruptible power source (UPS) for DCLS	Install an UPS system in the Archive Room located at the Div of Consolidated Laboratory Services and re-feed bus way A from the new UPS system.	Department of General Services	$435,000	As funding avail.	High

GOAL 2: POLICY, PLANNING & FUNDING PROJECTS **Incorporate mitigation concepts and objectives into existing and future policies, plans, regulations and laws in the Commonwealth**						
#	PROJECT NAME/ STRATEGY	ACTION	AGENCIES INVOLVED	PROJECT COST	TIME SPAN	RANK
Objective 1: Identify current policies, plans, regulations and laws the require or should require mitigation intervention						
2.1.1	Development of Statewide Hosting Program	Developing a statewide hosting plan by identifying a number of specific facilities that can be designated as "all hazard" reception shelter centers t/o the Commonwealth near major traveled routes where citizens can seek shelter and/or get information on the nearest shelter facility. These facilities can be clearly identified in statewide plans & established as a uniform basis for safe evacuation locations depending upon the hazard.	Virginia Department of Emergency Management			Critical
2.1.2	Sensitive Data Protection	Identify source data (hazard or community/state facility data) that may need FOIA protection, and establish standards, criteria, and regulatory protections for use of and access to these data.	VDEM		3 Years	Critical
2.1.3	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	VA Dept. of Agriculture & Consumer Servs.	$2,000	< 1 Year	High
2.1.4	Hazard Mitigation Planning	Perform a hazard/vulnerability assessment of buildings and infrastructure on the Radford University campus	Radford University	$100,000	As funding avail.	High
2.1.5	Hazard Mitigation Planning	Perform a hazard/vulnerability assessment of buildings and infrastructure on the Virginia State University campus.	Virginia State University	$100,000	As funding avail.	High
2.1.6	Jamestown Settlement Electrical Surge Protection	Provide electrical surge protection to computers, sensitive audio/visual equipment & interactive exhibits. Protection would be extended to the Education, Visitor Services and Theater/Special Exhibitions Wings	Jamestown-Yorktown Foundation	$172,500	As funding avail.	High
2.1.7	Jamestown Settlement Emergency Generators	Upgrade generators for the following buildings: Education Wing from 20KW to 300 KW Natural Gas; Visitor Services Wing from 50KW to 300 KW Natural Gas; and relocate existing 50KW generator from Visitor Services Wing to the Maintenance Building.	Jamestown-Yorktown Foundation	$562,500	As funding avail.	High

Objective 3: Incorporate mitigation planning concepts into COOP and recovery plans for state agencies						
2.3.1	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	VA Dept. of Agriculture & Consumer Servs.	$2,000	< 1 Year	Critical
2.3.2	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	VA Dept. of Agriculture & Consumer Servs.	$8,000	< 1 Year	Critical
2.3.3	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.4	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.5	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.6	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.7	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	VA Dept. of Agriculture & Consumer Servs.	$2,000	< 1 Year	High
2.3.8	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.9	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.10	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission	Agriculture & Consumer	$2,000	< 1 Year	High

		critical functions after occurrence of a disaster or disruptive event.	Services			
2.3.11	Incorporation of Continuity of Operations Planning	Incorporation of relevant state agency Continuity of Operations Plans (COOP) information into the 2007 Hazards Mitigation Plan.	VDEM & PPF subcommittee		2007	High
Objective 5: Incorporate mitigation planning concepts into state legislation and zoning						
2.5.1	Encourage use of Hazard Assessment data from this EOP to update other state plans	Work with Governor's office and various state Secretary's to incorporate the results of this State Hazard Mitigation Plan into state agency COOPs, other EOP assessments, etc., as needed.	VDEM		5 Years	Critical
Objective 6: Promote coordination between federal, state and local organizations						
2.6.1	Develop a Family of Public Health Emergency Preparedness & Response Plans	Develop a family of All Hazard, Public Health Emergency Preparedness and Response Plans.	VDOH	$57,000,000	Annually updated Based on Grant cycles	Critical
2.6.2	Legislative support to incorporate hazard mitigation planning into local comprehensive planning process	Work with Governor's office, state Secretary's, and General Assembly to incorporate the hazard mitigation planning process into the local comprehensive planning process, thus working to solidify these principles and methods into planning at the local level.	VDEM, Governor's Office and General Assembly		5 Years	Critical

GOAL 3: INFORMATION AND DATA DEVELOPMENT
Build Capacity with information and data development to refine hazard identification and assessment, mitigation targeting and funding identification

#	PROJECT NAME/ STRATEGY	ACTION	AGENCIES INVOLVED	PROJECT COST	TIME SPAN	RANK
Objective 1: Identify data needs and sources						
3.1.1	Climate and Natural Hazard Information Collection	Assist VDEM, in conjunction with Virginia State Criminologist's office, in obtaining comprehensive, high quality and most appropriate data for natural hazards that impact Virginia. Sources will include the NCDC, regional climate centers and NWS offices serving Virginia	NOAA & National Weather Service			Critical
3.1.2	Establish and Maintain the Virginia Hazard Mitigation Database	Establish, develop and maintain a system by which Virginia-specific hazards data can be consolidated and made available to all localities and agencies for use. ID, compile, and map the general Virginia "inventory" data needed to better assess the Commonwealth's general vulnerability to all hazards. This would include demographic, business/industry, agricultural, and natural environment data. Discrete weather data would include data on Winter Storms, Hail, Extreme Temperature, Drought, Hurricanes, Tornadoes, Lightning, Land Subsidence, Karst regions, Flooding and Earthquakes. Database will also be used to consolidate local data and results into state plan once available. Local entities information and data would be incorporated into the database.	VDEM & NOAA, NWS, CGIT, VGIN/VITA		3 Years	Critical
3.1.3	Mitigation: Security of Data and Assets	Critical Organizational exposures include protection of data (financial documents) and of data (financial documents) and protection of other assets (personnel & fixed assets).	Virginia Housing Development Authority	$300,000	By 4th quarter 2004	Critical
3.1.4	Real time flood inundation mapping program	Develop high-resolution flood plain maps and hydrologic models to produce real time flood inundation maps for high priority locations within Virginia.	US Geological Survey			Critical
3.1.5	Comprehensive Dam Information Database Development	Identify and convene committee to identify, coordinate, and collect relevant data for use in a single comprehensive database of ALL dams located in or affecting the Commonwealth of Virginia.	VDEM & DCR		2 Years	High

Objective 2: Identify data analysis methods						
3.2.1	Human-caused hazards assessment methods development	Identify and implement at the state and local levels validated assessment methods for human-caused hazards.	VDEM		3 Years	Critical
3.2.2	Update 100 and 500 year flood frequency statistics	Update 100 and 500 year flood frequency statistics using most current information to estimate the magnitude and frequency of peak flood discharges.	US Geological Survey			High
Objective 5: Develop a common system for information storage						
3.5.1	Incorporation of Handheld GIS-based Data Collection into Emergency Response	Acquire and utilize handheld field data recorders to facilitate emergency response information collection and distribution. This project will expand existing agency GIS capabilities to provide a much more efficient method for recording incident information in support of assessment and planning roles. This project will provide county level VDOF personnel with handheld data collectors and the training to will allow for real-time data collection in a digital format to expedite local damage assessments and to provide GIS based information that is critical for incident response. This expands DOF's existing state of the art GIS capabilities making it more available to support the Commonwealth's emergency response needs.	VDOF, VDEM & VITA	$395,000	As funding avail.	Critical
3.5.2	Comprehensive State Facility Inventory Database	Enhance and consolidate the existing state facility databases into a single database. Issues to address would be types of facilities to include and the data to collect on each to meet the needs of the respective parties to this effort. Develop and implement the database, including implementation of strategies to have state agencies be responsible for maintaining their own data.	VDEM, CGIT & DGS		3 Years	High

GOAL 4: EDUCATION & OUTREACH ACTIVITIES - Through education and training, increase awareness of hazards and potential mitigation strategies						
#	PROJECT NAME/ STRATEGY	ACTION	AGENCIES INVOLVED	PROJECT COST	TIME SPAN	RANK
Objective 2: Identify target audiences in the general public and state agencies for hazards awareness education and training						
4.2.1	Enhanced Statewide Hurricane Public Education Program	Increase the general public's knowledge of disaster preparedness with emphasis on hurricane through an enhanced public education program.	VDEM			Critical
4.2.2	Development of a Business Disaster Guide	Development of a business disaster guide to help business mitigate and prepare for disasters.	VDEM, Citizens Corps & Chamber of Commerce	$25,000		High
4.2.3	Local training on Hazard Mitigation Planning Process	**Establish a consistent program for localities to learn the hazard mitigation planning process using both FEMA and VDEM standards.**	VDEM, FEMA III & Commonwealth Localities		1 Year	High
4.2.4	Mitigation Success Stories Development	Develop a simple method to identify and record the ongoing mitigation success stories from across the Commonwealth. Identify the critical information/data needed to show the full benefits of these actions over time.	VDEM		2 Years	High
Objective 3: Identify and develop resources to provide training and education to targeted audiences						
4.3.1	Virginia Mitigation Strategies Encyclopedia	Develop a comprehensive and evolving toolkit of potential mitigation strategies that the State and localities may use to address the various hazards that affect them. Include with this toolkit a current assessment of which strategies are currently allowed under Virginia Law.	VDEM, VCU & UVA	$20,000		Critical
4.3.2	Encourage NFIP participation	Develop and implement an education program for localities and citizens regarding the NFIP program and flood insurance generally.	VDEM & VDCR		3-6 Years	High
Objective 4: Provide hazard awareness, preparedness and mitigation information through various communication channels						
4.4.1	Education Insurance Industry re: NDIP	Develop, require and implement better training and/or continuing education programs for insurance agents involved in writing and administering NFIP policies.	DCR & State Corporation Commission	SCC	3 Years	Critical

4.5 *Funding Capabilities*

There is never enough funding to adequately provide mitigation programs that will completely address properties at risk. It is hoped that as awareness of hazard mitigation increases, due in part to implementation of this plan, that funding can be increased through creative use of existing programs as well as incorporation of mitigation into other non-traditional hazard mitigation programs. It should be noted that where the check in the funding column within the program capacity analysis provided in Table 4.3, Table 4.4, Table 4.5 and Table 4.6; a check [√] only means that funding is possible within the stated program. The check does not indicate that funding is adequate, readily available or has ever been applied to Commonwealth of Virginia Disaster Response, Recovery or Mitigation Programs.

4.5.1 Traditional Funding Programs

A. FEMA Hazard Mitigation Grant Program [HMGP]

This post-disaster program is currently available to the Commonwealth of Virginia at the 7.5% funding level. In other words, funding representative of 7.5% of the total cost of eligible federal and state disaster recovery programs such as individual assistance, technical assistance, public assistance and special mission assignments becomes available to the Commonwealth for hazard mitigation projects that support structural mitigation and demolition/acquisition projects, limited hazard mitigation planning projects and special initiative projects. Per federal requirements outlined in CFR 44, at least 88% of the total monies available in HMGP are allotted to structural mitigation and demolition-acquisition projects that fully meet state program priorities. Further, these projects must be deemed eligible by FEMA Region III and meet all Benefit-Cost Analysis requirements, environmental and historical program regulations. In addition, all nuances and requirements of HMGP regarding property ownership and use of lands purchased by local governments must be met.

Since the 2003 reduction of the program to 7.5% from its former level of 15%, it has become difficult to use HMGP from federal declared disasters that impact small areas or do not generate extensive federal economic assistance due to the type of damages sustained or limited public assistance.

Therefore, to maximize available HMGP funds, the Commonwealth will seek to revise the plan to meet “Enhanced Plan” requirements immediately following approval of the standard plan. States with enhanced plan status receive HMGP at the 20% funding level of eligible federal disaster assistance costs. This funding level will nearly triple current funding levels, which will greatly increase funding of eligible structural mitigation projects. The Commonwealth Mitigation Program has initiated mitigation capacity building through recruitment of three hazard mitigation grant project specialists to manage HMGP projects, initiation of in-house NEMIS data entry capability and stronger understanding of the Benefit-Cost Analysis module. Work to formally elevate the plan to an Enhanced Plan will be initiated in winter, 2005.

B. Commonwealth Sum-Sufficient Match, HMGP

During the past decade, the FEMA HMGP program allows federal funding of up to 75%. The remaining 25% local match must be provided by non-federal sources. During the past few years, the Commonwealth has provided up to 20% of the project costs, resulting in local match requirements of only 5%. The state’s

support of the program has made HMGP available to many local governments who otherwise could not provide the required 25% local match.

C. FEMA Pre-Disaster Mitigation Program [PDM]

This program was first offered as a nationally competitive program for structural mitigation projects during summer, 2003. The Commonwealth, due to staff constraints and Hurricane Isabel, did not participate in the 2003 program. The guidance for the combined FY 2004 and 2005 PDM program is scheduled for release in late 2004. It is anticipated that Commonwealth local governments will wish to participate in the program. The Commonwealth Mitigation Program, as the funding cycle allows, will try to sponsor PDM applicant briefs to assist local project sponsor with application development. It is anticipated that over time, PDM will be a major funding source for mitigation projects and strategies outlined in the 2004 and subsequent plans.

D. FEMA Flood Mitigation Assistance Program [FMA]

FMA is available to local governments with an approved Flood Mitigation Plan or local 322 all-hazards plan. The program targets NFIP insured properties with repetitive damages. These program requirements, along with the scarcity of local governments with approved FMA plans, make full use of the Commonwealth's annual allotment of FMA monies difficult. The state mitigation program will continue to promote FMA for use in specific communities where property owners with repetitive losses that are current NFIP policyholders are interested in participation.

E. Virginia Flood Prevention and Protection Assistance Fund

This program resides within the Department of Conservation & Recreation's Division of Dam Safety and Floodplain Management. The fund is generated by an annual 1% surcharge on every NFIP policy in the Commonwealth. The program can assist development of flood control projects, as well as support traditional residential, commercial or public structural flood mitigation projects. With more than 80,000 NFIP policies in the Commonwealth, the fund is generating significant funds but has never been made available to agencies, organizations and local governments. It is anticipated that the program will be developed and offered as a competitive funding source, which might support flood mitigation projects outlined in the state plan or local 322 plans.

F. Commonwealth of Virginia General Fund

Many of the structural mitigation projects detailed in this plan and envisioned by Steering Committee members can be incorporated into capital improvement budgets that support renovation of existing structures or initiate new construction. Facilities managers have been active participants in the planning process and will serve an integral role in seeking non-traditional mitigation funding to support structural mitigation projects.

G. Homeland Security Grants

Several Department of Homeland Security grant programs have been created during the past several years to assist state and local governments with structural "hardening" and other security projects. As hazard mitigation planning expands to include human caused hazards, these funding sources will become critical in plan implementation.

H. Community Development and Block Grants [CDGB]

Administered by the Commonwealth's Department of Housing and Community Development, this program provides housing and commercial revitalization to many Commonwealth communities. CDGB has been effectively used in

comprehensive recovery from major disasters such as Hurricanes Fran, Floyd and Isabel as well as severe storm and flooding events. CDBG will continue to be a critical funding source for housing mitigation programs.

Chapter 5 Coordination with Local Mitigation Planning Efforts

Disaster Mitigation Act of 2000

§201.4(c)(4) A section on the Coordination of Local Mitigation Panning that includes the following:

(i) A description of the State process to support, through funding and technical assistance, the development of local mitigation plans;

(ii) A description of the State process and timeframe by which the local plans will be reviewed, coordinated, and linked to the State Mitigation Plan; and
(iii) Criteria for prioritizing communities and local jurisdictions that would receive planning and project grants under available funding programs, which should include consideration for communities with the highest risks, repetitive loss properties, and most intense development pressures. Further, that for non-planning grants, a principal criterion for prioritizing grants shall be the extent to which benefits are maximized according to a cost benefit review of proposed projects and their associated costs.

5.1 *Local Hazard Mitigation Plan Development*

To support the development of local hazard mitigation plans, the Department of Emergency Management provided assistance to local and regional jurisdictions through several medium once interim guidance, training materials and pre-disaster mitigation funding for 322 plan development became available during spring, 2002. During 2002, Department of Emergency Management staff in partnership with the Department of Conservation & Recreation's Floodplain Management Program and FEMA began an aggressive campaign to initiate local hazard mitigation planning:

(1) Staff prioritized local plan development and distributed 2002 PDM and FMA funds to six regional planning district commissions that covered local governments in southwest Virginia, the Roanoke Valley and central Shenandoah Valley;
(2) Created and conducted a workshop to provide multi-jurisdictional instruction on how to conduct the local mitigation planning process;
(3) Developed local mitigation planning assistance guidance;
(4) Provided direct planning and technical assistance to jurisdictions developing plans; and
(5) Providing presentations to state professional organizations at conferences and workshops that detailed the requirements of DMA2000 and the Commonwealth's efforts to meet those requirements.

Each of these efforts is described in more detail in the following sections.

5.1.1 Distribution of hazard mitigation planning funds

The Department of Emergency Management originally planned to distribute the limited 2002 PDM §322 planning funds to regions of the Commonwealth with greater risks of

hazard events and/or with dense populations. However, repeated catastrophic flooding in southwest Virginia resulted in three Presidential Disaster Declarations from July 2001 through May 2002. These events elevated to interested of local officials in mitigation. This opportunity led to the funding of initial local plans for the following organizations:

- LENEWISCO Planning District Commission
- Cumberland Plateau Planning District Commission
- Mount Rogers Planning District Commission
- New River Planning District Commission
- Roanoke Valley-Alleghany Regional Commission
- Central Shenandoah Planning District Commission
- Town of Bluefield

As funds became available through PDM 2003 and the Hazard Mitigation Grant Program priorities for local plan funding were determined by using the following criteria:

A. Areas with recent disaster events:
Areas experiencing recent disasters are more likely to be interested in performing the mitigation planning process. Further, funding sometimes is available following a disaster for this type of planning through HMGP 7% planning monies. When a hazard occurs in an area that currently does not have a mitigation plan, every effort is made to encourage the governing jurisdiction to develop a mitigation plan. When a hazard event occurs in an area that already has or is working on a mitigation plan, any available planning money will be funneled to other areas based on the remaining priorities on this list. Acting on this priority led to funding for the Town of Bluefield and Planning District Commissions (PDCs) 1 through 6 in southwest Virginia following the 2001 and 2002 flood events in those areas.

B. Regional plans:
Due to limited funding for mitigation planning, it was determined that the most cost-effective method of mitigation planning fund distribution was through regional planning district commissions. Virginia planning district commissions are recognized, well-organized regional planning agencies that maintain regular interaction with their constituent jurisdictions. Most have staff knowledgeable in planning processes and Geographic Information Systems. They also are knowledgeable about local issues and have capacity to incorporate regional perspective into plans. Since outreach efforts by state mitigation planners began in May 2002, the focus has been to approach regional planning district commissions as primary agencies to coordinate local hazard mitigation plans.

C. Regions or localities ready to begin their planning efforts:
By 2003, areas that were ready to take on this planning effort were moved to the top of the state's priority list, though VDEM still emphasized funding regional plans before single jurisdiction plans. This led to VDEM targeted 2003 PDM §322 planning monies to:

- Rappahannock-Rapidan Commission
- Piedmont
- Middle Peninsula
- Accomack-Northampton

Each of these regions had expressed an interest in this process and actively developed local political and financial support for a regional planning effort in order to position themselves for funding.

D. Areas with greater development pressures or density:
The "Golden Crescent" that runs from Washington, D.C. in the north and swings south through the Richmond metropolitan area, then east to the Hampton Roads metropolitan area is especially vulnerable to hazards such as hurricane, flooding and winter storms due to great population densities. These areas continue to grow rapidly due to development that has placed residences, businesses, critical service facilities and military installations at risk. In addition, the region has major transportation networks, including shipping, and attracts millions of visitors annually.

E. Areas with greater probability of hazards occurring:
For initial distribution of planning funds, this assessment was based on past disaster history throughout the Commonwealth and subjective assessments frequency and severity. Once the state and local mitigation plans are completed, this assessment will be refined using the local HIRAs to provide a more informed assessment of this criterion.

F. Areas with repetitive losses not covered by other priority considerations:
Any localities or regions with repetitive loss issues that have not been funded based on the priority considerations listed above would then receive available funding.

G. Other areas as funding is available:
The areas that remain to be funded after application of the previous priority considerations were those the lowest population and development densities and the lowest occurrences of hazard events. Funding was still considered important so that planning efforts could be initiated before the DMA2000 deadline of November 1, 2004.

Following distribution of the 2003 PDM funds, Hurricane Isabel devastated Virginia on September 18, 2003. The 90-day estimate for HMGP funding, along with a commitment from the Commonwealth of Virginia to match HMGP 7% planning monies, allowed the Commonwealth to distribute funds to remaining planning district commissions and regional local coalitions to initiate their §322 plans. Figure 5-1, below, shows the eventual distribution of planning funds as of Spring, 2004. Based on the application of these criteria and subsequent distribution of available planning funds from 2001 through 2003, local mitigation plans will be developed or in development by November 1, 2004 that cover all 324 of the Commonwealth's cities, counties and towns.

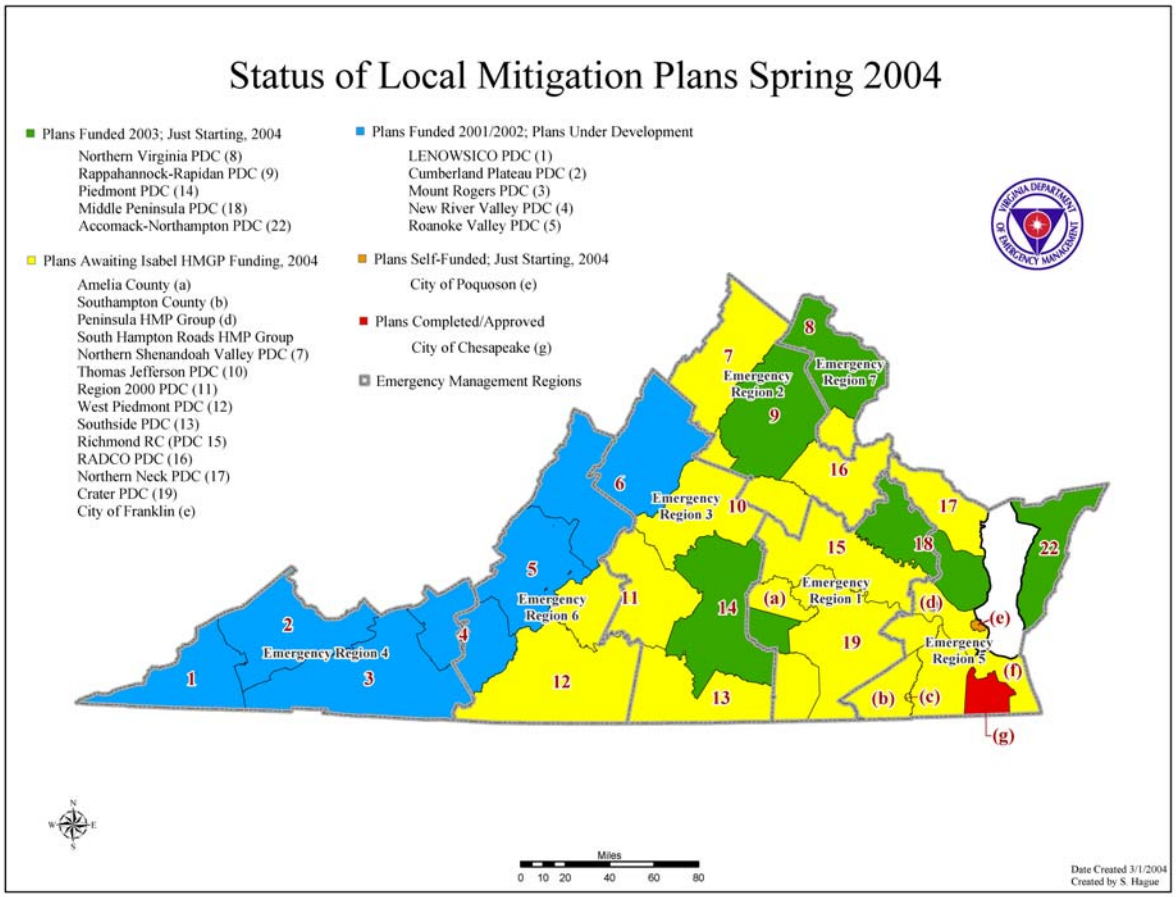


Figure 5-1 Local mitigation planning fund distribution and priorities as of Fall, 2004

5.1.2 Defining the "local planning jurisdictions"

One of the key issues facing the Commonwealth as it started the mitigation planning process was the definition of a "locality" sufficiently to meet current FEMA standards. The definition of a "locality" provided in the DMA2K regulations was written to encompass the broad variety of community types across the U.S. As such, it was much broader than Virginia's political organization. In order to simplify the planning process as much as possible, the FEMA and Virginia regulatory definitions were researched and a Virginia-specific definition of those "communities" that would be required to take part in the HMP process was developed. The basis of the DMA2000 local government definition is the National Flood Insurance Program definition of a "locality" (Dave Thomas, FEMA Region III, personal communication, July 8, 2003). It is FEMA's position, then, that the definition of a locality responsible for development of a hazard mitigation plan is:

> *Any area or political subdivision within the Commonwealth of Virginia as defined by the Code of Virginia that has authority to create, adopt and/or enforce land use, zoning, or subdivision ordinances and regulations for the areas within its boundaries.*

While the NFIP definition includes Native American tribes and organizations in its description, Virginia does not currently have any federally recognized native

organizations or authorized tribal organizations. As a result, those categories were not included in the definition above.

Within the Commonwealth of Virginia, this definition encompasses the counties, cities, and incorporated towns recognized by the Code of Virginia. Virginia counties, cities, and incorporated towns have independent land use management authority within their respective boundaries. The planning district commissions (PDC) are regional planning organizations that provide technical and planning support to the localities within their respective regions. However, while the PDCs do perform land use planning at the request their localities, they cannot implement or enforce the plans they create for those localities. Implementation and enforcement remain the responsibility of the cities, counties, and towns for which plans were developed

The Commonwealth of Virginia recognizes 39 cities, 95 counties, and 190 incorporated towns. There also are 21 planning district commissions in Virginia. A complete list of these localities is provided in Appendix G. Based on the DMA2000 regulations and the "locality" definition provided above, each of Virginia's cities, counties, and towns are required to develop or take an active role in the development of a hazard mitigation plan for their respective areas. The PDCs are not required to develop a separate HMP for their regions, as they do not have the enforcement authority of the cities, counties, and incorporated towns. However, as described in Section 5.1.1(b), it is the intent of the Commonwealth of Virginia to perform as many of the mitigation plans as multi-jurisdictional plans using the PDCs as the planning agency for these efforts.

Assistance for Communities with Insufficient Planning Resources

It also is the experience of the Commonwealth of Virginia that several smaller towns in the Commonwealth may not have the funding or staff necessary to manage or enforce the land use regulations in their area. Many of these smaller towns also may qualify as "small and impoverished communities" under the definition provided in the DMA2000 (see Table 5-1, below). It is possible that some of these towns will have transferred land use authority within their jurisdictional boundaries to the county of which they are a part, as is commonly the case with these towns during the comprehensive planning process.

To further assist these smaller communities and to reduce the overall costs of this planning process, VDEM also strongly emphasized the development of mitigation plans at a regional level. This was accomplished using either the existing regional planning district commissions or at least the county planning agencies. Because of these efforts and the definitions developed by VDEM in conjunction with FEMA, all 324 Commonwealth of Virginia localities will be included in a natural hazards mitigation plan.

Table 5-1 List of Small and Impoverished* Virginia Communities (January, 2004)

PDC#	Planning District Commission	County	Town
2	CUMBERLAND PLATEAU	Dickenson	Clinchco
2	CUMBERLAND PLATEAU	Dickenson	Clintwood
2	CUMBERLAND PLATEAU	Dickenson	Haysi
3	MOUNT ROGERS	Grayson	Fries
3	MOUNT ROGERS	Grayson	Independence
3	MOUNT ROGERS	Smyth	Chilhowie
3	MOUNT ROGERS	Smyth	Saltville

7	NORTHERN SHENANDOAH VALLEY	Page	Shenandoah
7	NORTHERN SHENANDOAH VALLEY	Page	Stanley
11	CENTRAL VIRGINIA	Appomattox	Appomattox
11	CENTRAL VIRGINIA	Appomattox	Pamplin City
12	WEST PIEDMONT	Henry	Ridgeway
12	WEST PIEDMONT	Patrick	Stuart
12	WEST PIEDMONT	Pittsylvania	Gretna
12	WEST PIEDMONT	Pittsylvania	Hurt
13	SOUTHSIDE	Halifax	Scottsburg
13	SOUTHSIDE	Mecklenburg	Boydton
13	SOUTHSIDE	Mecklenburg	Chase City
13	SOUTHSIDE	Mecklenburg	La Crosse
14	PIEDMONT	Lunenburg	Kenbridge
14	PIEDMONT	Lunenburg	Victoria

** A "Small and Impoverished" community has (1) a population less than 3,000, (2) is designated by the State as a rural community, (3) has an average per capita annual income of residents not exceeding 80% of national per capita income, and (4) has a local unemployment rate that exceeds by one percentage point or more the most recently reported average yearly national unemployment rate (44 CFR Part 201.2).*

5.1.3 Local hazard mitigation planning workshops

On March 7, 2003, VDEM presented a one-day hazard mitigation planning workshop in Radford, Virginia, for the Southwest Virginia planning district commissions and the Town of Bluefield that were currently developing mitigation plans. The workshops compressed the FEMA two-day local workshop into a customized Virginia format that could be presented within one-day.

During fall, 2003, the VDEM Training Program presented four additional local mitigation planning workshops using the conventional FEMA materials and a two-day format. These workshops were conducted in Lynchburg, Charlottesville, Harrisonburg, and Richmond during late 2003. Planning and emergency management staff attended these workshops, which were conducted following Hurricane Isabel. Similar to the interest in Southwest Virginia following the 2001 and 2002 floods, interest in mitigation planning was high for coastal and urban localities following Hurricane Isabel.

As the remaining communities in the Commonwealth initiate mitigation planning efforts, VDEM and FEMA will present additional planning workshops. The 2004 and 2005 workshops will be supported by a Hazard Mitigation Technical Assistance Program (HMTAP) contract through FEMA Region III, and additional guidance materials developed by VDEM. These new sessions will be presented in two one-day sessions across the Commonwealth. The first one-day session will cover the beginning of the planning process through the completion of the HIRA. The second one-day session will be provided to the localities and planning district commissions once their HIRAs are complete. The second workshop will cover development of mitigation strategies through plan implementation and adoption.

5.1.4 Developing local mitigation planning assistance guides

Several training aides have been distributed to those engaged in local mitigation planning:

How to Guides

The primary training aide has been the *How to Guide* Series developed by FEMA. These have been critical tools vital to plan development, in particular in hazard identification and risk assessment. This series has been distributed widely to those engaged in local planning in printed, digital and CD format.

Commonwealth of Virginia Hazard Library

The *How to Guide* series was included in the *Virginia Hazard Management Library – A Toolbox for Communities* developed as a cooperative project between FEMA, the Department of Emergency Management and the Department of Conservation and Recreation. Multiple natural and human-caused hazards are addressed with the photo and article sections of the library. This CD also provided many mitigation ideas through inclusion of FEMA and state training manuals, technical bulletins, and construction manuals.

Mitigation Strategies Encyclopedia

The two-volume Mitigation Strategies Encyclopedia, expected late summer, 2004 was developed in cooperation with the University of Virginia and Virginia Commonwealth University. This compendium provides a planning library that can be used to assist integration of traditional and existing planning, zoning, land use and environmental policies and strategies to advance concepts of hazard mitigation. The Encyclopedia will feature relevant Virginia policies, regulations and laws as well as applicable examples of successful mitigation-related projects, policies and regulations from across the country.

Department of Emergency Management Guidance

Occasional *Answers to Frequently Asked Questions* have been developed to assist those engaged in §322 planning to provide guidance and interpretation of federal DMA 2000 law and interim rules. In addition, VDEM and FEMA staff have provided guidance that connects DMA 2000 planning processes to other related planning efforts.

5.1.5 Providing Technical assistance

Development of local §322 plans is supported by two local planners within the Mitigation Program of the Department of Emergency Management. This support includes:

- Participation in local meetings;
- Availability by phone for consultation, trouble-shooting and technical assistance;
- Development of draft *Requests For Proposals* for localities and regions to use to solicit for contractors;
- Development of draft plan outlines for use at local and regional levels;
- Compilation of hazard data at state level where possible for distribution to and use by local plan efforts (for consistency and to kick start the hazard assessment process where possible);

- Provision of local training workshops for local plan Steering Committee and planning agency staff;
- Cross-walk review of draft plan sections and final plan prior to submission to FEMA Region III for final approval.

Through generous Hazard Mitigation Technical Assistance Program (HMTAP), FEMA Region III is supporting the Virginia local planning effort through provision of technical assistance, training workshops and cross-walk review as described above. URS Corporation is the lead agency for this assistance, but other cooperating consulting firms may be augmenting URS support. This cooperative effort has been and will continue to be essential to the successful completion and submittal of approvable local plans.

5.1.6 Meetings and Conferences

Once FEMA provided states with guidance and training materials for §322 planning during spring, 2002, VDEM and DCR staff saturated the state with presentations on the requirements of the Stafford Act, the state's strategy to develop a state plan and the requirements of local plans. These presentations introduced the concepts of multi-hazard planning and emphasized the relevance of pro-active hazard mitigation. Since the Commonwealth had experienced an active cycle of natural disasters and suffered the impacts of September 11, 2001, audiences were extraordinarily receptive to the concept of hazard mitigation planning.

Table 5.2 DMA 2000 Plan Marketing Events

Date	Organization, Event and Audience
July 18, 2002	The Association of Virginia Planning District Commissions Annual Conference, Virginia Beach, VA. Approximately 70 staff of Virginia's 21 planning district commissions, statewide representation.
August 16, 2002	Central Shenandoah Planning District Commission Project Impact All-Hazard Planning and Zoning Workshop, Harrisonburg, VA. Approximately 80 predominantly Shenandoah Valley, Central Piedmont and Northern Virginia local emergency, planning and building officials.
November 21, 2002	Living within Nature; Roanoke Valley Impact Land-use Conference in Roanoke, VA. 250 registered Roanoke Valley, Shenandoah Valley, Virginia and mid-Atlantic local, state and federal government representatives.
January 16, 2003	Virginia Floodplain Managers Association Coastal Floodplain Management Workshop; Williamsburg VA. Sixty-five registered attendees from coastal and central Virginia local governments and consulting firms.
January 23, 2003	Virginia Floodplain Managers Association SW Virginia Floodplain Management Workshop, Abingdon Virginia. Thirty-five representatives from SW VA and New River Valley local governments and consulting firms.
February 20, 2003	Virginia Municipal Government Managers Association Annual Conference, Roanoke VA. One-hour presentation and workshop for 40 county administrators, city managers and town managers. Statewide representation.
March 7, 2003	SW Virginia Mitigation Workshop for Planning District Commissions and Local Governments, Radford, VA. 86 in attendance.

Date	Organization, Event and Audience
March 24, 2003	Virginia Lakes and Watershed Conference, Virginia Beach VA. Presentation to about 60 local government representatives and consultants. Statewide and mid-Atlantic representation.
June 12, 2003	National All Hazards Mitigation Workshop, EMI Emmitsburg MD; 25 in attendance.
October 2, 2003	Virginia Association of Zoning Officials Annual Conference, Lexington VA. 110 local and regional zoning officials and land-use planning experts in attendance.
October 22, 2003	Virginia Floodplain Managers Association Regional Floodplain Management Workshop in Salem, Virginia. 30 local government officials present.
November 6, 2003	Virginia Floodplain Managers Association Regional Floodplain Management Workshop in Farmville, Virginia. 35 local government officials present.
November 19, 2003	Virginia Floodplain Managers Association Regional Floodplain Management Workshop in Fredericksburg, Virginia. 45 local government officials present.
February 11, 2004	Tidewater Chapter, Association of Civil Engineers Annual Workshops, Virginia Beach, VA. 78 local governments and consulting engineers in attendance.
February 11, 2004	Virginia Independent Insurance Agents Association Annual Legislative Conference, Richmond VA. 150 in attendance.
June 10, 2004	VAMLIS Conference, Norfolk, VA. 80 local and regional GIS experts in attendance.
June 16 – 18, 2004	Virginia Hazard Mitigation Summit, Charlottesville, VA. 120 in attendance.

5.2 *State Review of Local Hazard Mitigation Plans*

Training in review techniques to ensure that local §322 plan drafts meet all required elements of the DMA 2000 legislation will be provided by the URS HMTAP project to staff of the Department of Emergency Management. Where potential conflict of interest exists due to URS contractual participation in development of local plans, FEMA Regional III staff will provide plan review as schedules allow. VDEM staff will also provide plan review. This review will be conducted in accordance with the Cross-walk procedures outlined in the FEMA *Multi-hazard Mitigation Planning Guidance Under the Disaster Mitigation Act of 2000, March, 2004.* Every effort will be employed to provide consistency of review between state, FEMA and HMTAP contractors and to provide this review to local plan developers in as workload permits. It is the goal of the state to complete each local plan review within 30 days.

5.3 *State Support of Local Mitigation Projects*

Most local hazard mitigation projects are currently funded by the disaster-related Hazard Mitigation Grant Program. The Mitigation Administration Plan outlines the process used to solicit and select HMGP-funded projects. A copy of the current plan is provided in Appendix K, *Virginia Emergency Operations Plan; Appendix 9: HAZARD MITIGATION GRANT PROGRAM* . Similar procedures are used for Floodplain Mitigation Assistance Program (FMA) grants, but not within the context of a post-disaster recovery effort. Pre-disaster Mitigation Grant program funds have been allocated to the Commonwealth during FY2002 and FY2003 to support planning. Nationally competitive FY 2004 and FY2005 funds will be sought once guidance and RFPs are issued by FEMA.

To provide clarification and consistency across programs, an Administration plan will be developed following issuance of PDM FY04 guidance to combine administrative management policies and procedures into one Administration Plan. It is anticipated that this will be completed during 2005.

5.4 *Incorporating Local Mitigation Plan Results Into State Plan*

Once developed and approved, local plans will be submitted to the Center for Geospatial Technology for inclusion of all relevant local data sets into the state mitigation database. Information will include:

- Local/community inventory data,
- Critical facility data
- Vulnerability analysis results
- Updated Hazard assessment data
- Mitigation strategies, goals, projects

To date, only the City of Chesapeake and the New River Valley Planning District Commission plans are complete. Approval of the New River Valley plan is pending, Once several other plans are approved, CGIT will develop a standard methodology to incorporate local data into the state mitigation database. This effort will provide the capability to provide a true state HIRA for the 2007 plan revision.

Chapter 6 Plan Monitoring, Maintenance & Revision

Disaster Mitigation Act of 2000

§201.4(c)(5): A Plan Maintenance Process that includes:

(i) An established method and schedule for monitoring, evaluating, and updating the plan.

(ii) A system for monitoring implementation of mitigation measures and project closeouts

(iii) A system for reviewing progress on achieving goals as well as activities and projects identified in the Mitigation Strategies.

§201.4 (d): Review and updates. Plan must be reviewed and revised to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities and resubmitted for approval to the appropriate Regional Director every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible. We also encourage a State to review its plan in the post-disaster time frame to reflect changing priorities, but it is required."

6.1 *Plan Monitoring Procedures*

The previous *Virginia Hazard Mitigation Plan, Emergency Operations Plan, Volume 6* was approved in 2001. This plan was prepared, as was the *2004 Commonwealth of Virginia Standard Hazard Mitigation Plan,* with the overall vision to reduce the exposure of the Commonwealth's citizens to the impacts of hazards. It was determined early in the planning process that given time constraints, the plan would only address natural hazards. Further, the task was narrowed to a focus on state facilities since few local plans had been initiated and timely funding of the entire portfolio of local plans seemed unlikely when the state planning process was initiated in 2002.

When considering continuity of critical operations in the context of state services and facilities, the impacts of natural hazards can be similar or identical to the potential impact of a human-caused event. For example, during Hurricane Isabel, 5 million Virginians were without power, some for as long as two weeks. A human-caused event such as a failure of a nuclear power plant due to operation error or terrorism, would have similar impacts to the Commonwealth's critical facilities. In other words, a power outage is a power outage whether caused by downed lines and transformers from debris or mechanical failure. While the plan does not specifically consider human-caused hazards, the "cross-walk" to continuity of critical operations demonstrates that many of the strategies and projects included in the plan also strongly support reduction of exposure to human-caused hazards.

The mitigation plan was developed following an extensive identification and inventory of state facilities. Then the most significant natural hazards were characterized. An analysis of the Commonwealth's natural hazards and the historical occurrence of significant

events allowed vulnerability to be determined. Once key state facilities were targeted as "vulnerable" to natural hazards, agencies and organizations could then organize mitigation approaches into a Mitigation Vision for the Commonwealth, four key goals, and objectives to support accomplishment of the goals. Strategies and projects were the submitted into the database to complete the strategy.

The 2004 plan represents a "snapshot" of known state facilities as of late 2003. The 2004 plan will be revised and submitted to FEMA for approval in 2007. The revised planning process will be based on a HIRA that will include the data sets from 29 local §322 plans. In addition, numerous gaps in the state data set and resolution of identified problems with data are included in the objectives, strategies and projects listed within the Information and Data Goal. The Mitigation database in residence at the Virginia Tech Center for Geospatial Information Technology will be continually updated and improved. The 2007 plan will be expanded to specifically include human-caused hazards. While the current plan represents a snap shot, what has been learned through development of the state and the local plans will allow the 2007 revision to provide a true, comprehensive HIRA that will inspire a more complete Commonwealth of Virginia All-Hazard Mitigation Plan.

6.1.1 Tracking Strategies and Projects

The Commonwealth of Virginia Hazard Mitigation Plan provides guidance for hazard mitigation within the Commonwealth. Its vision is supported by goals, objectives and strategies for Virginia state government that will reduce or prevent injury from natural hazards to citizens and critical state facilities. The 100 strategies and projects that support the objectives organized within the four goal groups were submitted by Virginia state agencies, colleges and universities along with federal agency cooperators and related organizations. These strategies and projects were submitted through a web site created at the Virginia Tech Center for Geospatial Information technology specifically to support the Virginia Hazard Mitigation Plan. As described in Chapter 4.0, Mitigation Vision, Goals, Objectives and Strategies, these projects were prioritized through an on-line ranking process. To facilitate this, the site was available for project data entry from mid-May through July 1, 2004. The site was closed to new strategy or project data entry during July, 2004 to allow for strategy and project ranking.

Once the ranking was completed, strategy and project data entry was resumed. New strategies and projects could not be ranked in time for prioritization in the current plan, but any additional projects and strategies submitted after the initial strategy and project set were ranked are included in the complete listing within Appendix H.

The state hazard mitigation plan must revised be in 2007, three years after its approval by FEMA. Within 18 months of approval of the 2004 *Commonwealth of Virginia Standard Hazard Mitigation Plan*, each agency or organization that initiated a strategy or project will be asked to report on progress and accomplishment of each strategy and project. At this time, goals, objectives, strategies and projects that have not been accomplished due to inadequate funding or other barriers will be evaluated as to relevance and continued need. This evaluation will be informed by an improved HIRA that will not only include HIRA data from the 28 local §322 plans as well as information on human-caused hazards and renewed priorities of the Commonwealth. The evaluation will be performed within the context of the strategic planning process for development of the 2007 revision. In addition to the evaluation, agencies will integrate mitigation planning with their current planning efforts.

6.1.2 *Mitigation Database Maintenance*

The Center for Geospatial Information Technology, in consultation with the Virginia Information Technology Agency (VITA) and VDEM GIS and Mitigation staff, will continue to "host" the Mitigation Database. Through contractual support from VDEM as long as funding is feasible, the Center will maintain and update the database on a continual basis. It is anticipated that major aspects of this task during the first 24 months following plan approval will include:

- Development of protocol for local data input
- Inclusion of local §322 plan databases from local HIRAs
- Expansion of state hazard historical data
- Refinement of state agency facility inventories
- Expansion of database to target "critical facilities" to enhance COOP and human-caused vulnerability assessment

The two major aspects of Mitigation Database maintenance, upload of local 322 databases and database expansion to include human-caused hazards, cannot be further described at this time. Development of the remaining 26 local plans varies in terms of time schedule and method. Once the first several regional plans receive final FEMA approval, their HIRAs can be examined and consistent aspects of the local HIRAs can be expanded to determine a reasonable data upload methodology. This method then must be employed and tested. Once a usable protocol is discovered, tested and finalized, the task can be applied to the schedules and progress of the remaining local plan HIRAs and a schedule for uploading can be developed. Since the entire Commonwealth is now included in funded local jurisdiction or regional multi-jurisdictional plans, it is anticipated that local HIRAs will be completed by early 2006 and can inform a new state HIRA by mid to late 2006, well within the anticipated schedule for the 2007 state plan revision.

Expansion of the Mitigation Database to include human-caused hazards is less predictable. For this reason, a human-caused workgroup has developed as one of the four standing sub-committees that will not only oversee implementation of elements of the 2004 state plan but will direct development of a human-caused annex to the 2007 revision. The process to achieve this must be developed by the sub-committee since the Interim Federal Rule does not address human-caused hazards and no schedule for drafting, much less adoption of a Final Federal Rule has been developed as of September 1, 2004. The How-to-Guide that addresses human-caused hazards, while helpful, is not policy or guidance and thus cannot fully guide this process. The sub-committee will begin to address human-caused hazards by fully analyzing current Commonwealth of Virginia programs, policies and legislative requirements to begin to capture the appropriate *context* for the mitigation plan to address human-caused hazards.

6.2 *Plan Maintenance*

The Mitigation Steering Committee was created to support development of the plan during summer, 2003. While planning committees are generally limited to twenty participants or less, the Commonwealth broadened the committee to include all who participated by attending Steering Committee Meetings, entered projects, provided information and reviewed the plan draft. Commonwealth staff emphasized participation in the manner that was appropriate for each agency and organization.

With completion of the plan draft, the sub-committee structure was revised to:

- **facilitate** plan implementation;
- **broaden** the database to include data input from local plans;

- **expand** the planning process to address human-caused hazards;
- **target** hazard mitigation education; and
- **support** modification of state facilities to minimize impacts from hazards.

Standing, ad-hoc Mitigation Sub-Committees will be convened, surveyed or engaged as necessary. These sub-committees are:

1. Mitigation Database Expansion and Refinement
2. Structural Mitigation Project Advisors
3. Planning and Policy
4. Assessment of Human-caused Hazards

Department of Emergency Management staff, in consultation with key state agencies, federal partners and organizations will continue to direct implementation of the plan. The Department of Emergency Management serves as the lead coordinating agency for emergency management in the Commonwealth, and thus will continue to lead the mitigation planning effort, including plan maintenance.

During the 18-month period immediately following adoption of the plan, emphasis will be placed on enabling accomplishment of strategies and projects ranked "critical." This will require, in part, a comprehensive funding strategy that seeks funds from traditional sources as well as leveraging funding through capital improvement efforts and non-traditional funding sources. Polices may need revision and in some cases legislation may be necessary to facilitate accomplishment of key mitigation strategies. Sub-committees will continue to function as necessary to support implementation efforts. VDEM mitigation planning staff and the Virginia Tech Center for Geospatial Information Technology will continue to provide key organizational support to these sub-committees.

During summer, 2006 a planning process timeline will be developed to ensure that the plan revision can be prepared and submitted to FEMA within the required three-year time period for plan revision. Special attention will be paid to make sure that businesses and special interest groups are included and have an input into the revision of the plan. The planning process will emphasize expanded vulnerability assessment of the database of local and state critical facilities, incorporation of human-caused hazards and re-development of strategies and projects to address the most vulnerable citizens and assets of the State. The planning process will be guided and informed to incorporate any state or federal legislative, regulatory or rule changes or additions that have occurred during the period following approval of the current plan.

Should a specific plan element or section require revision or amendment prior to the planned 2007 plan revision due to state or federal legislation or policy change, VDEM staff will meet with all appropriate stakeholders and propose the change or addendum to FEMA as quickly as is practicable.

6.2.1 *Reporting*

An Interim Report will be developed following the 18-month evaluation of progress on accomplishment of goals, objectives, strategies and projects. This report will be used to describe progress to date and the anticipated planning process to develop the revised plan. This report will be distributed to state and local stakeholders, including state and federal agencies, local governments, regional commissions, industry, organizations and legislators. This interim report will be used to stimulate discussion of mitigation and interest in the plan revision.

Reporting on specific projects and strategies ranked "critical" and "high" will be determined once funding mechanisms are identified. Many funding scenarios (grants,

bonds) require periodic reporting. Those existing reporting mechanisms will be captured to minimize duplication of effort.

The sponsors of projects and strategies funded through the FEMA Competitive Pre-Disaster Mitigation Program, the Flood Mitigation Assistance Program and the Hazard Mitigation Grant Program provide quarterly progress reporting to VDEM throughout the duration of the project. VDEM will seek to organize these reports into a quarterly summary that will be posted on the Mitigation Plan website hosted at the Virginia Tech CGIT. Projects that support specific aspects of the Mitigation Plan will be earmarked on the quarterly summary so that those interested in progress monitoring can track the specific FEMA-funded initiatives that support the Mitigation Plan.

6.2.2 *Expansion of Steering Committee*

The Steering Committee first envisioned and convened during 2003 was composed of representatives from state agencies, state colleges and universities, partner federal agencies and related organizations. Since the plan focused on state facilities, this was an appropriate group of stakeholders provide data and create a mitigation vision with appropriate goals, objectives, strategies and projects.

This group of stakeholders must be expanded to support not only implementation of the 2004 Standard Mitigation Plan but to inform the eventual plan revision include local plan HIRAs and priorities as well as human-caused hazards.

Anticipated stakeholders to include in an expanded Steering Committee include representatives of the following organizations:

Virginia Emergency Managers Association

Virginia Association of Planning District Commissions

Virginia Association of Counties

VA Municipal League

Virginia Governmental Managers Association

VA Building & Code Officials

Chamber of Commerce

Industry Organizations

Virginia Farm Bureau

Industry and Trade Organizations

Table 6.1 Schedules *of Plan Maintenance and Revision*

Task	Responsibility	Time Frame
1. Format plan to meet Emergency Management Program Accreditation requirements	VDEM Mitigation Staff	Complete by December, 2004
2. Pursue expansion of approved Standard Mitigation Plan and the Virginia Hazard Mitigation Program to "Enhanced" Status	VDEM Mitigation Staff FEMA Region III Cooperating Virginia State Agencies	Initiate winter, 2005

3. Expand data base	VA Tech CGIT Database Expansion & Refinement Sub-Committee	Ongoing
4. Pursue 2004/2005 Pre-Disaster Mitigation Program Funding for "Critical" and "High" ranked strategies and projects. Continue to pursue FEMA funding as available.	VDEM Mitigation Staff Project sponsors	Ongoing
5. Determine method to encompass Human-caused hazards into plan revision	VDEM Terrorism Staff Human-Caused Hazard Assessment Sub-Committee	Ongoing
6. Evaluate progress on "Critical and High" priority strategies and projects	VDEM Mitigation Staff Project Advisory Sub-Committee Strategy & Project Sponsors	Summer, 2006
7. Review current regulatory requirements for plan revision	VDEM Mitigation Staff Planning & Policy Sub-committee	Summer, 2006
8. Refine planning process and timeline for 2007 plan development.	VDEM Mitigation Staff Planning & Policy Sub-committee	Winter, 2007
9. Convene 2007 Mitigation Plan Steering Committee and initiate 2007 Plan HIRA and strategy development process	State Emergency Coordinator VDEM Mitigation Staff Virginia Stakeholders	Winter 2007
10. Submit 2007 Revised All-Hazard Mitigation Plan to FEMA	State Emergency Coordinator	Fall, 2007

6.3 Project Closeout

FEMA-funded projects will continue to be closed out in accordance with national and regional FEMA guidance along with Commonwealth of Virginia VDEM financial management procedures. "Project closeout" is the process that finalizes a completed mitigation project that FEMA as funded. Closeout will be conducted based on FEMA Region III closeout procedures.

Projects and activities funded through other federal or state grant programs, state general funds or that can be achieved without targeted funding will be completed as dictated by the funding source or state program with administrative oversight for the activity of project.

6.3.1 Required Closeout Documents from the Commonwealth with Closeout Request Letter to FEMA:

1. Letter from Governor's Appointed Representative (GAR) requesting close out. Request indicates project completion and that further cost adjustments will not be required.
2. Audit (inspection) verification.
3. Listing of 404 funds distributed for project.

4. SF 269 *Financial Status Report* (or equivalent) if SF 424 was submitted for the project.

6.3.2 Documents Maintained by the Commonwealth for Project Closeout

1. Description of completed project, including AS BUILT designs for structural projects.
2. Assurances that post-award requirements identified in Environmental Review Letters were met, if required.
3. Budge breakdown of expended funds, including local matches.
4. Receipts, vouchers and other verification of expenses.
5. Duplication of benefit verification (for acquisition projects).
6. Verification of deed restrictions (for acquisition projects).
7. Post-award correspondence.
8. Additional pertinent items identified as needed.

6.3.2 Close-out Process Guidelines

1. Applicant (Sub-grantee) requests a final project inspection from the Commonwealth (for final payment).
2. Commonwealth performs final inspection and project review (in cooperation with FEMA, who may attend).
3. Final Budget Adjustment:
    a. If applicant requests an overrun at project completion:
        i. If Commonwealth approves, request is submitted to FEMA.
        ii. IF FEMA approves, funds are obligated and Commonwealth is notified.
        iii. If overrun is denied, funds will be de-obligated.
        iv. For several projects having the same sub-grantee, de-obligation may be delayed until all projects are complete.
4. Commonwealth submits closeout letter package to FEMA.
5. FEMA reviews closeout package; may request additional information.
6. FEMA sends acknowledgement letter to Commonwealth and requests concurrence for project costs and sub-grantee administrative costs.
    a. Commonwealth and FEMA may resolve any discrepancies in final project costs and sub-grantee administrative costs.
    b. Date of signed concurrence memo is used as a project completion date.
7. FEMA notifies Commonwealth that project is complete and that no quarterly reports are required.

Appendix A: Acronyms

Acronyms

A

ACOE	U.S. Army Corps of Engineers
AICP	American Institute of Certified Planners
APA	American Planning Association
ARC	American Red Cross
ASCE	American Society of Civil Engineers

B

BCA	Benefit-cost analysis
BOCA	Building Officials and Code Administrators
BFE	Base Flood Elevation
BLM	Bureau of Land Management

C

CEM	Comprehensive Emergency Management
CERT	Citizens Emergency Response Team
CFR	Code of Federal Regulations
COV	Code of Virginia
CPI	Consumer Price Index
CRS	Community Rating System

D

DCR	Virginia Department of Conservation and Recreation
DEQ	Virginia Department of Environmental Quality
DFIRM	Digital Flood Insurance Rate Map
DGS	Virginia Department of General Services
DHCD	Virginia Department of Housing and Community Development
DHS	Department of Homeland Security
DMA2K	Disaster Mitigation Act of 2000
DMME	Virginia Department of Mines, Minerals, and Energy
DOF	Virginia Department of Forestry
DOH	Virginia Department of Health
DOQQ	Digital Orthophoto Quarter Quadrangle
DOS	Department of State

E

EDA	U.S. Economic Development Agency
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
EPM	Emergency Program Manager
ESRI	Environmental Systems Research Institute

F

FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FIMA	Flood Insurance Management Agency
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
FMAP	Flood Mitigation Assistance Program
FPI	Fire Potential Index
FPMS	Flood Plan Management Services
fps	feet per second

G

GIS	Geographic information system
GPS	Global positioning system
GSA	General Services Administration

H

HAZMAT	Hazardous material
HAZUS	Hazards U.S.
HAZUS-MH	Hazards U.S. – Multi-Hazard
HIRA	Hazard Identification and Risk Assessment
HMP	Hazard mitigation plan
HMGP	Hazard Mitigation Grant Program
HUD	U.S. Department of Housing and Urban Development

I

IA	Individual Assistance
IEMS	Integrated Emergency Management System
IFLOWS	Integrated Flood Observing and Warning System

L

LCCC	Local Citizen Corps Committees
LEPC	Local Emergency Planning Committee
LOMA	Letter of Map Amendment
LOMR	Letter of Map Revision

M

MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
mph	miles per hour
mps	meters per second
MSL	Mean sea level

N

NBC	Nuclear, Biological, Chemical
NFIP	National Flood Insurance Program
NHC	National Hurricane Center
NIBS	National Institute of Building Sciences
NID	National Inventory of Dams
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	U.S. Natural Resources Conservation Service
NWS	National Weather Service

P

PA	Public Assistance
PGA	Peak Ground Acceleration
PL	Public Law

R

RACES	Radio Amateur Civil Emergency Service

S

SBA	U.S. Small Business Administration
SCC	Virginia State Corporation Commission
SEAS	Virginia Shoreline Erosion Advisory Service
SHMO	State Hazard Mitigation Officer
SHPO	State Historic Preservation Officer
SLOSH	Sea, Land, and Overland Surges from Hurricanes

U

USBC	Uniform Statewide Building Code
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forestry Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey

V

VDEM	Virginia Department of Emergency Management
VDOT	Virginia Department of Transportation
VGIN	Virginia Geographic Information Network
VOAD	Volunteer Organizations Active in Disaster
VRA	Virginia Resources Authority

W

WMD	Weapons of Mass Destruction

Appendix B Glossary

The following terms are used throughout this document, but are not necessarily defined when they occur. Many of the definitions provided below are borrowed primarily from the FEMA How-to guides (numbers 1, 2, and 7) and the American Planning Association publication, *Planning for Post-disaster Recovery and Reconstruction* (FEMA 2002, FEMA 2002a, FEMA 2001, Schwab 1998). However, some also are defined specifically from Commonwealth of Virginia statutes and regulations. Words that are in **Boldface** in the definitions also are defined in this glossary. It is hoped that this glossary will provide a common framework for the understanding and use of these terms in the course of hazard mitigation planning in the Commonwealth of Virginia.

0.2% Flood
Also known as the "500-year flood", this is a flood event having a 0.2 percent chance of being equaled or exceeded in any given year.

1% Flood
Also known as the "100-year flood" or "base flood", this is the flood having a 1 percent chance of being equaled or exceeded in any given year. This is the most common reference point statistically for referring to flood events because it is used for regulatory purposes in the **National Flood Insurance Program (NFIP)**.

100-Year Flood
See **1% Flood**.

500-year Flood
See **0.2% Flood**.

Acceleration
The rate of change of **Velocity** with respect to time.

Accretion
This type of sediment movement occurs when more sediment is deposited along a particular area (*e.g.*, a stream bank or shoreline) than is lost due to erosion.

Acquisition
The process by which local governments may gain possession of lands and other property in high hazard areas through the use of conservation easements, purchase of development rights, or outright purchase of the property.

Asset
Any human-made or natural feature that has value, including but not limited to people; buildings; infrastructure such as bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks.

Asset Inventory
An assessment of community **Assets** that are located in each hazard areas. This assessment should include information about the asset locations, types, function, value, contents (if applicable), and the population of the jurisdiction that may be affected by each hazard event. An estimation of the effect on the jurisdiction of the loss of or damage to this asset also should be considered.

Average Daily Operating Budget
The average cost to operate a facility for one day (including wages, overhead, inventory, etc.)

Base Flood
See **1% Flood**.

Base Flood Elevation (BFE)
The elevation of the **Base Flood** in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929. The base flood elevation is used as the standard for the National Flood Insurance Program.

Base Map
A map used as a bottom "layer" for risk assessment and hazard analysis. This map should be **Planimetric** and should be as complete, accurate, and current as possible. Other than distinguishable buildings, roads, rivers, coastlines, place names, and a north arrow, the base map should be as uncluttered as possible.

Bedrock
The solid rock that underlies loose material such as soil, sand, clay, or gravel.

Building
Any structure that is walled and roofed, including a storage tank for gas or liquid, which is principally above ground and permanently affixed to a site. This also includes manufactured homes on a permanent foundation on which the wheels and axles carry no weight.

Channelization
The practice of hardening (and more often than not, straightening) the banks of a river or stream to ensure that its path remains predictable and controlled.

City
According to Title 15.2, Section 102 of the COV, a "City" is any independent incorporated community that became a city as provided by law before noon on the first day of July, nineteen hundred seventy-one, or that has within defined boundaries a population of 5,000 or more and that has become a city as provided by law.

Coastal High Hazard Area
As defined under the NFIP, this is an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high-velocity wave action from storms or seismic sources.

Coastal Zone
The area along the shore where the ocean meets the land as the surface of the land rises above the ocean. This land/water interface includes barrier islands, estuaries, beaches, coastal wetlands, and land areas having direct drainage to the ocean.

Community

As defined for the purposes of the NFIP, a community is any state, area, or political jurisdiction or any Native American tribe, authorized tribal organization, Alaska native village, or authorized native organization that has the authority to adopt and enforce floodplain management ordinances for the area under its jurisdiction. In the Commonwealth of Virginia, the recognized government subdivisions "include authority, county, district, and municipality" (COV §13.1-603). The Constitution of Virginia (Article VII, §1 "Definitions") recognizes **Counties, Cities, Towns, and Regional governments**. See also **Local Government**.

Community Rating System (CRS)

A voluntary system under the NFIP in which communities undertake planning and regulatory activities beyond NFIP minimum requirements tin order to obtain credits that earn premium reductions for flood insurance for their residents and property owners. These activities are delineated in the CRS guidelines but include four general categories: public information; mapping and regulatory activities; flood damage reduction; and flood preparedness. The premium reductions come in a series of 5 percent steps based on points earned under the system.

Comprehensive Emergency Management (CEM)

A framework for planning, organizing, and managing emergency protection efforts. There are four recognized phases in the all-hazards approach – mitigation, preparedness, response, and recovery.

Consequences

The damages (full or partial), injuries, and losses of life, property, environment, and business that can be quantified by some unit of measure, often in economic terms.

Constriction

In a **Floodplain**, regrading or filling within or on the edge of a floodplain that obstructs flood flows, backing up floodwaters onto upstream and adjacent properties. Constrictions also increase the velocity of floodwater downstream of the constriction, and reduce the floodplain's ability to store excess water, sending more water downstream and causing floods to rise to higher levels.

Content Loss

Part of the Loss Estimation process, this value represents the total dollar value loss to the contents of a structure as a result of damage from a hazard event. This value (for each affected structure) is equal to the **Content Value** of the structure multiplied by the percent damage experienced by those contents from the hazard event.

Content Value

As part of an asset inventory, this is an estimate of the costs associated with loss of a building's inventory. This value is usually estimated as a percentage of a facility's **Replacement Value**, depending on the **Occupancy Class** of the facility.

Contour

A line of equal ground elevation on a **Topographic** map.

County

As per Title 15.2 Section 102 of the COV, a "County" is any existing county or such unit herafter created.

Critical Facility
Any facility or building that (1) is essential to maintain emergency response actions, (2) provides lifeline services (*e.g.*, shelters, potable water supplies, health facilities), (3) is essential to maintain public safety (*e.g.*, police and fire stations), (4) may cause devastating financial or safety conditions if shut down for more than one week, (5) houses irreplaceable items, records, equipment, or research, (6) houses a special population that requires particular social services on site not needed by the general public (*e.g.*, prisons, nursing home, and advanced care facilities), or (7) has a special historic or other character.

Critical Fire Weather
A set of weather conditions, usually a combination of wind and low relative humidity, whose effects on fire behavior make fire control difficult and threaten firefighter safety.

Debris
The scattered contents and structural material of homes, businesses, and other structures broken or destroyed in a hazard event. Debris caused by a wind or water hazard events can cause additional damage to other community assets.

Depth of Flooding
The difference between the **Base Flood Elevation** and the **Lowest Floor Elevation**.

Design Wind Speed
The wind velocity for which structures in a specific **Design Wind Speed Zone** must be constructed to withstand. The American Society of Civil Engineers (ASCE) determines the Design Wind Speeds and Zones.

Design Wind Speed Zone
A zone throughout which the **Design Wind Speed**, as determined by the ASCE, is consistent. There are four zones in the United States: Zone I (winds up to 130 mph); Zone II (winds up to 160 mph); Zone III (winds up to 200 mph); and Zone IV (winds up to 250 mph).

Digital Flood Insurance Rate Map (DFIRM)
A **Flood Insurance Rate Map** that has been updated and produced in digital format for use in GIS and internet applications.

Digital Orthophoto Quarter Quadrangle (DOQQ)
A computer-generated image of an aerial photograph in which displacements caused by camera orientation and terrain have been removed. These products combine the image characteristics of a photograph with the geometric qualities of a map and can be used in numerous GIS applications either alone or in combination with other digital data.

Disaster
A dangerous event that causes significant human and economic loss and demands a crisis response beyond the scope of any single agency or service such as the fire department or police.

Disaster Mitigation Act of 2000 (DMA2K)
The DMA2K (PL 106-390), signed into law October 10, 2000, amends Section 409 of the **Stafford Act**, reinforces the importance of mitigation planning, and emphasizes planning for disasters before they occur. It establishes a pre-disaster mitigation program and provides new requirements for the **Hazard Mitigation Grant Program** (HMGP). A complete copy of this Act is provided in the appendix to this plan.

Displacement Cost
The overall dollar amount it would cost for the function of a facility, business, or service to be relocated to another structure because of a hazard event.

Displacement Cost per Day
Part of the Loss Estimation process, this is the average cost per day for a facility to be relocated to a temporary facility as a result of a hazard event. This value can be estimated by dividing the **Displacement Cost** by the **Displacement Time**.

Displacement Time
The average time (in days) that a building's occupants typically must operate from a temporary location while repairs are made to the original building due to damages resulting from a hazard event.

Duration
The length of time a hazard event last.

Earthflow
A type of **Landslide** generally characterized as a combination of a **Slump** and a **Mudflow**.

Earthquake
A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth's tectonic plates. See also **Ground Motion**.

Emergency
As defined in the Stafford Act, "any occasion or instance for which, the determination of the president, federal assistance is needed to supplement state and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States."

Emergency Management
Organized analysis, planning, decision-making, and assignment of available resources to mitigate, prepare for, respond to, and recover from the effects of all hazards.

Emergency Response Plan
Also known as an emergency operations plan, this is a document that contains information on the actions that may be taken by a governmental jurisdiction to protect people and property before, during, and after a disaster.

Erosion
The wearing away of the land surface by detachment and movement of soil and rock fragments, during a flood or storm or over a period of years, through the action of wind, water, or other geologic processes.

Erosion Hazard Area
The area anticipated to be lost to shoreline retreat over a given period of time. The projected inland extent of the area is measured by multiplying the average annual long-term recession rate by the number of years required.

Exposure
The number, types, qualities, and monetary values of various types of property or infrastructure and life that may be subject to an undesirable or injurious hazard event.

Extent
The size of an area affected by a hazard or hazard event.

Extratropical Cyclone
Cyclonic storm events like Nor'easters and severe winter low-pressure systems. Both the West and East coasts can experience these non-tropical storms that produce gale-force winds and precipitation in the form of heavy rain or snow. Typically called Nor'easters on the East Coast because of the direction of the storm winds, these storms can last for several days and be very large – 1,000 mile-wide storms are not uncommon.

Fault
A fracture in the continuity of a rock formation caused by a shifting or dislodging of the earth's crust, in which adjacent surfaces are differentially displaced parallel to the plane of fracture.

Fire Hazard Severity
The potential for the occurrence of a **Wildfire** due to a combination of slope, fuel availability and type, and prevalence of **Critical Fire Weather** in an area.

Fire Hazard Severity Table
This table correlates **Critical Fire Weather** prevalence, slope, and fuel classification of an area to estimate an area's degree of fire hazard.

Fire Potential Index (FPI)
Developed by the USGS and USFS, this index is used to assess and map fire hazard potential over broad areas. Using the geographic information from this index, national policy makers and on-the-ground fire managers have established priorities for prevention activities in the defined area to reduce the risk of managed and wildfire ignition and spread. Prediction of fire hazard shortens the time between fire ignition and initial attack by enabling fire managers to pre-allocate and stage suppression forces to high fire risk areas.

Flash Flood
A flood event occurring with little or no warning where water levels rise at an extremely fast rate.

Flood
A general and temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of inland or tidal waters, (2) the unusual and rapid accumulation or runoff of surface waters from any source, or (3) mudflows or the sudden collapse of shoreline land.

Flood Depth
The height of the flood water surface above the ground surface.

Flood Elevation
The elevation of the water surface above an established datum (*e.g.*, the National Geodetic Vertical Datum of 1929; the North American Vertical Datum of 1988; or Mean Sea Level).

Flood Hazard Area
An area as defined on a **Flood Insurance Rate Map** having the possibility to be inundated by a flood of a given magnitude.

Flood Insurance Rate Map (FIRM)
As defined under the NFIP, this is an official map of a community on which the administrator of the Flood Insurance Administration has delineated both the **Special Flood Hazard Areas** and the risk premium zones applicable to that community.

Flood Insurance Study (FIS)
A study that provides an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations in a community or communities.

Flood Zone
A geographical area shown on a FIRM that reflects the severity or type of flooding in the area.

Floodplain (or flood-prone area)
As defined under the NFIP, any land area susceptible to being inundated by water from any source.

Floodplain Management
As defined under the NFIP, the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works, and floodplain management regulations.

Floodway
See **Regulatory Floodway**.

Frequency
The measure of how often on average a hazard event of a particular magnitude is expected to occur within a particular time frame. Statistically, a hazard with a 100-year recurrence interval is expected to occur once every 100 years on average, and would have a 1 percent chance – its **Probability** – of happening in any given year (*e.g.*, a 1% flood).

Fuel
Combustible plant material, both living and dead, that is capable of burning in a wildland situation. Also, any other flammable material in the built environment that feeds a wildfire.

Fujita Scale of Tornado Intensity
This scale rates tornadoes with numeric values from F0 to F5 based on tornado wind speed and damage sustained. An F0 indicates wind speeds less than 72 miles per hour and minimal damage such as broken tree limbs or signs, while an F5 indicates wind speeds in excess of 260 miles per hour and severe damage sustained.

Function Loss
Part of the Loss Estimation process, this value represents the functional dollar value loss of a structure/facility as a result of damage from the hazard event. This value (for each affected structure) is equal to the **Average Daily Operating Budget** of the structure multiplied by the **Functional Downtime** plus the **Displacement Cost per Day** multiplied by the **Displacement Time**.

Function Value
An estimate during an asset inventory that represents the value of a building's use or function that would be lost if it were damaged or closed.

Functional Downtime
The average time (in days) during which a function (business or service) is unable to provide its services due to a hazard event.

Geographic Area Impacted
See **Extent**.

Geographic Information System (GIS)
A computer software application that relates physical features on the earth to a database of attributes (descriptions, characteristics) about those physical features to be used for mapping and analysis.

Ground Failure
Permanent deformation of the soil, including faulting, consolidation, liquefaction, or landslides. Ground failure can cause extensive damage to buildings and lifelines, and development in areas prone to ground failure should be avoided.

Ground Motion
Movement of the ground resulting from earthquake-generated waves in the earth. Ground motion normally includes horizontal and vertical components, although the horizontal movement is more severe and causes the greatest damage. Building codes normally address horizontal motion, as vertical motion usually does not exceed gravity design.

Hazard
Generally, any source of potential danger or adverse condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, damage to the environment, interruption of business, or other types of harm or loss. Hazards may be divided into two broad categories, depending on the source of the event. See also **Natural Hazards** and **Human-caused Hazards.**

Hazard Event
A specific occurrence of a particular type of hazard.

Hazard Identification
See **Hazard Profile**.

Hazard Mitigation
The proactive, preventive planning process of identifying and performing sustained actions to reduce or eliminate the long-term risks to human life and property from hazards and their effects. Note that this emphasis on long-term risk distinguishes mitigation from actions geared primarily to emergency preparedness and short-term recovery.

Hazard Mitigation Grant Program (HMGP)
A grant program authorized under Section 404 of the **Stafford Act**, 42 USC 5170c and implemented at 44 CFR Part 206, Subpart N, that authorizes funding for certain mitigation measures identified through the evaluation of natural hazards conducted under Section 322 of the Stafford Act 42 USC 5165.

Hazard Profile
The process by which the hazards that affect a particular locality or region are identified, described, and defined, including the physical characteristics, magnitude and severity, probability and frequency, causative factors, and extent.

HAZUS
”Hazards U.S.” This is a standardized, nationally applicable hazard loss estimation methodology that uses PC-based GIS software. Although originally designed to be used to estimate earthquake losses, recent updates to the software now include both flood and wind event modules (now known as HAZUS-MH or HAZUS-Multi-hazard). See the FEMA website at http://www.fema.gov/hazus/ for more information and a free download.

Human-caused Hazards

Hazard events that originate from human activity. These types of events may be further defined as either technological hazards or terrorism. **Technological hazards** refer to incidents that may arise from human activities such as the manufacture, transportation, storage, and use of hazardous materials. For the purposes of this sub-definition, it is assumed that technological emergencies are accidental and that their consequences are unintended. **Terrorism** refers to intentional, criminal, malicious acts, specifically those related to the use of weapons of mass destruction (WMD) (including biological, chemical, nuclear, and radiological weapons); arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and "cyber-terrorism".

Hurricane

An intense tropical cyclone, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or "eye." Hurricanes develop over the North Atlantic Ocean, northeast Pacific Ocean, or the South Pacific Ocean east of 160° East longitude. Hurricane circulation is counter-clockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

Hydrology

The study of water and its properties. A flood discharge model is developed by a hydrologic study.

Infrastructure

Refers to the public services of a community that have a direct impact on the quality of life in that community. These services include communication technology, lifeline systems, and transportation systems. See also **Lifeline Systems**.

Inland Flooding

Flooding that occurs landward of a shoreline as a result of a coastal storm moving across the land bringing torrential rains and backwater flooding from the ocean. These in turn cause rivers and streams in these inland areas to overflow. Severe coastal storms have been known to cause floods in inland areas whose **flood depths** may exceed that expected from a **0.2% flood**.

Integrated Emergency Management System (IEMS)

The application of the **Comprehensive Emergency Management** concept. This program integrates or incorporates all available resources for the full range of hazards and the full range of functions related to the four phases of emergency management (mitigation, preparedness, response, recovery).

Intensity

A measure of the strength of a hazard event at a particular place.

Inundate / Inundation

To cover or be covered by water, especially from a flood as a result of a severe rainstorm, hurricane, or tsunami.

Landslide

Downward movement of a slope and materials under the force of gravity. There are at least four types of landslides, depending on the content and flow characteristics: **Mudslides**; **Rock Slides**; **Slumps**; and **Earthflows**.

Landslide Hazard Map
These maps show the real extent of a landslide threat, combining data about locations where landslides have occurred in the past, where they are likely to occur now, and where they could occur in the future. When compiled accurately, these maps may be used to predict the relative degree of hazard in a landslide area.

Landslide Inventory
The process by which areas that appear to have failed due to landslides, including debris flows and cut-and-fill failures, are identified.

Landslide Susceptibility Map
These maps show areas that have the potential for landslides by correlating some of the principal factors that contribute to landslides (*i.e.*, steep slopes, geologic units that lose strength when saturated, poorly drained rock or soil, slope angle, and soil drainage characteristics) with the past distribution of landslides in those areas.

Lateral Spread
A type of **Liquefaction**, this develops on gentle slopes and entails the sidelong (downhill) movement of large masses of soil as the underlying layer liquefies.

Level of Acceptable Risk
The amount or degree of potential exposure to loss or injury from a hazard event that a jurisdiction has agreed to comply with when planning the future development of that jurisdiction.

Lifeline Systems
Public works and utilities, such as electrical power, gas and liquid fuels, telecommunications, transportation, and water and sewer systems.

Liquefaction
The temporary loss of shear strength in a water-saturated, cohesion-less soil deposit, or temporary transformation of unconsolidated materials into a fluid mass. Liquefaction causes two types of ground failure: **Lateral Spreads** and **Loss of Bearing Strength**.

Local Government
As defined by the **Disaster Mitigation Act of 2000**, this is any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity. In Virginia, by definition from Title 15.2 Section 102 of the COV a “Local Government” is any county, city, or town as the context may require. See also **Community**.

Locality
See **Local Government**.

Loss of Bearing Strength
A type of **Liquefaction**, this results when the soil supporting a structure liquefies, potentially causing the structure to tip and topple.

Lowest Floor Elevation
Under the NFIP, this is the elevation of the lowest floor of the lowest enclosed area of a structure (including a basement). This information is available from an elevation certificate (if the building was constructed after a floodplain management ordinance was in force) or from a recorded subdivision plat, site survey, or building permit.

Magnitude
A measure of the strength of a hazard event. The magnitude (also referred to as "severity") of a given hazard event is usually determined using technical measures specific to the hazard.

Major Disaster
As defined by the Stafford Act, "any natural catastrophe…, or, regardless of cause, any fire, flood, or explosion in any part of the United States, which in the determination of the president causes damage of sufficient severity and magnitude to warrant major disaster assistance under this act to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby."

Managing State
A State to which FEMA has delegated the authority to administer and manage the HMGP under the criteria established by FEMA pursuant to 42 USC 5170c(c). FEMA also may delegate authority to tribal governments to administer and manage the HMGP as a Managing State.

Mitigate
To cause something to become less harsh, hostile, or destructive; to make less severe or painful.

Mitigation
See **Hazard Mitigation**.

Mitigation Measures / Mitigation Strategies
Those actions proposed and/or undertaken by a jurisdiction to minimize future vulnerability to one or more hazards.

Mitigation Planning
A systematic evaluation of the nature and extent of vulnerability to the effects of hazards typically present in a jurisdiction. This process also includes a description of **Mitigation Measures**.

Modified Mercalli Scale
A subjective measure of the strength (**Intensity**) of the shaking experienced in an seismic event. This scale represents the local effect or damage caused by an earthquake. Also known as **Modified Mercalli Intensity**. See also **Peak Ground Acceleration** and **Richter Magnitude Scale**.

Mudslide / Mudflow
Also known as debris flows, this type of **Landslide** is characterized by flows of well-mixed mass of rock, earth, and water that behaves like a fluid and moves down slopes with consistency similar to that of newly mixed concrete.

Municipality
As defined in Title 15.2 Section 102 of the COV this term shall be construed to relate only to **Cities** and **Towns**.

National Flood Insurance Program (NFIP)
A Federal program created by Congress in 1968 that makes flood insurance available in communities that enact the minimum floodplain management regulations defined in 44 CFR §60.3.

National Weather Service (NWS)
A division of the National Oceanographic and Atmospheric Administration (NOAA), the NWS prepares and issues flood, severe weather, and coastal storm warnings and can provide technical assistance to Federal and state entities in preparing weather and flood warning plans.

Natural Hazards
Those events caused by one or more natural occurrences, including hurricanes, tornados, storms, floods, tidal waves, tsunamis, high or wind-driven waters, volcanic eruptions, earthquakes, snowstorms, wildfires, droughts, landslides, and mudslides. While the risks presented by natural hazards may be increased or decreased as a result of human activity, they are not inherently human-induced.

Nor'easter
An **Extratropical Cyclone** producing gale-force winds and precipitation in the form of heavy snow or rain.

Obstruction
In a **Floodplain**, obstructions are bridges, culverts, and other obstacles that can block flood flow and trap debris, causing increased flooding upstream and increased flood velocity downstream.

Occupancy Class
As part of an asset inventory, this is a description of a facility's general use or function. Based on a facility's Occupancy Class, one also may estimate the **Content Value** and **Replacement Value** using tables developed from regional and national averages.

Outflow
In a coastal storm event, this is the flow of flood waters from inundated areas back to the ocean or bay. Outflow can create strong currents, ripping at structures, pounding them with debris, and eroding beaches and coastal structures.

Peak Ground Acceleration (PGA)
A measure of the strength of ground movements in a seismic event. This measures the rate in change of motion relative to the established rate of acceleration due to gravity (g) (9.8 meters/second/second).

Planimetric
Describes a map in which the information on the map is in true geographic relationship (*i.e.*, it is "to scale") with measurable horizontal distances.

Planning
The act or process of making or carrying out plans; specifically, the establishment of goals, policies, and procedures for a social or economic unit.

Planning Committee/Team
The core group of **stakeholders** who will see the hazard mitigation planning process through by setting the plan schedule, organizing the work teams, monitoring progress, and coordinating the review and adoption of the various sections of the plan. This committee should include representatives from the following groups: neighborhood groups and other non-profit organizations; state, regional, and local government representatives; businesses and development organizations; elected officials; Federal agency representatives; and academic institutions. See also **Stakeholder**. (Please refer to the FEMA how-to guide, "Getting Started," Chapter 2 for more information on this topic.)

Preparedness
A condition in which a **Community** is making or has made plans and preparations to strengthen the capability of that community to reduce the impact of, respond to, and recover from a disaster.

Probability
A statistical measure of the likelihood that a hazard event will occur.

Q3 Flood Data

Also known as "Digital Quality Level 3" flood data, these data are a digital representation of certain features on the paper **Flood Insurance Rate Maps**. At present, this data is available on CD-ROM from FEMA for 1,200 counties nationwide. This data is similar to the FIRM data, but does not include hydrographic features (streams, rivers, lakes, and shorelines); base flood elevations; cross-section lines; roads, road names, or address ranges; and locations, elevations, and descriptions of benchmarks and elevation reference marks.

Reconstruction

The long-term process following a disaster of rebuilding a community's destroyed housing stock, commercial and industrial buildings, public facilities, and other structures.

Recovery

The actions taken by an individual or community after a catastrophic event to restore order and lifelines in a community. These may be started during but extend beyond the emergency period to that point when the vast majority of such services, including electricity, water, communications, and public transportation have resumed normal operations. **Short-term recovery** does not include the reconstruction of the built environment (although reconstruction may commence during this period) but primarily focuses on restoring public and utility services. **Long-term recovery** (see **Reconstruction**) is the process of returning the community, to the extent possible, to the conditions that existed prior to the event, preferably while taking advantage of opportunities to mitigate against future disasters.

Recurrence Interval

The time between hazard events of a similar size in a given location. This interval is based on the probability that the given event will be equaled or exceeded in any given year. See also **1% Flood** and **0.2% Flood**.

Regulatory Floodway

As defined under the NFIP, this is the stream channel and that portion of the adjacent floodplain that must remain open to permit passage of the base flood without raising the water surface elevation by more than one foot.

Repetitive Flood Loss (property)

Any property that has had two or more claims greater than $1,000 paid by the NFIP within any 10-year period since 1978.

Replacement Value

As assessed during an asset inventory, this is the current cost of returning a physical asset to its pre-damaged condition. This usually is expressed in terms of cost per square foot and reflects the present-day cost of labor and materials to construct a building of a particular size, type, and quality. See also **Content Value**.

Resource Inventory

An analysis of the resources a community can call upon in the event of an emergency.

Response

Those actions taken during a hazard event to provide emergency assistance by addressing immediate life and safety needs, minimize further damage to properties, and speed **Recovery** immediately following a disaster.

Revetments

Rock or other hardened materials (*e.g.*, concrete blocks) placed atop riverbanks , along shorelines, and on slopes to reduce erosion, temper wave action, and improve stream flow.

Richter Magnitude Scale
A numerical scale of earthquake magnitude devised by seismologist C.F. Richter in 1935. This is the common scale with which most of the public is familiar. See also **Modified Mercalli Scale** and **Peak Ground Acceleration**.

Riprap
See **Revetments**.

Risk
The estimated probability that damage will occur to life, property, or the environment if a hazard event occurs. Risk often is expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage as the result of a hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of a hazard event.

Risk Assessment
A process or method for evaluating risk associated with a specific hazard and defined in terms of hazard probability and frequency of occurrence, magnitude and severity (**Intensity**), exposure, and consequences. See also **Risk**, **Vulnerability**, **Exposure**, and **Probability**.

Riverine
Of or produced by a river.

Rock Slide
A type of **Landslide** characterized by the sudden and rapid slide of bedrock along planes of weakness.

Saffir/Simpson Scale
A system for evaluating the intensity and magnitude of hurricanes, based on wind speed, storm surge, and central pressure. This scale ranges from the weakest (Category 1) to the most powerful (Category 5).

Scale
On a map, this is the proportion used in determining a dimensional relationship. It is the ratio of the distance between two points on a map and the actual distance between those two points on the earth's surface. For example, a scale of 1:24,000 means that every one inch on the map is equal to 24,000 inches on the earth's surface.

Scarp
A steep slope.

Scour
The removal of soil or fill material by the flow of floodwaters. The term frequently is used to describe storm-induced, localized conical erosion around pilings and other foundation supports where the **Obstruction** of flow increases turbulence.

Seismicity
Describes the likelihood of an area being subject to earthquakes.

Slump
A type of **Landslide** characterized by the downward and outward movement of rock or unconsolidated material as unit or as series of units. Also called slope failure.

Special Flood Hazard Area (SFHA)
As defined under the NFIP, this is land in the floodplain within a community subject to a 1 percent or greater chance of flooding in any given year.

Stafford Act
The Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 100-707), signed into law November 23, 1988, amending the Disaster Relief Act of 1974 (P.L. 93-288). The Stafford Act is the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and its programs.

Stakeholder
Individuals or groups that will be affected in any way by an action or policy. They include businesses, private or non-profit organizations, and citizens.

State Hazard Mitigation Officer (SHMO)
The representative of state government who is the primary point of contact with FEMA, other state and federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation programs and activities required under the **Stafford Act**.

Storm Surge
The rise in the water surface above normal water level on the open coast due to the action of wind stress and atmospheric pressure on the water surface. It is usually manifested as water that is pushed toward the shore by the force of the winds swirling around a storm. These large waves of water sweep across the shorelines where a storm makes landfall. The height of the storm surge will be greater the more intense a storm is. Storm surge areas can be mapped by the probability of storm surge occurrence using Sea, Lake, and Overland Surges from Hurricanes (SLOSH) modeling.

Storm Tide
A combination of a storm surge and the normal tide. For example, a 15-foot storm surge along with the normal 2-foot tide creates a storm tide of 17 feet.

Structure
See **Building**.

Structure Loss
Part of the Loss Estimation process, this value represents the structural dollar value loss as a result of damage from the hazard event. This value (for each affected structure) is equal to the **Replacement Value** of the structure multiplied by the percent damage experienced by the structure.

Substantial Damage
Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage.

Surface Faulting
The differential movement of two sides of a fracture; the location where the ground breaks apart. This is characterized by the length, width, and displacement along the fault zone.

Sustainability
The concept and practice in which decisions and actions made by the present generation do not reduce the options of future generations. These decisions and actions allow the present generation to pass on to the following generations a natural, economic, and social environment that will provide a continuing high quality of life.

Sustainable
Able to be continued or maintained at a particular level or intensity without depleting the supporting resource.

Sustainable Community

In addition to embracing the ideals of sustainability, a sustainable community also considers the following issues when planning for and with its citizens: environmental quality and quality of life; disaster resistance; economic vitality and a fair legacy for future generations; an understanding of and accounting for the impact of its actions and policies on adjacent jurisdictions as well as the greater surrounding region and beyond; and an emphasis on combining policies, programs, and design solutions that bring about multiple objectives and seek to address and integrate social and environmental concerns.

Technological Hazard

See "Hazard", above.

Tectonic Plate

Torsionally rigid, thin segments of the earth's lithosphere that may be assumed to move horizontally and adjoin other plates. It is the friction between plate boundaries that cause seismic activity. See also **Earthquake**.

Topographic

Describes a map that shows natural features and indicate the physical shape of the land using contour lines. These maps also may include human-made features.

Tornado

A violently rotating column of air extending from a thunderstorm to the ground.

Town

As defined by Title 15.2 Section 102 of the COV this is any existing town or an incorporated community within one or more counties that became a town before noon, July 1, 1971, as provided by law or that has within defined boundaries a population of 1,000 or more and that has become a town as provided by law.

Tropical Cyclone

A generic term for a cyclonic, low-pressure system over tropical or sub-tropical waters.

Tropical Depression

A tropical cyclone with maximum sustained winds of less than 39 mph.

Tropical Storm

A tropical cyclone with maximum sustained winds greater than 39 miles per hour and less than 74 miles per hour.

Tsunami

A great sea wave produced by submarine earth movement or volcanic eruption.

Urban Growth Boundary (UGB)

A politically defined boundary that defines the limits of an urban growth area in an attempt to concentrate growth within a designated area, typically an area where urbanization already is prevalent.

Urban Service Boundary (USB)

A politically defined boundary beyond which public utilities will not be extended. This boundary is determined and enacted by a locality in an attempt to temper and manage urban growth in sensitive and vulnerable areas by limiting the extension of city utilities into undeveloped areas.

Urban Wildfire

A fire moving from a wildland environment, consuming vegetation as fuel, to an urban environment where the fuel consists primarily of buildings and other structures.

Urban/Wildland Interface

A developed area occupying the boundary between an urban or settled area and a wildland characterized by vegetation that can serve as fuel for a forest fire.

Velocity

The speed of a moving object, usually measured in miles per hour, kilometers per hour, feet per second, or meters per second.

Vulnerability

The level or degree of exposure of human life and property to damage from natural or human-caused hazards.

Vulnerability Assessment

The analysis and determination of the overall vulnerability of the population and property in a specified area to possible injury and damage that may result from a hazard event of a given intensity. This assessment analyzes the impact of hazard events on both the existing and future population and built environment.

Wave Height

The height of a wave above the mean water surface level of a lake or ocean.

Wave Runup

The distance or height up to which a wave extends on a steep shoreline, as measured relative to a reference level such as the normal height of the sea.

Wildfire

An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.

Wildland Fire

A **Wildfire** in an area in which development is essentially nonexistent, except for roads, power lines, railroads, and other similar features.

Zone

A geographical area shown on a **Flood Insurance Rate Map (FIRM)** that reflects the severity or type of flooding in that area. Flood zones may be classified as A, AE, AO, AH, A99, AR, V, VE, B, C, D, or X. The characteristics of these zones are described on the FIRM.

Appendix C

Federal Emergency Management Agency

44 CFR Parts 201 and 206

Hazard Mitigation Planning and Hazard Mitigation Grant Program; Interim Final Rule

Federal Register

Tuesday,
February 26, 2002

Part III

Federal Emergency Management Agency

44 CFR Parts 201 and 206

Hazard Mitigation Planning and Hazard Mitigation Grant Program; Interim Final Rule

FEDERAL EMERGENCY MANAGEMENT AGENCY

44 CFR Parts 201 and 206

RIN 3067–AD22

Hazard Mitigation Planning and Hazard Mitigation Grant Program

AGENCY: Federal Emergency Management Agency.

ACTION: Interim final rule.

SUMMARY: This rule addresses State mitigation planning, identifies new local mitigation planning requirements, authorizes Hazard Mitigation Grant Program (HMGP) funds for planning activities, and increases the amount of HMGP funds available to States that develop a comprehensive, enhanced mitigation plan. This rule also requires that repairs or construction funded by a disaster loan or grant must be carried out in accordance with applicable standards and says that FEMA may require safe land use and construction practices as a condition of grantees receiving disaster assistance under the Stafford Act.

DATES: *Effective Date:* February 26, 2002.

Comment Date: We will accept written comments through April 29, 2002.

ADDRESSES: Please send written comments to the Rules Docket Clerk, Office of the General Counsel, Federal Emergency Management Agency, 500 C Street, SW., room 840, Washington, DC 20472, (facsimile) 202–646–4536, or (email) *rules@fema.gov.*

FOR FURTHER INFORMATION CONTACT: Margaret E. Lawless, Federal Insurance and Mitigation Administration, Federal Emergency Management Agency, 500 C Street, SW., Washington, DC, 20472, 202–646–3027, (facsimile) 202–646–3104, or (email) *margaret.lawless@fema.gov.*

SUPPLEMENTARY INFORMATION:

Introduction

Throughout the preamble and the rule the terms ''we'', ''our'' and ''us'' refer to FEMA.

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S.C. 5165, enacted under § 104 the Disaster Mitigation Act of 2000, (DMA 2000) P.L. 106–390, provides new and revitalized approaches to mitigation planning. This section: (1) Continues the requirement for a Standard State Mitigation plan as a condition of disaster assistance; (2) provides for States to receive an increased percentage of HMGP funds (from 15 to 20 percent of the total estimated eligible Federal assistance) if, at the time of the declaration of a major disaster, they have in effect a FEMA-approved Enhanced State Mitigation Plan that meets the factors listed in this rule; (3) establishes a new requirement for local mitigation plans; and (4) authorizes up to 7 percent of the HMGP funds available to a State to be used for development of State, tribal, and local mitigation plans. We will give Indian tribal governments the opportunity to fulfill the requirements of § 322 either as a grantee or a subgrantee. An Indian tribal government may choose to apply for HMGP funding directly to us and would then serve as a grantee, meeting the State level responsibilities, or it may apply through the State, meeting the local government or subgrantee responsibilities.

Section 322, in concert with other sections of the Act, provides a significant opportunity to reduce the Nation's disaster losses through mitigation planning. In addition, implementation of planned, pre-identified, cost-effective mitigation measures will streamline the disaster recovery process. The Act provides a framework for linking pre- and post-disaster mitigation planning and initiatives with public and private interests to ensure an integrated, comprehensive approach to disaster loss reduction. The language in the Act, taken as a whole, emphasizes the importance of strong State and local planning processes and comprehensive program management at the State level. The new planning criteria also support State administration of the HMGP, and contemplate a significant State commitment to mitigation activities, comprehensive State mitigation planning, and strong program management.

The planning process also provides a link between State and local mitigation programs. Both State level and local plans should address strategies for incorporating post-disaster early mitigation implementation strategies and sustainable recovery actions. We also recognize that governments are involved in a range of planning activities and that mitigation plans may be linked to or reference hazardous materials and other non-natural hazard plans. Improved mitigation planning will result in a better understanding of risks and vulnerabilities, as well as to expedite implementation of measures and activities to reduce those risks, both pre- and post-disaster.

Section 409 of the Stafford Act, 42 U.S.C. 5176, which required mitigation plans and the use of minimum codes and standards, was repealed by the DMA 2000. These issues are now addressed in two separate sections of the law: mitigation planning is in section 322 of the Act, and minimum codes and standards are in section 323 of the Act. We previously implemented section 409 through 44 CFR Part 206, Subpart M. Since current law now distinguishes the planning from the codes and standards in separate sections, we will address them in different sections of the CFR. We address the new planning regulations in Part 201 to reflect the broader relevance of planning to all FEMA mitigation programs, while the minimum standards remain in Part 206, Federal Disaster Assistance, Subpart M. The regulations implementing the Hazard Mitigation Grant Program are in Part 206, Subpart N. This rule also contains changes to Subpart N, to reflect the new planning criteria identified in section 322 of the Act.

The administration is considering changes to FEMA's mitigation programs in the President's Budget for FY 2003. However, States and localities still would be required to have plans in effect, which meet the minimum requirements under this rule, as a condition of receiving mitigation assistance after November 1, 2003.

Implementation Strategy. States must have an approved hazard mitigation plan in order to receive Stafford Act assistance, excluding assistance provided pursuant to emergency provisions. These regulations provide criteria for the new two-tiered State mitigation plan process: Standard State Mitigation Plans, which allow a State to receive HMGP funding based on 15 percent of the total estimated eligible Stafford Act disaster assistance, and Enhanced State Mitigation Plans, which allow a State to receive HMGP funds based on 20 percent of the total estimated eligible Stafford Act disaster assistance. Enhanced State Mitigation Plans must demonstrate that the State has developed a comprehensive mitigation program, that it effectively uses available mitigation funding, and that it is capable of managing the increased funding. All State Mitigations Plans must be reviewed, revised, and re-approved by FEMA every three years. An important requirement of the legislation is that we must approve a completed enhanced plan *before* a disaster declaration, in order for the State to be eligible for the increased funding.

We will no longer require States to revise their mitigation plan after every disaster declaration, as under former

section 409 of the Act, 42 U.S.C. 5176. We recommend, however, that States consider revising their plan if a disaster or other circumstances significantly affect its mitigation priorities. States with existing mitigation plans, approved under former section 409, will continue to be eligible for the 15 percent HMGP funding until November 1, 2003, when all State mitigation plans must meet the requirements of these regulations. If State plans are not revised and approved to meet the Standard State Mitigation Plan requirements by that time, they will be ineligible for Stafford Act assistance, excluding emergency assistance.

Indian tribal governments may choose to apply directly to us for HMGP funding, and would therefore be responsible for having an approved State level mitigation plan, and would act as the grantee. If an Indian tribal government chooses to apply for HMGP grants through the State, they would be responsible for having an approved local level mitigation plan, and would serve as a subgrantee accountable to the State as grantee.

This rule also establishes local planning criteria so that these jurisdictions can actively begin the hazard mitigation planning process. This requirement is to encourage the development of comprehensive mitigation plans before disaster events. Section 322 requires local governments to have an approved local mitigation plan to be eligible to receive an HMGP project grant; however, this requirement will not fully take effect until November 1, 2003. FEMA Regional Directors may grant an exception to this requirement in extenuating circumstances. Until November 1, 2003, local governments will be able to receive HMGP project grant funds and may prepare a mitigation plan concurrently with implementation of their project grant. We anticipate that the Predisaster Mitigation program authorized by section 203 of the Act, 42 U.S.C. 5133, will also support this local mitigation planning by making funds available for the development of comprehensive local mitigation plans. Managing States that we approve under new criteria established under section 404 of the Act, 42 U.S.C. 5170c(c), as amended by section 204 of DMA 2000 will have approval authority for local mitigation plans. This provision does not apply to States that we approved under the Managing State program in effect before enactment of DMA 2000.

Our goal is for State and local governments to develop comprehensive and integrated plans that are coordinated through appropriate State, local, and regional agencies, as well as non-governmental interest groups. To the extent feasible and practicable, we would also like to consolidate the planning requirements for different FEMA mitigation programs. This will ensure that one local plan will meet the minimum requirements for all of the different FEMA mitigation programs, such as the Flood Mitigation Assistance Program (authorized by sections 553 and 554 of the National Flood Insurance Reform Act of 1994, 42 U.S.C. 4104c and 42 U.S.C. 4104d), the Community Rating System (authorized by section 541 of the National Flood Insurance Reform Act of 1994, 42 U.S.C. 4022), the Pre-Disaster Mitigation Program (authorized by section 203 of the Stafford Act), the Hazard Mitigation Grant Program (authorized by section 404 of the Stafford Act), and the mitigation activities that are based upon the provisions of section 323 and subsections 406(b) and (e) of the Stafford Act. The mitigation plans may also serve to integrate documents and plans produced under other emergency management programs. State level plans should identify overall goals and priorities, incorporating the more specific local risk assessments, when available, and including projects identified through the local planning process.

Under section 322(d), up to 7 percent of the available HMGP funds may now be used for planning, and we encourage States to use these funds for local plan development. In a memorandum to FEMA Regional Directors dated December 21, 2000, we announced that this provision of section 322 was effective for disasters declared on or after October 30, 2000, the date on which the Disaster Mitigation Act of 2000 became law. Regional Directors are encouraging States to make these funds immediately available to local and Indian tribal governments, although the funds can be used for plan development and review at the State level as well.

As discussed earlier in this Supplementary Information, subsection 323(a) of the Stafford Act, 42 U.S.C. 5166(a), requires as a precondition to receiving disaster assistance under the Act that State and local governments, as well as eligible private nonprofit entities, must agree to carry out repair and reconstruction activities ''in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards.'' In addition, that subsection authorizes the President (FEMA, by virtue of Executive Order 12148, as amended) to ''require safe land use and construction practices, after adequate consultation with appropriate State and local officials'' in the course of the use of Federal disaster assistance by eligible applicants to repair and restore disaster-damaged facilities.

At the same time that we implement the planning mandates of section 322 of the Stafford Act, we are also implementing the Minimum Standards for Public and Private Structures provision of section 323 of the Act. This rule appears at Subpart M of Part 206 of Title 44 of the Code of Federal Regulations. As mentioned earlier, the section 322 planning regulations are in Part 201, while Part 206, Subpart M includes only the minimum codes and standards regulations mandated in § 323. The rule to implement § 323 of the Act reinforces the link between pre-disaster planning, building and construction standards, and post-disaster reconstruction efforts.

We encourage comments on this interim final rule, and we will make every effort to involve all interested parties prior to the development of the Final Rule.

Justification for Interim Final Rule

In general, FEMA publishes a rule for public comment before issuing a final rule, under the Administrative Procedure Act, 5 U.S.C. 533 and 44 CFR 1.12. The Administrative Procedure Act, however, provides an exception from that general rule where the agency for good cause finds the procedures for comment and response contrary to public interest. Section 322 of the Stafford Act allows States to receive increased post-disaster grant funding for projects designed to reduce future disaster losses. States will only be eligible for these increased funds if they have a FEMA-approved Enhanced State Mitigation Plan.

This interim final rule provides the criteria for development and approval of these plans, as well as criteria for local mitigation plans required by this legislation. In order for State and local governments to be positioned to receive these mitigation funds as soon as possible, these regulations must be in effect. The public benefit of this rule will be to assist States and communities assess their risks and identify activities to strengthen the larger community and the built environment in order to become less susceptible to disasters. Planning serves as the vital foundation to saving lives and protecting properties, having integrated plans in place can serve to both streamline recovery efforts and lessen potential future damages. Therefore, we believe it is contrary to the public interest to delay

the benefits of this rule. In accordance with the Administrative Procedure Act, 5 U.S.C. 553(d)(3), we find that there is good cause for the interim final rule to take effect immediately upon publication in the **Federal Register** in order to meet the needs of States and communities by identifying criteria for mitigation plans in order to reduce risks nationwide, establish criteria for minimum codes and standards in post-disaster reconstruction, and to allow States to adjust their mitigation plans to receive the increase in mitigation funding.

In addition, we believe that, under the circumstances, delaying the effective date of this rule until after the comment period would not further the public interest. Prior to this rulemaking, FEMA hosted a meeting where interested parties provided comments and suggestions on how we could implement these planning requirements. Participants in this meeting included representatives from the National Emergency Management Association, the Association of State Floodplain Managers, the National Governors' Association, the International Association of Emergency Managers, the National Association of Development Organizations, the American Public Works Association, the National League of Cities, the National Association of Counties, the National Conference of State Legislatures, the International City/County Management Association, and the Bureau of Indian Affairs. We took comments and suggestions provided at this meeting into account in developing this interim final rule. Therefore, we find that prior notice and comment on this rule would not further the public interest. We actively encourage and solicit comments on this interim final rule from interested parties, and we will consider them in preparing the final rule. For these reasons, we believe we have good cause to publish an interim final rule.

National Environmental Policy Act

44 CFR 10.8(d)(2)(ii) excludes this rule from the preparation of an environmental assessment or environmental impact statement, where the rule relates to actions that qualify for categorical exclusion under 44 CFR 10.8(d)(2)(iii), such as the development of plans under this section.

Executive Order 12866, Regulatory Planning and Review

We have prepared and reviewed this rule under the provisions of E.O. 12866, Regulatory Planning and Review. Under Executive Order 12866, 58 FR 51735, October 4, 1993, a significant regulatory action is subject to OMB review and the requirements of the Executive Order. The Executive Order defines ''significant regulatory action'' as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

The purpose of this rule is to implement section 322 of the Stafford Act which addresses mitigation planning at the State, tribal, and local levels, identifies new local planning requirements, allows Hazard Mitigation Grant Program (HMGP) funds for planning activities, and increases the amount of HMGP funds available to States that develop a comprehensive, enhanced mitigation plan. The rule identifies local mitigation planning requirements before approval of project grants, and requires our approval of an Enhanced State Mitigation plan as a condition for increased mitigation funding. The rule also implements section 323 of the Stafford Act, which requires that repairs or construction funded by disaster loans or grants must comply with applicable standards and safe land use and construction practices. As such the rule itself will not have an effect on the economy of more than $100,000,000.

Therefore, this rule is a significant regulatory action and is not an economically significant rule under Executive Order 12866. The Office of Management and Budget (OMB) has reviewed this rule under Executive Order 12866.

Executive Order 12898, Environmental Justice

Under Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629, February 16, 1994, we incorporate environmental justice into our policies and programs. The Executive Order requires each Federal agency to conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that those programs, policies, and activities do not have the effect of excluding persons from participation in our programs, denying persons the benefits of our programs, or subjecting persons to discrimination because of their race, color, or national origin.

No action that we can anticipate under the final rule will have a disproportionately high or adverse human health and environmental effect on any segment of the population. Section 322 focuses specifically on mitigation planning to: Identify the natural hazards, risks, and vulnerabilities of areas in States, localities, and tribal areas; support development of local mitigation plans; provide for technical assistance to local and tribal governments for mitigation planning; and identify and prioritize mitigation actions that the State will support, as resources become available. Section 323 requires compliance with applicable codes and standards in repair and construction, and use of safe land use and construction standards. Accordingly, the requirements of Executive Order 12898 do not apply to this interim final rule.

Paperwork Reduction Act of 1995

As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) and concurrent with the publication of this interim final rule, we have submitted a request for review and approval of a new collection of information, which is contained in this interim final rule. Under the Paperwork Reduction Act of 1995, a person may not be penalized for failing to comply with an information collection that does not display a currently valid Office of Management and Budget (OMB) control number. The request was submitted to OMB for approval under the emergency processing procedures in OMB regulation 5 CFR 1320.1. OMB has approved this collection of information for use through August 31, 2002, under OMB Number 3067–0297.

We expect to follow this emergency request with a request for OMB approval to continue the use of the collection of information for a term of three years. The request will be processed under OMB's normal clearance procedures in accordance with provisions of OMB regulation 5 CFR 1320.10. To help us with the timely processing of the emergency and normal clearance submissions to OMB, we invite the general public to comment on the collection of information. This notice and request for comments complies with the provisions of the Paperwork

Reduction Act of 1995 (44 U.S.C. 3506(c)(2)(A)).

Collection of Information

Title: State/Local/Tribal Hazard Mitigation Plans under Section 322 of the Disaster Mitigation Act of 2000.

Abstract: Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistant Act, as amended by Section 104 of the Disaster Mitigation Act of 2000, provides new and revitalized approaches to mitigation planning. To obtain Federal assistance, new planning provisions require that each state, local, and tribal government prepare a hazard mitigation plan to include sections that describe the planning process, an assessment of the risks, a mitigation strategy, and identification of the plan maintenance and updating process. The Act provides a framework for linking pre- and post-disaster mitigation planning and initiatives with public and private interests to ensure an integrated, comprehensive approach to disaster loss reduction. Under Section 322 there is a two-tiered State mitigation plan process. State mitigation plans must be reviewed, revised, and submitted to us every 3 years.

(1) A *Standard State Mitigation Plan* must be approved by us in order for States to be eligible to receive Hazard Mitigation Grant Program (HGMP) funding based on 15 percent of the total estimated eligible Federal disaster assistance. This plan demonstrates the State's goals, priorities, and commitment to reduce risks from natural hazards and serves as a guide for State and local decision makers as they commit resources to reducing the effects of natural hazards.

(2) An *Enhanced State Mitigation Plan* must be approved by us for a State to be eligible to receive HMGP funds based on 20 percent of the total estimated eligible Federal disaster assistance. This plan must be approved by us within the 3 years prior to the current major disaster declaration. It must demonstrate that a State has developed a comprehensive mitigation program, is effectively using available mitigation funding, and is capable of managing the increased funding.

To be eligible to receive HMGP project grants, *local governments* must develop Local Mitigation Plans that include a risk assessment and mitigation strategy to reduce potential losses and target resources. Plans must be reviewed, revised, and submitted to us for approval every 5 years.

To receive HMGP project grants, *tribal governments* may apply as a grantee or subgrantee, and will be required to meet the planning requirements of a State or local government.

Estimated Total Annual Burden:

Type of collection/forms	No. of respondents	Hours per response	Annual burden hours
Update state or tribal mitigation plans (standard state mitigation plans)	18	320	5,760
State review of local plans	500 local plans	8	4,000
States develop Enhanced State Mitigation Plans	7	100	700
Local or tribal governments develop mitigation plans	500 local plans	300	150,000
Total burden			160,460

Comments: We are soliciting written comments to: (a) Evaluate whether the proposed data collection is necessary for the proper performance of the agency, including whether the information shall have practical utility; (b) evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information; (c) obtain recommendations to enhance the quality, utility, and clarity of the information to be collected; and (d) evaluate the extent to which automated, electronic, mechanical, or other technological collection techniques may further reduce the respondents' burden. FEMA will accept comments through April 29, 2002.

Addressee: Interested persons should submit written comments to Muriel B. Anderson, Chief, Records Management Section, Program Services and Systems Branch, Facilities Management and Services Division, Administration and Resource Planning Directorate, Federal Emergency Management Agency, 500 C Street, Street, SW., Washington, DC 20472.

FOR FURTHER INFORMATION CONTACT: You may obtain copies of the OMB paperwork clearance package by contacting Ms. Anderson at (202) 646–2625 (voice), (202) 646–3347 (facsimile), or by e-mail at *muriel.anderson@fema.gov.*

Executive Order 13132, Federalism

Executive Order 13132, Federalism, dated August 4, 1999, sets forth principles and criteria that agencies must adhere to in formulating and implementing policies that have federalism implications, that is, regulations that have substantial direct effects on the States, or on the distribution of power and responsibilities among the various levels of government. Federal agencies must closely examine the statutory authority supporting any action that would limit the policymaking discretion of the States, and to the extent practicable, must consult with State and local officials before implementing any such action.

We have reviewed this rule under E.O.13132 and have concluded that the rule does not have federalism implications as defined by the Executive Order. We have determined that the rule does not significantly affect the rights, roles, and responsibilities of States, and involves no preemption of State law nor does it limit State policymaking discretion.

However, we have consulted with State and local officials. In order to assist us in the development of this rule, we hosted a meeting to allow interested parties an opportunity to provide their perspectives on the legislation and options for implementation of § 322. Stakeholders who attended the meeting included representatives from the National Emergency Management Association, the Association of State Floodplain Managers, the National Governors' Association, the International Association of Emergency Managers, the National Association of Development Organizations, the American Public Works Association, the National League of Cities, the National Association of Counties, the National Conference of State Legislatures, the International City/County Management Association, and the Bureau of Indian Affairs. We received valuable input from all parties at the meeting, which we took into account in the development of this rule. Additionally, we actively encourage and solicit comments on this interim final rule from interested parties, and we will

consider them in preparing the final rule.

Executive Order 13175, Consultation and Coordination With Indian Tribal Governments

We have reviewed this interim final rule under Executive Order 13175, which became effective on February 6, 2001. Under the Hazard Mitigation Grant Program (HMGP), Indian tribal governments will have the option to apply for grants directly to us and to serve as ''grantee'', carrying out ''State'' roles. If they choose this option, tribal governments may submit either a State-level Standard Mitigation Plan for the 15 percent HMGP funding or a State-level Enhanced Mitigation Plan for 20 percent HMGP funding. In either case, Indian tribal governments would be able to spend up to 7 percent of those funds on planning. Before developing this rule, we met with representatives from State and local governments and the Bureau of Indian Affairs, to discuss the new planning opportunities and requirements of § 322 of the Stafford Act. We received valuable input from all parties, which helped us to develop this interim final rule.

In reviewing the interim final rule, we find that it does not have ''tribal implications'' as defined in Executive Order 13175 because it will not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. Moreover, the interim final rule does not impose substantial direct compliance costs on tribal governments, nor does it preempt tribal law, impair treaty rights or limit the self-governing powers of tribal governments.

Congressional Review of Agency Rulemaking

We have sent this interim final rule to the Congress and to the General Accounting Office under the Congressional Review of Agency Rulemaking Act, Public Law 104–121. The rule is a not ''major rule'' within the meaning of that Act. It is an administrative action in support of normal day-to-day mitigation planning activities required by section 322 and compliance under section 323 of the Stafford Act, as enacted in DMA 2000.

The rule will not result in a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. It will not have ''significant adverse effects'' on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises. This final rule is subject to the information collection requirements of the Paperwork Reduction Act, and OMB has assigned Control No. 3067–0297. The rule is not an unfunded Federal mandate within the meaning of the Unfunded Mandates Reform Act of 1995, Public Law 104–4, and any enforceable duties that we impose are a condition of Federal assistance or a duty arising from participation in a voluntary Federal program.

List of Subjects in 44 CFR Part 201 and Part 206

Administrative practice and procedure, Disaster assistance, Grant programs, Mitigation planning, Reporting and recordkeeping requirements.

Accordingly, Amend 44 CFR, Subchapter D—Disaster Assistance, as follows:

1. Add Part 201 to read as follows:

PART 201—MITIGATION PLANNING

Sec.
201.1 Purpose.
201.2 Definitions.
201.3 Responsibilities.
201.4 Standard State Mitigation Plans.
201.5 Enhanced State Mitigation Plans.
201.6 Local Mitigation Plans.

Authority: Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5206; Reorganization Plan No. 3 of 1978, 43 FR 41943, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376; E.O. 12148, 44 FR 43239, 3 CFR, 1979 Comp., p. 412; and E.O. 12673, 54 FR 12571, 3 CFR, 1989 Comp., p. 214.

§ 201.1 Purpose.

(a) The purpose of this part is to provide information on the polices and procedures for mitigation planning as required by the provisions of section 322 of the Stafford Act, 42 U.S.C. 5165.

(b) The purpose of mitigation planning is for State, local, and Indian tribal governments to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

§ 201.2 Definitions.

Grantee means the government to which a grant is awarded, which is accountable for the use of the funds provided. The grantee is the entire legal entity even if only a particular component of the entity is designated in the grant award document. Generally, the State is the grantee. However, after a declaration, an Indian tribal government may choose to be a grantee, or may act as a subgrantee under the State. An Indian tribal government acting as grantee will assume the responsibilities of a ''state'', as described in this part, for the purposes of administering the grant.

Hazard mitigation means any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

Hazard Mitigation Grant Program means the program authorized under section 404 of the Stafford Act, 42 U.S.C 5170c and implemented at 44 CFR Part 206, Subpart N, which authorizes funding for certain mitigation measures identified through the evaluation of natural hazards conducted under section 322 of the Stafford Act 42 U.S.C 5165.

Indian tribal government means any Federally recognized governing body of an Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of Interior acknowledges to exist as an Indian tribe under the Federally Recognized Tribe List Act of 1994, 25 U.S.C. 479a. This does not include Alaska Native corporations, the ownership of which is vested in private individuals.

Local government is any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.

Managing State means a State to which FEMA has delegated the authority to administer and manage the HMGP under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c). FEMA may also delegate authority to tribal governments to administer and manage the HMGP as a Managing State.

Regional Director is a director of a regional office of FEMA, or his/her designated representative.

Small and impoverished communities means a community of 3,000 or fewer individuals that is identified by the State as a rural community, and is not a remote area within the corporate boundaries of a larger city; is economically disadvantaged, by having an average per capita annual income of residents not exceeding 80 percent of national, per capita income, based on

best available data; the local unemployment rate exceeds by one percentage point or more, the most recently reported, average yearly national unemployment rate; and any other factors identified in the State Plan in which the community is located.

The Stafford Act refers to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93–288, as amended (42 U.S.C. 5121–5206).

State is any State of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

State Hazard Mitigation Officer is the official representative of State government who is the primary point of contact with FEMA, other Federal agencies, and local governments in mitigation planning and implementation of mitigation programs and activities required under the Stafford Act.

Subgrantee means the government or other legal entity to which a subgrant is awarded and which is accountable to the grantee for the use of the funds provided. Subgrantees can be a State agency, local government, private non-profit organizations, or Indian tribal government. Indian tribal governments acting as a subgrantee are accountable to the State grantee.

§ 201.3 Responsibilities.

(a) *General.* This section identifies the key responsibilities of FEMA, States, and local/tribal governments in carrying out section 322 of the Stafford Act, 42 U.S.C. 5165.

(b) *FEMA.* The key responsibilities of the Regional Director are to:

(1) Oversee all FEMA related pre- and post-disaster hazard mitigation programs and activities;

(2) Provide technical assistance and training to State, local, and Indian tribal governments regarding the mitigation planning process;

(3) Review and approve all Standard and Enhanced State Mitigation Plans;

(4) Review and approve all local mitigation plans, unless that authority has been delegated to the State in accordance with § 201.6(d);

(5) Conduct reviews, at least once every three years, of State mitigation activities, plans, and programs to ensure that mitigation commitments are fulfilled, and when necessary, take action, including recovery of funds or denial of future funds, if mitigation commitments are not fulfilled.

(c) *State.* The key responsibilities of the State are to coordinate all State and local activities relating to hazard evaluation and mitigation and to:

(1) Prepare and submit to FEMA a Standard State Mitigation Plan following the criteria established in § 201.4 as a condition of receiving Stafford Act assistance (except emergency assistance).

(2) In order to be considered for the 20 percent HMGP funding, prepare and submit an Enhanced State Mitigation Plan in accordance with § 201.5, which must be reviewed and updated, if necessary, every three years from the date of the approval of the previous plan.

(3) At a minimum, review and, if necessary, update the Standard State Mitigation Plan by November 1, 2003 and every three years from the date of the approval of the previous plan in order to continue program eligibility.

(4) Make available the use of up to the 7 percent of HMGP funding for planning in accordance with § 206.434.

(5) Provide technical assistance and training to local governments to assist them in applying for HMGP planning grants, and in developing local mitigation plans.

(6) For Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c), review and approve local mitigation plans in accordance with § 201.6(d).

(d) *Local governments.* The key responsibilities of local governments are to:

(1) Prepare and adopt a jurisdiction-wide natural hazard mitigation plan as a condition of receiving project grant funds under the HMGP, in accordance with § 201.6.

(2) At a minimum, review and, if necessary, update the local mitigation plan every five years from date of plan approval to continue program eligibility.

(e) *Indian tribal governments.* Indian tribal governments will be given the option of applying directly to us for Hazard Mitigation Grant Program funding, or they may choose to apply through the State. If they apply directly to us, they will assume the responsibilities of the State, or grantee, and if they apply through the State, they will assume the responsibilities of the local government, or subgrantee.

§ 201.4 Standard State Mitigation Plans.

(a) *Plan requirement.* By November 1, 2003, States must have an approved Standard State Mitigation plan meeting the requirements of this section, in order to receive assistance under the Stafford Act, although assistance authorized under disasters declared prior to November 1, 2003 will continue to be made available. In any case, emergency assistance provided under 42 U.S.C. 5170a, 5170b, 5173, 5174, 5177, 5179, 5180, 5182, 5183, 5184, 5192 will not be affected. The mitigation plan is the demonstration of the State's commitment to reduce risks from natural hazards and serves as a guide for State decision makers as they commit resources to reducing the effects of natural hazards. States may choose to include the requirements of the HMGP Administrative Plan in their mitigation plan.

(b) *Planning process.* An effective planning process is essential in developing and maintaining a good plan. The mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.

(c) *Plan content.* To be effective the plan must include the following elements:

(1) Description of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated.

(2) *Risk assessments* that provide the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide risk assessments must characterize and analyze natural hazards and risks to provide a statewide overview. This overview will allow the State to compare potential losses throughout the State and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessments. The risk assessment shall include the following:

(i) An overview of the type and location of all natural hazards that can affect the State, including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate;

(ii) An overview and analysis of the State's vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State risk assessment. The State shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State owned critical or operated facilities located in the

identified hazard areas shall also be addressed;

(iii) An overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in local risk assessments as well as the State risk assessment. The State shall estimate the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.

(3) A *Mitigation Strategy* that provides the State's blueprint for reducing the losses identified in the risk assessment. This section shall include:

(i) A description of State goals to guide the selection of activities to mitigate and reduce potential losses.

(ii) A discussion of the State's pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of State laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas; a discussion of State funding capabilities for hazard mitigation projects; and a general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities.

(iii) An identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section should be linked to local plans, where specific local actions and projects are identified.

(iv) Identification of current and potential sources of Federal, State, local, or private funding to implement mitigation activities.

(4) A section on the *Coordination of Local Mitigation Planning* that includes the following:

(i) A description of the State process to support, through funding and technical assistance, the development of local mitigation plans.

(ii) A description of the State process and timeframe by which the local plans will be reviewed, coordinated, and linked to the State Mitigation Plan.

(iii) Criteria for prioritizing communities and local jurisdictions that would receive planning and project grants under available funding programs, which should include consideration for communities with the highest risks, repetitive loss properties, and most intense development pressures. Further, that for non-planning grants, a principal criterion for prioritizing grants shall be the extent to which benefits are maximized according to a cost benefit review of proposed projects and their associated costs.

(5) A *Plan Maintenance Process* that includes:

(i) An established method and schedule for monitoring, evaluating, and updating the plan.

(ii) A system for monitoring implementation of mitigation measures and project closeouts.

(iii) A system for reviewing progress on achieving goals as well as activities and projects identified in the Mitigation Strategy.

(6) A *Plan Adoption Process.* The plan must be formally adopted by the State prior to submittal to us for final review and approval.

(7) *Assurances.* The plan must include assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).

(d) *Review and updates.* Plan must be reviewed and revised to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities and resubmitted for approval to the appropriate Regional Director every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible. We also encourage a State to review its plan in the post-disaster timeframe to reflect changing priorities, but it is not required.

§ 201.5 Enhanced State Mitigation Plans.

(a) A State with a FEMA approved Enhanced State Mitigation Plan at the time of a disaster declaration is eligible to receive increased funds under the HMGP, based on twenty percent of the total estimated eligible Stafford Act disaster assistance. The Enhanced State Mitigation Plan must demonstrate that a State has developed a comprehensive mitigation program, that the State effectively uses available mitigation funding, and that it is capable of managing the increased funding. In order for the State to be eligible for the 20 percent HMGP funding, FEMA must have approved the plan within three years prior to the disaster declaration.

(b) Enhanced State Mitigation Plans must include all elements of the Standard State Mitigation Plan identified in § 201.4, as well as document the following:

(1) Demonstration that the plan is integrated to the extent practicable with other State and/or regional planning initiatives (comprehensive, growth management, economic development, capital improvement, land development, and/or emergency management plans) and FEMA mitigation programs and initiatives that provide guidance to State and regional agencies.

(2) Documentation of the State's project implementation capability, identifying and demonstrating the ability to implement the plan, including:

(i) Established eligibility criteria for multi-hazard mitigation measures.

(ii) A system to determine the cost effectiveness of mitigation measures, consistent with OMB Circular A–94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, and to rank the measures according to the State's eligibility criteria.

(iii) Demonstration that the State has the capability to effectively manage the HMGP as well as other mitigation grant programs, including a record of the following:

(A) Meeting HMGP and other mitigation grant application timeframes and submitting complete, technically feasible, and eligible project applications with appropriate supporting documentation;

(B) Preparing and submitting accurate environmental reviews and benefit-cost analyses;

(C) Submitting complete and accurate quarterly progress and financial reports on time; and

(D) Completing HMGP and other mitigation grant projects within established performance periods, including financial reconciliation.

(iv) A system and strategy by which the State will conduct an assessment of the completed mitigation actions and include a record of the effectiveness (actual cost avoidance) of each mitigation action.

(3) Demonstration that the State effectively uses existing mitigation programs to achieve its mitigation goals.

(4) Demonstration that the State is committed to a comprehensive state mitigation program, which might include any of the following:

(i) A commitment to support local mitigation planning by providing workshops and training, State planning grants, or coordinated capability development of local officials, including Emergency Management and Floodplain Management certifications.

(ii) A statewide program of hazard mitigation through the development of legislative initiatives, mitigation councils, formation of public/private

partnerships, and/or other executive actions that promote hazard mitigation.

(iii) The State provides a portion of the non-Federal match for HMGP and/or other mitigation projects.

(iv) To the extent allowed by State law, the State requires or encourages local governments to use a current version of a nationally applicable model building code or standard that addresses natural hazards as a basis for design and construction of State sponsored mitigation projects.

(v) A comprehensive, multi-year plan to mitigate the risks posed to existing buildings that have been identified as necessary for post-disaster response and recovery operations.

(vi) A comprehensive description of how the State integrates mitigation into its post-disaster recovery operations.

(c) *Review and updates.* (1) A State must review and revise its plan to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities, and resubmit it for approval to the appropriate Regional Director every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible.

(2) In order for a State to be eligible for the 20 percent HMGP funding, the Enhanced State Mitigation plan must be approved by FEMA within the three years prior to the current major disaster declaration.

§ 201.6 Local Mitigation Plans.

The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

(a) *Plan requirement.* (1) For disasters declared after November 1, 2003, a local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. Until November 1, 2003, local mitigation plans may be developed concurrent with the implementation of the project grant.

(2) Regional Directors may grant an exception to the plan requirement in extraordinary circumstances, such as in a small and impoverished community, when justification is provided. In these cases, a plan will be completed within 12 months of the award of the project grant. If a plan is not provided within this timeframe, the project grant will be terminated, and any costs incurred after notice of grant's termination will not be reimbursed by FEMA.

(3) Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. State-wide plans will not be accepted as multi-jurisdictional plans.

(b) *Planning process.* An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and

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

(c) *Plan content.* The plan shall include the following:

(1) 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.

(2) 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. The risk assessment shall include:

(i) 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.

(ii) 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. 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 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;

(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.

(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

(3) *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. This section shall include:

(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(ii) 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.

(iii) 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. 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.

(iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

(4) A *plan maintenance process* that includes:

(i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

(ii) 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.

(iii) Discussion on how the community will continue public participation in the plan maintenance process.

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

(d) *Plan review.* (1) Plans must be submitted to the State Hazard Mitigation Officer for initial review and coordination. The State will then send the plan to the appropriate FEMA Regional Office for formal review and approval.

(2) The Regional review will be completed within 45 days after receipt from the State, whenever possible.

(3) Plans must be reviewed, revised if appropriate, and resubmitted for approval within five years in order to continue to be eligible for HMGP project grant funding.

(4) Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c) will be delegated approval authority for local mitigation plans, and the review will be based on the criteria in this part. Managing States will review the plans within 45 days of receipt of the plans, whenever possible, and provide a copy of the approved plans to the Regional Office.

PART 206—FEDERAL DISASTER ASSISTANCE FOR DISASTERS DECLARED ON OR AFTER NOVEMBER 23, 1988

2. The authority citation for part 206 is revised to read as follows:

Authority: Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5206; Reorganization Plan No. 3 of 1978, 43 FR 41943, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376; E.O. 12148, 44 FR 43239, 3 CFR, 1979 Comp., p. 412; and E.O. 12673, 54 FR 12571, 3 CFR, 1989 Comp., p. 214.

2a. Revise Part 206, Subpart M to read as follows:

Subpart M—Minimum Standards

Sec.
206.400 General.
206.401 Local standards.
206.402 Compliance.

§ 206.400 General.

(a) As a condition of the receipt of any disaster assistance under the Stafford Act, the applicant shall carry out any repair or construction to be financed with the disaster assistance in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications and standards.

(b) Applicable codes, specifications, and standards shall include any disaster resistant building code that meets the minimum requirements of the National Flood Insurance Program (NFIP) as well as being substantially equivalent to the recommended provisions of the National Earthquake Hazards Reduction Program (NEHRP). In addition, the applicant shall comply with any requirements necessary in regards to Executive Order 11988, Floodplain Management, Executive Order 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction, and any other applicable Executive orders.

(c) In situations where there are no locally applicable standards of safety, decency and sanitation, or where there are no applicable local codes, specifications and standards governing repair or construction activities, or where the Regional Director determines that otherwise applicable codes, specifications, and standards are inadequate, then the Regional Director may, after consultation with appropriate State and local officials, require the use of nationally applicable codes, specifications, and standards, as well as safe land use and construction practices in the course of repair or construction activities.

(d) The mitigation planning process that is mandated by section 322 of the Stafford Act and 44 CFR part 201 can assist State and local governments in determining where codes, specifications, and standards are inadequate, and may need to be upgraded.

§ 206.401 Local standards.

The cost of repairing or constructing a facility in conformity with minimum codes, specifications and standards may be eligible for reimbursement under section 406 of the Stafford Act, as long as such codes, specifications and standards meet the criteria that are listed at 44 CFR 206.226(b).

§ 206.402 Compliance.

A recipient of disaster assistance under the Stafford Act must document for the Regional Director its compliance with this subpart following the completion of any repair or construction activities.

Subpart N—Hazard Mitigation Grant Program

3. Revise § 206.431 to read as follows:

§ 206.431 Definitions.

Activity means any mitigation measure, project, or action proposed to reduce risk of future damage, hardship, loss or suffering from disasters.

Applicant means a State agency, local government, Indian tribal government, or eligible private nonprofit organization, submitting an application to the grantee for assistance under the HMGP.

Enhanced State Mitigation Plan is the hazard mitigation plan approved under 44 CFR part 201 as a condition of receiving increased funding under the HMGP.

Grant application means the request to FEMA for HMGP funding, as outlined in § 206.436, by a State or tribal government that will act as grantee.

Grant award means total of Federal and non-Federal contributions to complete the approved scope of work.

Grantee means the government to which a grant is awarded and which is accountable for the use of the funds provided. The grantee is the entire legal entity even if only a particular component of the entity is designated in the grant award document. Generally, the State is the grantee. However, an Indian tribal government may choose to be a grantee, or it may act as a subgrantee under the State. An Indian tribal government acting as a grantee will assume the responsibilities of a ''state'', under this subpart, for the purposes of administering the grant.

Indian tribal government means any Federally recognized governing body of an Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of Interior acknowledges to exist as an Indian tribe under the Federally Recognized Tribe List Act of 1994, 25 U.S.C. 479a. This does not include Alaska Native corporations, the ownership of which is vested in private individuals.

Local Mitigation Plan is the hazard mitigation plan required of a local or Indian tribal government acting as a subgrantee as a condition of receiving a project subgrant under the HMGP as outlined in 44 CFR 201.6.

Standard State Mitigation Plan is the hazard mitigation plan approved under 44 CFR part 201, as a condition of receiving Stafford Act assistance as outlined in § 201.4.

State Administrative Plan for the Hazard Mitigation Grant Program means the plan developed by the State to describe the procedures for administration of the HMGP.

Subgrant means an award of financial assistance under a grant by a grantee to an eligible subgrantee.

Subgrant application means the request to the grantee for HMGP funding by the eligible subgrantee, as outlined in § 206.436.

Subgrantee means the government or other legal entity to which a subgrant is awarded and which is accountable to the grantee for the use of the funds provided. Subgrantees can be a State agency, local government, private non-profit organizations, or Indian tribal government as outlined in § 206.433.

Indian tribal governments acting as a subgrantee are accountable to the State grantee.

4. Revise § 206.432(b) to read as follows:

§ 206.432 Federal grant assistance.

* * * * *

(b) *Amounts of assistance.* The total of Federal assistance under this subpart shall not exceed either 15 or 20 percent of the total estimated Federal assistance (excluding administrative costs) provided for a major disaster under 42 U.S.C. 5170b, 5172, 5173, 5174, 5177, 5178, 5183, and 5201 as follows:

(1) *Fifteen (15) percent.* Effective November 1, 2003, a State with an approved Standard State Mitigation Plan, which meets the requirements outlined in 44 CFR 201.4, shall be eligible for assistance under the HMGP not to exceed 15 percent of the total estimated Federal assistance described in this paragraph. Until that date, existing, approved State Mitigation Plans will be accepted.

(2) *Twenty (20) percent.* A State with an approved Enhanced State Mitigation Plan, in effect prior to the disaster declaration, which meets the requirements outlined in 44 CFR 201.5 shall be eligible for assistance under the HMGP not to exceed 20 percent of the total estimated Federal assistance described in this paragraph.

(3) The estimates of Federal assistance under this paragraph (b) shall be based on the Regional Director's estimate of all eligible costs, actual grants, and appropriate mission assignments.

* * * * *

5. Section 206.434 is amended by redesignating paragraphs (b) through (g) as paragraphs (c) through (h), respectively; adding a new paragraph (b); revising redesignated paragraphs (c) introductory text and (c)(1); and revising redesignated paragraph (d) to read as follows:

§ 206.434 Eligibility.

* * * * *

(b) *Plan requirement.* (1) For all disasters declared on or after November 1, 2003, local and tribal government applicants for subgrants, must have an approved local mitigation plan in accordance with 44 CFR 201.6 prior to receipt of HMGP subgrant funding. Until November 1, 2003, local mitigation plans may be developed concurrent with the implementation of subgrants.

(2) Regional Directors may grant an exception to this requirement in extraordinary circumstances, such as in a small and impoverished community when justification is provided. In these cases, a plan will be completed within 12 months of the award of the project grant. If a plan is not provided within this timeframe, the project grant will be terminated, and any costs incurred after notice of grant's termination will not be reimbursed by FEMA.

(c) *Minimum project criteria.* To be eligible for the Hazard Mitigation Grant Program, a project must:

(1) Be in conformance with the State Mitigation Plan and Local Mitigation Plan approved under 44 CFR part 201;

* * * * *

(d) *Eligible activities.* (1) *Planning.* Up to 7% of the State's HMGP grant may be used to develop State, tribal and/or local mitigation plans to meet the planning criteria outlined in 44 CFR part 201.

(2) *Types of projects.* Projects may be of any nature that will result in protection to public or private property. Eligible projects include, but are not limited to:

(i) Structural hazard control or protection projects;

(ii) Construction activities that will result in protection from hazards;

(iii) Retrofitting of facilities;

(iv) Property acquisition or relocation, as defined in paragraph (e) of this section;

(v) Development of State or local mitigation standards;

(vi) Development of comprehensive mitigation programs with implementation as an essential component;

(vii) Development or improvement of warning systems.

* * * * *

6. Revise § 206.435(a) to read as follows:

§ 206.435 Project identificaiton and selection criteria.

(a) *Identification.* It is the State's responsibility to identify and select eligible hazard mitigation projects. All funded projects must be consistent with the State Mitigation Plan. Hazard Mitigation projects shall be identified and prioritized through the State, Indian tribal, and local planning process.

* * * * *

7. Revise § 206.436 to read as follows:

§ 206.436 Application procedures.

(a) *General.* This section describes the procedures to be used by the grantee in submitting an application for HMGP funding. Under the HMGP, the State or Indian tribal government is the grantee and is responsible for processing subgrants to applicants in accordance with 44 CFR part 13 and this part 206. Subgrantees are accountable to the grantee.

(b) *Governor's Authorized Representative.* The Governor's Authorized Representative serves as the grant administrator for all funds provided under the Hazard Mitigation Grant Program. The Governor's Authorized Representative's responsibilities as they pertain to procedures outlined in this section include providing technical advice and assistance to eligible subgrantees, and ensuring that all potential applicants are aware of assistance available and submission of those documents necessary for grant award.

(c) *Hazard mitigation application.* Upon identification of mitigation measures, the State (Governor's Authorized Representative) will submit its Hazard Mitigation Grant Program application to the FEMA Regional Director. The application will identify one or more mitigation measures for which funding is requested. The application must include a Standard Form (SF) 424, Application for Federal Assistance, SF 424D, Assurances for Construction Programs, if appropriate, and an narrative statement. The narrative statement will contain any pertinent project management information not included in the State's administrative plan for Hazard Mitigation. The narrative statement will also serve to identify the specific mitigation measures for which funding is requested. Information required for each mitigation measure shall include the following:

(1) Name of the subgrantee, if any;

(2) State or local contact for the measure;

(3) Location of the project;

(4) Description of the measure;

(5) Cost estimate for the measure;

(6) Analysis of the measure's cost-effectiveness and substantial risk reduction, consistent with § 206.434(c);

(7) Work schedule;

(8) Justification for selection;

(9) Alternatives considered;

(10) Environmental information consistent with 44 CFR part 9, Floodplain Management and Protection of Wetlands, and 44 CFR part 10, Environmental Considerations.

(d) *Application submission time limit.* The State's application may be amended as the State identifies and selects local project applications to be funded. The State must submit all local HMGP applications and funding requests for the purpose of identifying new projects to the Regional Director within 12 months of the date of disaster declaration.

(e) *Extensions.* The State may request the Regional Director to extend the application time limit by 30 to 90 day

increments, not to exceed a total of 180 days. The grantee must include a justification in its request.

(f) *FEMA approval.* The application and supplement(s) will be submitted to the FEMA Regional Director for approval. FEMA has final approval authority for funding of all projects.

(g) *Indian tribal grantees.* Indian tribal governments may submit a SF 424 directly to the Regional Director.

Subpart H—Public Assistance Eligibility

* * * * *

8. Revise § 206.220 to read as follows:

§ 206.220 General.

This subpart provides policies and procedures for determinations of eligibility of applicants for public assistance, eligibility of work, and eligibility of costs for assistance under sections 402, 403, 406, 407, 418, 419, 421(d), 502, and 503 of the Stafford Act. Assistance under this subpart must also conform to requirements of 44 CFR part 201, Mitigation Planning, and 44 CFR part 206, subparts G—Public Assistance Project Administration, I—Public Assistance Insurance Requirements, J—Coastal Barrier Resources Act, and M—Minimum Standards. Regulations under 44 CFR part 9—Floodplain Management and 44 CFR part 10—Environmental Considerations, also apply to this assistance.

9. Section 206.226 is amended by redesignating paragraphs

(b) through (j) as paragraphs (c) through (k), respectively; adding a new paragraph (b); and revising redesignated paragraph (g)(5) to read as follows:

§ 206.226 Restoration of damaged facilities.

* * * * *

(b) *Mitigation planning.* In order to receive assistance under this section, as of November 1, 2003, the State must have in place a FEMA approved State Mitigation Plan in accordance with 44 CFR part 201.

* * * * *

(g) * * *

(5) If relocation of a facility is not feasible or cost effective, the Regional Director shall disapprove Federal funding for the original location when he/she determines in accordance with 44 CFR parts 9, 10, 201, or subpart M of this part 206, that restoration in the original location is not allowed. In such cases, an alternative project may be applied for.

* * * * *

Dated: February 19, 2002.

Michael D. Brown,

General Counsel.

[FR Doc. 02–4321 Filed 2–25–02; 8:45 am]

BILLING CODE 6718–05–P

APPENDIX D – MITIGATION PLANNING AGENCIES PROFILES

AGENCY/ ORGANIZATION	WEBSITE	MISSION STATEMENT/ DESCRIPTION	EXISTING PROGRAMS
American Red Cross – Greater Richmond Chapter	www.greaterrichmond.redcross.org	Reduces human suffering by helping people prevent, prepare for and recover from natural and other disasters.	• ARC mitigation activities are focused in three areas: 1) Awareness & Education 2) Direct Activities 3) Advocacy • As a leading provider of CDE, Red Cross chapters increase public awareness of the nature of risks by teaching appropriate actions to take to reduce injury, loss of life, and loss of property. • Mitigation activities have been conducted on disaster relief operations for many years, but most often with inconsistency of procedures and activities. With the increase in attention to mitigation by both chapters and other emergency management partners, disaster staff with mitigation expertise area now being assigned to selected relief operations. A primary function of the relief operation mitigation staff is to coordinate with the affected chapters to help clients seize opportunities to conduct appropriate mitigation activities as part of disaster recovery.
Chesapeake Bay Commission	www.chesbay.state.va.us	We are a legislative agency and our mission is simple – we develop policy and laws for the restoration of the Chesapeake Bay.	NO INFORMATION PROVIDED
Chesapeake Bay Foundation	www.cbf.org	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED
Chesapeake Bay Local Assistance Department		To protect the public interest in the Chesapeake Bay and other state waters by planning for and managing the adverse environmental effects of human growth and development in a manner that balances the objectives of improved water quality and continued economic growth.	NO INFORMATION PROVIDED
Department of Agriculture and Consumer Services	www.vdacs.state.va.us	To promote the economic growth and development of VA agriculture, encourage environmental stewardship and provide consumer protection.	NO INFORMATION PROVIDED
Department of Business Assistance	www.dba.state.va.us	To promote economic growth by helping Virginia businesses prosper.	• The DBA has hosted business seminars on Homeland Security, including business contingency planning. It also promotes the Stargazer Foundation product to assist businesses with contingency planning using a website link. The DBA currently is hosting a survey on its website to determine how many companies in the Commonwealth have a contingency plan. • Through the VSBFA and under current funding guidelines, we offer loans to businesses to finance expenses incurred as a result of disaster damages.
Department of Conservation & Recreation – Division of Dam Safety	www.dcr.state.va.us/sw/damsafty	To conserve, protect, enhance and advocate the wise use of the Commonwealth's unique natural, historic, recreation, scenic and cultural resources. The program's purpose is to provide for safe design, construction, operation and maintenance of dams to protect public safety.	• The Division of Dam Safety provides training to private and public dam owners regarding proper dam maintenance, emergency action plans, and appropriate development downstream of dams. • Provides assistance to dam owners and local official in assessing the condition of dams following a flood disaster that

			may have been impacted by the event. • Assist local officials with damage assessments and with assuring the repairs and reconstruction of damaged structures are compliant with the NFIP regulations.
Department of Conservation & Recreation – Division of Floodplain Management	www.dcr.state.va.us /sw/floodpln	To conserve, protect, enhance, and advocate the wise use of the Commonwealth's unique natural, historic, recreational, scenic and cultural resources. Designated to coordinate all federal, state and local floodplain management programs to minimize loss of life, property damage, and negative impacts. The Section is charged with: Coordinating the National Flood Insurance Program, to provide technical assistance to, and oversight of, local jurisdictions to ensure compliance and enforcement of the NFIP requirements. 2) Developing a Floodplain Management Plan (completed in 1991), revisions drafted in 1997, not finalized). 3) Administering the Flood Prevention and Protection Assistance Fund to help local jurisdictions address problem areas. Funded primarily by an annual assessment on insurance companies that write flood insurance, the Fund has received certain other funds appropriated for specific projects. Recently, these funds have been tapped as a source of non-federal match for federal mitigation funds administered by the Department of Emergency Management. 4) Encouraging communities to identify flood hazards and plan management and project options. 5) Coordinating with the State Building Official to review construction activities within SFHAs.	• The Floodplain Management Program provides a minimum of five workshops annually, some in conjunction with the Virginia Floodplain Management Association, to address issues relevant to the NFIP, flood insurances, floodplain ordinance enforcement, floodplain permitting, flood mapping and map changes, flood-proofing strategies and methods, and mitigation planning. • Provides assistance, as needed, to the VDEM during declared floodingdisasters for preliminary damage assessment and during the response and recovery period following a presidential declared disaster. • Provide assistance to dam owners and local officials in assessing the condition of dams following a flood disaster that may have been impacted by the event.
Department of Conservation & Recreation – Division of Natural Heritage	www.dcr.state.va.us /dnh	To conserve, protect, enhance, and advocate the wise use of the Commonwealth's unique natural, historic, recreational, scenic and cultural resources. Conserving Virginia's biodiversity through inventory, protection and stewardship.	NO INFORMATION PROVIDED
Department of Conservation & Recreation – Virginia State Parks	www.dcr.state.va.us /parks	To conserve, protect, enhance, and advocate the wise use of the Commonwealth's unique natural, historic, recreational, scenic and cultural resources.	NO INFORMATION PROVIDED
Department of Education – Facilities-Support Services, M.I.S	www.pen.k12.va.us	To lead and facilitate the development and implementation of a quality public education system that will meet the needs of students and assist them in becoming educated, productive and responsible citizens. Act as units of agency on issues related to disaster preparedness, mitigation, response and recovery. Resources permitting, update document on school safety and crisis management and assist school facilities staff on school safety.	• Agency prepared response team and building evacuation training. • Training on school safety (time and resources permitting). • To meet the requirements of section 22.1-278.1 of the Code of Virginia, resources permitting. • Assistance to support disaster assessment programs of the DEMM. • Resources and time permitting, review of construction documents upon request and site/facilities surveys. • Regional group training and technical assistance to local school districts on school safety and planning, as time and resources permit.

Department of Environment Quality	www.deq.state.va.us	The Department of Environmental Quality is dedicated to protecting Virginia's environment and promoting the health and well-being of the citizens of the Commonwealth. We accomplish this by planning and implementing environmental programs, and by resolving issues efficiently, openly, fairly and consistently.	NO INFORMATION PROVIDED
Department of Fire Programs	www.vdfp.state.va.us	To help protect life, property and environment from the devastating effects of fire disasters, technological and natural. Administration - Administer Funding to localities around the State; Executive level work in State government; liaison to Federal and other State agencies. Training and Operations - Provide supplemental support to the localities, deliver fire-rescue training to first responders around the commonwealth.	NO INFORMATION PROVIDED
Department of Forestry	www.vdog.org	Protecting and developing healthy, sustainable forest resources for Virginians. Resource Protection - Provide guidance and direction for statewide emergency response needs. Provides coordination of all agency disaster preparedness, hazard mitigation, and statewide response and recovery operations. Regional Foresters - Provide oversight guidance and direction for localized response and recovery operations.* An agency profile already exists*	• The agency provides both wildfire and forest management related educational programs to children, adults, civic organizations, and agency cooperators. • Management and suppression of all wild land fires. - Law enforcement related to the wildfire laws. • Stabilization of forested areas burned by wildfire. Response and recovery assistance for impacts from all natural disasters, including forest health related issues. • (Did not include mandated duties) Emergency incident management for all-risk incidents. Fleet of small dozers for debris clearing or difficult terrain access. Fleet of Humvees for improved vehicular access part-time and full-time agency personnel for manpower needs chainsaw crews for debris removal. • Have completed a statewide GIS - based wildfire risk assessment which identifies the entire Commonwealth within three different risk potential zones. Includes more than 100 different GIS layers of asset/resource information. The agency will unveil an internet-based mapping utility (Forest Rim) in July that will allow public access to the multitude of GIS information available through the agency. This will offer a lot of never before available information emergency responders.
Department of Game and Inland Fisheries	www.dgif.state.va.us	To manage Virginia's wildlife and inland fish to maintain optimum populations of all species to serve the needs of the Commonwealth; to provide opportunity for all to enjoy wildlife, inland fish, boating and related outdoor recreation; to promote safety for persons and property in connection with boating, hunting and fishing.	• Law Enforcement Division - One hundred ninety plus sworn law enforcement personnel stationed throughout the Commonwealth. This division is responsible for law enforcement upon the land and inland waterways of Virginia. Often the only agency in the area equipped and prepared for disaster preparedness, mitigation, response or recovery on the waterways. Virginia Game Wardens are equipped with all-terrain and four-wheel drive vehicles and watercraft from canoes to large boats capable of operating as floating incident command stations. We have a PADI certified SCUBA dive team with members in every region of the State. Wildlife Division - This division is responsible for management of wildlife species throughout the

			Commonwealth. We have the ability and experience to survey and restore wildlife habitat and species. The Wildlife Division is experienced in the management and suppression of wildfires. Biological hazards that affect wildlife either directly or indirectly are another area of expertise within this division. We have the ability to test and evaluate the impact of biological disaster on wildlife. Our experience would help prevent dying animals from spreading disease. Heavy equipment and farm implements are available throughout Virginia. Fisheries Division - The Fisheries Division is responsible for management of the inland fisheries of Virginia. They have the expertise for habitat and species restoration A significant number of small watercraft are available for flood rescue and command platforms. This division has large vehicles available for hauling water and portable pumps for moving water. • Watercraft registration and regulation • DGIF routinely assists local governments with all aspects of law enforcement. The resources we offer and routinely provide arelisted in the descriptions above. All Virginia Game Wardens and many other division personnel are American Red Cross certified First Responders. • DGIF has provided security on the waters surrounding the two nuclear power plants in Virginia, Lake Anna and Surry. During times of high alert we provide increase patrols on the near dams throughout Virginia.
Department of General Services	www.dgs.state.va.us	The Department of General Services (DGS) mission is to deliver high quality, cost effective and timely services to our customers. DGS strives to be efficient, innovative and supportive of a quality workplace environment. DGS is the intra-governmental service agency. As such, we are committed to the delivery of quality services to our customers at competitive Director's Office - overall authority, supervision and guidance. Division of Consolidated Laboratory Services - provides 24/7 lab services in response to emergencies such as bioterrorism and natural disasters. Division of Engineering & Buildings - operates state facilities at the seat of government. Division of Purchases and Supply - administers the state's procurement program. Office of Fleet Management - manages the commonwealth's fleet of approximately 3,500 vehicles. Over 175 state agencies/institutions use these vehicles to conduct official state business.	NO INFORMATION PROVIDED
Department of General Services – Division of Consolidated Laboratory Services	www.dcls.dgs.state.va.us	As the Virginia State Laboratory, we provide high quality and responsive analytical testing, consultation, training, quality assurance, certification, and research for the Commonwealth of Virginia, other States, and Federal Agencies. This includes maintaining an emergency response capability for various health and environmental emergencies, enhancing community health, protecting the environment, and supporting the agricultural sector of commerce. Division of Consolidated	• Concept of Emergency Operation: If the Governor declares a state of emergency, the DCLS Director will determine the level of support to be provided and assess whether routine services can be maintained. A status report, as required, will be prepared and given to the Department of General Services. Designation of Authority: The Director of DCLS has sole authority under normal circumstances and is responsible for the provision of routine and emergency laboratory services. The

		Laboratory Services Capabilities: Specimens are collected by DCLW customers and delivered for a variety of routine and emergency testing services. These services include: 1. Characterizing unknown materials for HAZMAT investigations. 2. Examining air, soils and water for toxic chemicals 3. Detecting and identifying radioactive isotopes in a variety of matrices. 4. Identifying and characterizing chemical and biological agents used in illegal activities. 5. Analyzing tissue and body fluids for infectious agents, biological toxins, and toxic chemicals. 6. Validating petroleum product formulations and assisting in petroleum spill investigations. 7. Testing clinical and non-clinical isolates using a variety of techniques to provide DNA fingerprint patterns for epidemiological investigations. 8. Testing foods, tissue, water, and soils for pesticides and industrial residues. 9. Analyzing water, soil, air and other matrices for bacterial and viral agents, metals, organic, and inorganic pollutants. 10. Analyzing agricultural products, pesticides, animal feeds and remedies for declared active ingredients. 11. Examining foodstuffs for content, filth, and adulteration.	Director, if unavailable, will designate an acting Director. Outline of Transition to Emergency Operations: When the Director, Division of Consolidated Laboratory Services will direct the following activities. 1. A resource assessment will be made and actions initiated to obtain additional resources, if needed. 2. Routine services will be evaluated and resources diverted as needed. 3. A communications center will be established. 4. DCLS personnel will be recalled as needed. All DCLS personnel are designated mission essential. The recall will be initiated using the DCLS personnel are designated mission essential. The recall will be initiated using the DCLS emergency telephone listing. If telephone communication is not available, news media announcements, and finally, physical visits to home addresses may be used to move DCLS personnel to the workplace. 5. Managers will report personnel arrivals on a regular basis to senior DCLS management. 6. Managers will make work assignments and evaluate work demands. 7. A reporting process will be established with the emergency services personnel and requestors. 8. Courier services will be continuously monitored. The current DCLS State contract courier service was contacted to provide routine daily and "special run" courier services according to the signed State contract even in the event of a natural or manmade disaster. 9. Overflow will be directed to nearby States, with which DCLS has Memorandums of Understanding for mutual support. • DCLS is actively involved throughout Virginia providing Laboratory Response Network training sessions to hospital and other health care laboratories. Seminars and workshops are regularly provided to First Responders including, Fire Rescue units, HAZMAT response units, State Police, Virginia National Guard, and the Virginia Department of Environmental Quality providing insight about state laboratory emergency response capability. DCLS works with other federal agencies like the USDA, FDA, EPA and CDC to provided training for local, state and private healthcare, agricultural and environmental. DCLS also collaborates with scientists at several universities and as adjunct professors provide seminars for undergraduate and graduate students. DCLS staff also services as mentors for graduate students, federally sponsored fellowship programs and international • DCLS will provide analytical support for any local, state or federal disaster recovery agency. If the volume of testing exceeds DCLS capacity, or as resources are depleted or made unavailable, work will be diverted to other "partner" state laboratories. CLS had emergency generator power and an emergency supply of fuel maintained. Normally a 30 day supply of working reagents, supplies and materials are maintained at all times. Emergency supply orders or vendor maintenance requests will be coordinated through the Department of General Services. Communications and service

			deliver operations will be coordinated through the Emergency Operations Command Center. • DCLS provides emergency and routine services to numerous local agency 24/7. These include local law enforcement agencies, fire department and rescue teams, local health departments, city, town and county water suppliers, hospitals, animal control and veterinarian hospitals. • DCLS is actively involved at many levels with various Federal, State, and Local health and environmental protection programs. DCLS has collaborated with the FBI, CDC, EPA and FDA to develop laboratory testing methods for use in emergencies. DCLS is one of the 5 state laboratories supported by the national Center for Emergency Health at the CDC to develop test methods for the presence of chemical agents in human blood or urine, and provide analytical support if chemical weapons of mass destruction are used. DCLS is also working with EPA to develop screening and confirmatory test methods for toxic chemicals, chemical agents and biotoxins in environmental samples. DCLSL and the FDA are working jointly to develop screening protocols for chemical and biologic agents that could be used by terrorists to contaminate our food supply. DCLS actively participates in method validations and development with the Laboratory Response Network, has provided training on biological agents for Level A laboratories, and actively participates in training with and of the state hazardous materials teams. DCLS is the primary laboratory under the federal Safe Drinking Water Act, and provides laboratory audits, certification, quality assurance training, and consultation to laboratories doing drinking water testing in Virginia, and is developing regulations to support the legislative mandate to establish an environmental laboratory accreditation program in the Commonwealth.
Department of General Services – Division of Engineering and Buildings	www.dcb.dgs.state.va.us	Oversees the Commonwealth's Capital outlay projects, as well as Real Estate Acquisitions, disposal, maintains buildings and grounds at the capitol area. DEB enforces the Virginia uniform statewide building code to ensure adherence to life safety requirements. It provides building code, lost and procurement reviews of Virginia construction projects, develops and maintains the construction and professional services manual and real property management manual. Bureau of Real Property Management - Oversight of and management of the commonwealth's real property assets. Bureau of Facilities Management - maintain buildings and grounds of Real Property located in Capitol Square. Bureau of Capitol Outlay Management - Enforce the Virginia Uniform Building Code to assure compliance with life safety and code requirements.	• BFM - Building Emergency Evacuation training to occupants in state owned facilities in the Capitol complex. • Engineering, Building and Ground maintenance and repair, Utility Assistance
Department of General Services – Division of	www.159.169.222.200/dps	Delivery of high-quality, cost effective, timely services to our customers. DGS/DPS is the centralized purchasing agency of materials, supplies, equipment, printing, and nonprofessional	• Procurement Training • Procurement

Purchases and Supply		services required by any state agency or institution. All such purchases made by any department, division, officer or agency of the Commonwealth shall be made in accordance with the Code of Virginia, Chapter 43, Title 2.2, and such rules and regulations as DGS/DPS may prescribe. DGS/DPS has the authority to make alter, amend or repeal regulations relating to the purchase of materials, supplies, equipment, nonprofessional services, and printing, and may specifically exempt particular agency purchases below a stated amount, or specific materials, equipment, nonprofessional services, supplies, or printing (Code of Virginia, 2.2-1111). DGS/DPS has the responsibility for the standardization of materials, equipment, and supplies purchased by or for any agency of the State (Code of Virginia, 2.2-1112). DGS/DPS also has the authority to establish criteria and procedures to assure economical operation of all state-owned printing facilities (Code of Virginia 2.2-1113). DGS/DPS is responsible for the procurement of all public printing, as DGS/DPS may otherwise provide. This does not prohibit in-house printing. Except for purchasing from corrections Print Shop (CORPRINT), an agency may not purchase printing from a another state agency without DGS/DPS approval, contact DGS/DPS State Procurement Supervisor at 804-786-5412, indicating the nature and extent of the request. In addition, DGS/DPS is authorized to establish criteria and procedures to obtain economical operation of all state printing facilities (Code of Virginia, 2.2-1113).	
Department of Health – Office of Drinking water	www.vdh.state.va.us/dw	We are committed to protecting public health by ensuring that all people in Virginia have access to an adequate supply of affordable, safe drinking water that meets federal and state drinking water standards.	• Technical services to public drinking water systems. • Within the office a system is in place to dispatch potential threats to the appropriate personnel.
Department of Health – Office of Emergency Preparedness and Response		Our mission is to effectively respond to any emergency impacting public health through preparation, collaboration, education and rapid intervention. The Emergency Preparedness and Response Programs involve state, regional and local emergency response partners working together to enhance readiness to respond to bioterrorism, infectious disease outbreaks and other public health emergencies. Funding to support these efforts is provided through grants from the U.S. Centers for Disease Control and Prevention, U.S. Health Resources Services Administration and the U.S. Department of Homeland Security.	NO INFORMATION PROVIDED
Department of Historical Resources	www.state.vipnet.org/dhr	To foster, encourage and support the stewardship of Virginia's significant historic, architectural, archaeological and cultural resources.	
Department of Housing and Community Development	www.dhcd.state.va.us	The Department of Housing and Community Development works in partnership to make Virginia's communities safe, affordable, and prosperous places in which to live, work and do business. The Department of Housing and Community Development was created by the 1977 General Assembly and	• Virginia Recovery Task Force's primary mission is to make sure the needs of Virginia's disaster victims are met when all other resources have been exhausted. To accomplish this, the state task force assists with the development of local disaster recovery task forces that will bolster a community's ability to

		began to operate as an agency on July 1, 1978. Several programs from other agencies were brought together in this new department to assure a coordinated State approach in meeting the housing and community development needs of the Commonwealth. Programs related to housing, local and regional planning, community development grants, building regulation and fire safety were included in the Department to ensure the effective delivery of programs with interrelated functions and clientele.	provide for its own citizens. In major disasters, the state task force offers additional resources when needs can't be met within local communities.
Department of Housing and Community Development – Commission on Local Government	www.cig.state.va.us	To assist the Commonwealth of Virginia by promoting and preserving the viability of its local governments and by fostering positive intergovernmental relations. On July 1, 2003, the Commission on Local Government merged with the Department of Housing and Community Development. While the five-member collegial body known in the Code of Virginia as the "Commission on Local Government" remains as an independent entity, there no longer is an independent agency of the Commonwealth that bears this. To provide an annual fiscal stress index for use in disaster declaration activities by the Virginia Department of Emergency Management.	NO INFORMATION PROVIDED
Department of Labor and Industry	www.doli.stat.va.us	Dedicated to helping Virginia businesses become more productive and a better place to work by promoting safe and healthful workplaces, best employment practices, and to provide employers an opportunity to train a skilled workforce through a proven, cost-effective system of registered apprenticeship. The Department provides a broad range of programs to employers and workers. These programs cover apprenticeship, Occupational Safety and Health Compliance and Consultation, Boiler and Pressure Vessel Safety, and Labor and Employment Law. A complete description of agency programs and service can be viewed on the agency's website, www.doli.state.va.us.	• DOLI programs with an emergency preparedness impact are: Occupational Safety and Health, and Boiler and Pressure Vessel Safety. Invitational on-site inspections are conducted as well as programmed inspections to determine compliance. Certain industries may be targeted, especially if incident experience suggests increased attention. The Boiler and Pressure Vessel Program oversees the regular inspections of workplace and public objects. The Office of Consultation Services offers on-site, walk-through safety and health surveys to identify hazards and to help employers better understand and voluntarily comply with Virginia Occupational Safety and Health (VOSH) Standards. Employers with 250 or fewer employees in high hazard industries are given priority service. Emergency evacuation planning is included. Virginia Occupational Safety and Health Compliance Program conducts inspections of private and public sector employers to assure compliance with laws, standards and regulations; citations may be issued listing violations which must be abated; civil monetary penalties for certain types of violations may be imposed. Program activities include the issuance of permits for lead and asbestos abatement projects. The Boiler and Pressure Vessel program oversees the regular inspections of boilers and pressure vessels in workplaces, apartments, and all other establishments open to the public under the Virginia Boiler and Pressure Vessel Safety Act. Agency oversight of installation, operation, and repair of these vessels, and certification of both the vessels and inspectors, minimizes the risk associated with operating these powerful systems. DOLI operates statewide in Richmond and four regional and three field office locations.

			Workplace safety training services may be requested by contacting any office location. Although there is no specific requirement to conduct inspections in a post-disaster period, DOLI could do so if there were questions of workplace safety. DOLI publishes a periodic newsletter, which targets safety and health professionals, boiler owners/operators, insurance companies, business owners and employers, and the various safety organizations. In addition, agency website, www.doli.state.va.us is a source for agency program information, including an Emergency Preparedness manual for small businesses at http;//www.doli.state.va.us/infocenter/publications/other/EAPmanual_english.pdf.
Department of Military Affairs		The Deputy Assistant Chief of Staff for Plans, Operations, and Military Support (POMSO) is the Adjutant General of Virginia's primary Virginia National Guard Contact for military support to civil authorities during periods of domestic civil emergencies or disaster response. Working closely, through the DCSOPS/J-3 with the Virginia National Guard Joint-State Headquarters Staff, this Military Support Directorate acts as a coordination cell to the Virginia Department of Emergency Management (VDEM) and provides oversight for the military planning, integration, and coordination of domestic support operations throughout the Commonwealth of Virginia. The POMSO supervises the Virginia National Guard's Military Support Directorate to assist state and local government officials in developing, coordinating, and implementing plans which ensure the best use of National Guard personnel and equipment for community service support projects or emergency use for Military Support for Civilian Authorities in domestic emergencies, disturbances, and natural disasters. As such, working through VDEM, the POMSO ensures the Military Support Directorate provides coordination and oversight preparation for the provision of Plans, Operations, and Military Support to Civil Authorities by the Virginia National Guard in all operational missions involving local and state Emergency Preparedness, Counter Drug, WMD Civil Support, and Homeland Defense. When required, the POMSO activates and controls a joint staff under the DCSOPS to conduct operations during declared state and federally disasters, emergencies, and/or terrorist events.	NO INFORMATION PROVIDED
Department of Mines, Minerals and Energy	www.mne.state.va.us	The mission of the Department of Mines Minerals and Energy is to enhance the development and conservation of energy and mineral resources in a safe and environmentally sound manner in order to support a more productive economy. The Department operates six divisions, (Mines, Mined Land Reclamation, Gas and oil, Mineral Mining, Mineral Resources, and Energy) regulating production of more than 30 different mineral resources such as coal, gas and oil, and non-petroleum minerals such as rock and gravel, serving as the state geological	• DMME offers to its mine customers and staff, educational training that helps mine workers as well as inspection staff work safer and in a more productive manner, thus contributing to resource conservation and protection of the environment. In doing so, DMME offers educational programs for new miners as well as continuing education for existing miners. These programs include training in topics such as first aid, emergency response, electrical safety, gas detection and ventilation, hoisting and lifting, illumination, and fire safety.

		survey, and implementing energy efficiency activities. A primary goal or purpose of the department is that mineral production in Virginia has no off-site effects, including such effects as increased flood hazards and slope failure potential. Specifically, the Division of Mines has specially trained mine inspectors that have extensive experience regarding emergency response and recovery to coal mine disaster events. The Division of Mined Land Reclamation has expertise with remediation of hazards associated with abandoned coal mine lands, I.e., highwalls, impoundments, etc. The Division of Mineral Mining has similar expertise in mine safety and reclamation on mineral mine (non-coal) sites.	• Statue; Title 45.1 of the Code of Virginia Regulations" 4VAC 25-30, Minerals Other Than Coal Surface Mining Regulations 4VAC 25-40, Safety and Health Regulation for Mineral Mining 4 VAC 25 50 through 120, various coal mine safety regulations 4 VAC 25-130, Coal Surface Mining Reclamation Regulations 4 VA 25-140, Coal Surface Mining Regulations 4 VAC 25-150, Gas and Oil Regulation 4 VAC 25-170m, Geothermal Energy Regulation • DMME works with coal mine operators in the event that a mine disaster such as an underground mine roof collapse, explosion, flooding, etc. should occur. Department inspectors are specially trained as emergency responders for these type occurrences. These personnel may also respond to mine impoundment release. DMME responds to public safety and environmental disasters in cases where a coal or mineral mine related structure cause a public safety hazard or a release to the environment. The department works with the permitted mine operator to have the hazardous conditions corrected. • DMME, in association with the two southwestern Virginia planning district commissions, works with the localities of southwest Virginia when there are impacts to the water supply created due to coal mining. The department funds water system expansions or improvements in areas affected by historic coal mining. The department requires mine operators to repair or replace water supplies affected by current coal mining. DMME offers training to localities on use of geologic information in
Department of Planning and Budget	www.dpb.state.va.us	The Department of Planning and Budget (DPB) is a Virginia executive branch agency under the Secretary of Finance. DPB staff work with the governor, the Governor's staff, the General Assembly, and state agencies to develop and execute the Commonwealth's budget. We advise the Governor as to how to wisely use public resources. We analyze, develop, and carry out fiscal, programmatic, and regulatory policies that benefit Virginia's citizens.	• The DPB has in place a plan for the recovery of its critical business processes should a disaster occur. This active plan is designed to provide immediate response to and subsequent recovery from any unplanned business interruption. It is a methodical approach to disaster recovery.
Department of Rail and Public Transportation	www.drpt.state.va.us	The mission of the Virginia Department of Rail and Public Transportation is to plan, establish, maintain, improve, and promote public transportation services, rail passenger and rail freight transportation systems, and transportation demand management strategies that provide mobility and transportation choices to the citizens of the Commonwealth. Rail Transportation - coordination and monitoring of railroads. Public Transportation - coordination & monitoring of bus transit. Fiscal- financial, IT, purchasing. Administration - budget, policy, programs. The railroads and bus lines have worked with us in the movement of goods and personnel in the event of a disaster or emergency situation.	• We work with various programs in Richmond and Northern Virginia dealing with the coordination and communications for emergencies and disasters. We have no programs of our own.
Department of Transportation	www.virginiadot.org	Responsible for building, maintaining and operating the state's roads, bridges and tunnels. The Highway System includes interstate, primary, secondary and frontage roads, totaling over	• VDOT has been responsible for the vast majority of the state's road system since the early 1930s when most counties ceded maintenance responsibilities to the state. VDOT covers its

		56,000 miles. Urban streets maintained by cities and towns with state funds include 9,900 miles. VDOT is responsible for 12,325 bridges and numerous culverts and drainage structures. Administrative Services - Deals with procurement issues and overall house keeping. Asset Management - Combines old Maintenance and Equipment Division functions. These are the folks who respond to and repair damages to the infrastructure following disaster conditions. Track expenditures made for disaster response. Construction Management - Coordinate road construction. Employee Health and Safety - Deal with safety and health issues for VDOT and contractors. Environmental - Deal with environmental concerns. Take on added responsibility following disasters. Equal Opportunity - Equal opportunity employment and business opportunities. External and Construction Audit - Auditing function. Financial Planning - Long range financial planning. Fiscal - Day to day financial matters. Coordinate the capture of VDOT expenditures during disaster response for future cost recovery and coordinate the transfer of funds from VDEM. Human Resources - Personnel management. Information Technology Applications - Computer software and programs. Information Technology Operation - Computer hardware maintenance. Innovative Finance and Revenue Operations - Finding potential revenue opportunities. Innovative Project Delivery - Finding new ways of delivering goods and services. Internal Audit - Auditing function. Investigations - Investigate issues identified by the VDOT Inspector General's Office. Local Assistance - Working with local jurisdictions on transportation issues. Location and Design - Project development. Deals with flood plain issues. Management Services - Policy development group. Mobility Management - Intelligent transportation and congestion management. Policy Division - Policy development group. Programming - Is responsible for developing and coordinating the programming of construction projects to efficiently use all construction funds provided from federal and state sources in a timely manner. Right of Way and Utilities - Provide professional personnel to acquire real property for the Commonwealth of Virginia and to relocate families, businesses, and utilities from the path of construction and maintenance of Virginia's highways. Schedule and Contract Development - Developing contracts and scheduling the work associated with established contracts. Security & Emergency Management - Responsible for developing a security program for VDOT as well as coordinating emergency management for the agency. Structure and Bridge - Design, inspect and build bridges. Transportation and Mobility Planning - To promote the development of a safe, efficient, and effective transportation system.	disaster-related expenditures (to match federal assistance) from its existing budgets; VDOT's costs are not covered by the "sum sufficient" authority of the Governor to provide non-federal matching funds. Financial records for disasters declared from 1992 through early 2000 indicate funds expended for debris removal, emergency measures, and permanent restoration/repair of roads and bridges include: *$69.9 million from FEMA; *$32.8 million from FHWA; and *$25+ million from VDOT. The planning and design of roads that are supported with federal funding must comply with the standards and guidelines of the Federal Highway Administration. Those provisions address flood hazards and seismic risks, both addressed in federal Executive Orders. -The VDOT Drainage Manual establishes hydraulic criteria for flood protection, which are in close accord with the recommendations of the Federal Highway Administration. With FEMA-mapped floodplains, FEMA's hydraulic models are used. VDOT criteria preclude any increase flood levels, a policy that is more stringent than allowed by FEMA and FHWA. -For new structures, the potential for scour is determined using FHWA's methodology and anti-scour measures included, if indicated. -Roads considered for acceptance into the state system must meet current hydraulic standards or improved to the extent necessary. Most districts maintain some documentation of areas and structures where drainage/flooding is a known problem. Damage Survey Reports may be accessible in various formats for three years after final closeout. In certain circumstances, VDOT considers relieving backwater flooding during designing of replacement bridges and culverts, in particular, if the district personnel or local officials are aware of frequent access problems. This is not done on a routine basis for two reasons: *Relieving backwater flooding may increase downstream flooding; and *The assumption that buildings within the backwater floodplain have either been "flood-proofed" or removed. Although in some locations roadway embankments may tend to function to provide some flood protection, VDOT is not aware of any that have been specifically designed for that purpose (as a levee). Upgrades to U.S. 460 through Grundy, VA in Buchanan County will due to extreme site constraints, be designed to function as s flood control levee as part of a project coordinated with the U.S. Army Corps of Engineers. VDOT has a "well exercised" debris management plan. In the Hampton area, staging areas are pre-identified and models are used to estimate woody debris along the road network. Many miles of the state road network were transferred into the system in the early 1930s without regard for design and construction standards. A number of roads traverse impoundment embankments, which has resulted in problems when flooding damage embankments. There is no formal protocol to determine whether such embankments are

			repaired/replaced to current standards, or remove and the roads terminated on each side of the waterway. However, each district may have informal plans of reach such road within its jurisdiction. • VDOT works with VDEM and the Hampton Roads Planning District Commission in putting out information concerning hurricane evacuation to the citizens of the Tidewater area. VDOT also works with VDEM and FHWA on putting on training classes for VDOT employees on filling out Project Worksheets and Damage Inspection Reports. VDOT works with VDEM to provide Emergency Management training for VDOT personnel. • VDOT's disaster preparedness mission for all hazards is: A) To work with local governments and other state agencies to plan and prepare for disasters. B) To simultaneously respond to life-threatening situations and to open those routes essential for the delivery of goods, people, and services in support of emergency operations. C) To restore the Commonwealth's roadway system in accordance with established priorities. • Volume 7 of the Commonwealth of Virginia Emergency Operations Plan is designated as the Transportation Plan. This plan covers how VDOT in conjunction with other state agencies will respond to Radiological Incidents, Oil and Hazardous Material Incidents, Hurricane Emergency Response, Floods, Snow/Ice storms, Emergency Resources and Terrorism. VDOT has established a SOP for moving personnel and equipment into disaster areas from remote locations. • VDOT works with local county and city personnel in planning for disaster response. VDOT coordinates FHWA team inspections of local jurisdictions following disasters. When Mission Tasked by the State EOC, VDOT can assist local jurisdictions in disaster response on an accounts receivable basis.
Department of Treasury – Division of Risk Management	www.trs.state.va.us/drm/drm	To protect the assets, officials and employees of the Commonwealth and its political subdivisions. Property insurance on all state buildings and contents. Maintain inventory of real property owned or in the case custody and control of the government.	• Real property fire protection system boiler and machinery, confined space – safety and loss mitigation. • Liability programs.
National Weather Service – Wakefield Office	www.nws.noaa.gov	The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other government agencies, the private sector, the public, and the global community. NWS Wakefield is one of 122 field offices across the United States. Five such offices serve Virginia. In addition to Wakefield, offices in Blacksburg, VA;	• We offer training initiatives for local CERT programs, as well as SKYWARN storm spotter training, and other preparedness related presentations on an as requested basis. NWS offices serving Virginia have also assisted the Virginia Dept. of Emergency Management with weather related training for emergency managers since 1997. • Weather related briefings to state and local emergency managers before, during and after various severe weather situations. These situations include winter storms, hurricanes and severe thunderstorms.

		Sterling, VA; Charleston, WV; and Morristown, TN provide forecast and warning services to the Commonwealth of Virginia. NWS Wakefield is the Liaison Office for Virginia, and is the office most closely aligned with preparedness and weather related issues that are statewide in nature.	
Office of Commonwealth Preparedness	www.commonwealthpreparedness.virginia.gov	The mission of the Office of Commonwealth Preparedness is to work with and through others - including federal, state, and local officials, as well as the private sector, to develop a seamless, coordinated security and preparedness strategy. The Office serves as the single point of contact in Virginia for the Department of Homeland Security. Governor Warner created this new Cabinet-rank office in order to promote security measures at the highest level. The Assistant to the Governor is supported by a Deputy, Administrator and Assistant and is charged with: 1. Ensuring that state resources are directed toward safeguarding Virginia and its citizens. 2. Working with federal officials to obtain additional federal resources and coordinate policy development and information exchange. 3.Coordinating working relationships between state agencies and the Governor's Cabinet. 4.Serving as the Point of Contact with the Department of Homeland Security. 5.Serving as the Governor's representative on regional efforts (National Capital Region, Hampton Roads, Richmond Seat of Government). 6.Serving as a direct liaison between the Governor and local governments and first responders on issues of emergency preparedness. 7.Educating the public on homeland security and overall preparedness issues. 8.Chair the Governor's Secure Virginia Initiative Panel to make recommendations on preparedness (legislation, regulation, policy, budget, outreach, organization). 9.Supporting volunteer effort throughout the state. 10. Vice-Chair the Virginia Military Advisory Council to establish working relationship with Virginia's active duty military bases. 11. Reviewing/developing all disaster, emergency management and terrorism management plans for the state and its agencies.	NO INFORMATION PROVIDED
Salvation Army – National Capitol and Virginia Division	www.salvationarmysouth.org	The Salvation Army, an international movement, is an evangelical part of the universal Christian church. Its message is based on the Bible. Its ministry is motivated by the love of God. Its mission is to preach the gospel of Jesus Christ and to meet human needs in His name without discrimination.	NO INFORMATION PROVIDED
State Corporation Commission – Bureau of Insurance	www.state.va.us/acc/division	The BOI balances the interest of insurance consumers with our duty to regulate responsibly Virginia's insurance businesses in an effective but efficient manner Property and Casualty market regulation, Life and Health market regulation, Financial regulation - Both Market Regulation divisions provide consumer service assistance with claims. Financial Regulations monitors the financial soundness of the companies.	• The BOI provide various consumer Guides: Homeowners Guides, Auto Guides, Homeowner Disaster Guide, Commercial Property Disaster Guide • Regulation of the Insurance Industry • Consumer assistance via toll free numbers, web site and press releases, etc. • On site counseling at Emergency Field Offices when beneficial to consumers. • Working with the insurance industry to ensure prompt claim

			handling and payment.
United States Army Corps of Engineers – Baltimore District	www.usace.army.mil	Plan, design and execute water resource management, support for others and environmental restoration and remediation projects. Operate and maintain navigation, hydro power and natural resource management projects. Conduct emergency management response, recovery and mitigation. Permit, enforce and coordinate section 10 and section 404 regulating. Conducts emergency management response, recovery and mitigation primarily for water related events.	NO INFORMATION PROVIDED
United States Department of Agriculture – National Resources Conservation Service	www.nrcs.usda.gov	The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain and improve our natural resources and environment. Richmond State Office- State Conservationist's Office, State Resource Conservation Team, State Soil Scientist Team, State Conservation Engineer Team, Operations Team, 4 Technical & Adm Support Teams & 9 Service Unit Teams Statewide We have office relocation plans in place and emergency response plan. ACC employees are given updates on biosecurity and safety issues. They are encouraged to be vigilant and observant and report any suspicious activity to local law enforcement authorities and our state safety officer in Richmond.	• Ongoing safety & biosecurity via meeting and emails. • Internal to our field offices and service centers • We have a shelter in program for our state office employees
Virginia Association of Zoning Officials	www.vazo.org	To perpetuate an organized professional support community for the maintenance of active communication. Understand that this organization is not involved in disaster preparedness, mitigation, response or recovery outside of the immediate job responsibilities of each member within his or her employment organizational duties.	• Limited to that which is a part of the job duties of each member within their own county or municipal employment.
Virginia Biotechnology Research Park	www.vabiotech.com	To promote the advancement, nurture the environment and accommodate the functions of a thriving Biosciences community in the Greater Richmond area in partnership with Virginia Commonwealth University and other research institutions, business, government and not-for-profit organizations. The park will carry out its mission by developing programs, initiatives and facilities that lead to the creation of new jobs, companies and investment in the region which result in enhanced economic opportunities for those who are directly and indirectly involved in the park and it activities. Virginia Biotechnology Research Park - Real Estate Management Virginia Commonwealth University - has tenants in the Biotech park.	• Fire Officials have met with tenants regarding this. VCU has a department that works with VCU tenants. • Tenants must adhere to all Federal, State and Local laws. • City of Richmond Officials and VCU offer Assistance. • Each tenant is to share its usage of chemicals which in turn is shared with city fire officials.
Virginia Capitol Police	www.vcp.state.va.us	The mission of the Virginia Capitol Police is to provide quality law enforcement services to all citizens of this Commonwealth through honor, professionalism, commitment, compassion, and accountability; to provide protection from harm and invasion of privacy to the Governor of Virginia and his family; to provide protection and service to the Lieutenant Governor, the Attorney General, members of the General Assembly, the Justices of the Virginia Supreme Court, state employees, and visitors to the seat of Virginia's government. The agency's mission also	• 1. The VCP Crowd Response Team (CRT) is trained and equipped to respond to civil disturbances within our jurisdiction. 2. The VCP is in the process of training all officers in "First Responder to an Active Shooter."3. All VCP employees have received training in first aid and CPR and could respond in these capacities during a disaster. • The VCP offers first aid and CPR training to state employees within our jurisdiction. It also offers professional training in the management of terrorism and its consequences.

		includes the enforcement of the laws of the Commonwealth, the investigation of criminal activity and apprehension of offenders along with the protection of people and facilities within our assigned jurisdiction.1. Operations Division. Responsible for responding to a disaster at the seat of government, evacuation of government officials, and assisting in recovery efforts. 2. Administrative Division. Consists of: a. Investigative Services Unit: Responsible for investigating all man-made disasters of a criminal nature occurring within our jurisdiction. b. Special Operations / Crime Prevention: Assist state agencies with emergency evacuation planning. As part of a joint Operation/Administration Division team, conduct in-depth terrorist threat assessments of state government facilities and provide security recommendations to agencies and legislative panels. Operate two explosive detector canine teams to respond to bomb threats or suspicious incidents/packages statewide. Responsible for conducting terrorism awareness and proper mail handling training to state employees within our jurisdiction. c. Communications: The VCP Communications Center will serve as the main communications center during a critical incident at or involving the seat of government. It will have an integral role in disaster response and recovery. d. Training: The Training division is responsible for training all officers of the agency in Weapons of Mass Destruction (WMD) awareness and response.	• The VCP manages a Security Clearance Program that screens sect service personnel that have access to sensitive government operations and/or personnel. • The VCP offers assistance in the development of continuity of operations plans (COOP) and continuity of government (COG) plans for individual agencies. • The VCP provides mutual aid assistance to the City of Richmond, Virginia Commonwealth University (VCU) police, and other metropolitan area law enforcement entities. • The VCP chairs the Virginia Criminal Intelligence Association. It maintains a current database of state government VIPs; and it is viewed by government stakeholders as the lead agency in disaster preparedness at the Virginia Capitol complex.
Virginia Community College System	www.so.cc.va.us	The mission of the Virginia Community College System is to provide comprehensive higher education and workforce training programs and services of superior quality that are financially and geographically accessible and that meet individual, business, and community needs of the Commonwealth.- Academic Services and Research, Administrative Services, Information Technology Services, Internal Audit, Public Affairs, Workforce Development Services The primary purposes of the above divisions are not primarily related to disaster.	• Various colleges of the Virginia Community College System offer courses and degree programs such as Emergency Medical Service, Firefighting, Law Enforcement, Nursing, Police Science, etc.
Virginia Community Policing Institute	www.vcpionline.org	To advance community policing in order to build safer communities and improve the quality of life throughout the Commonwealth of Virginia. VCPI does not have divisions. Entire organization is 9 people. VCPI has partnered with the American Red Cross to offer Disaster preparedness training. In addition VCPI has partnered with the FBI to offer state and local anti-terrorism training to local and state law enforcement.	NO INFORMATION PROVIDED
Virginia Cooperative Extension	www.ext.vt.edu	Help people improve their lives by providing research-based educational resources through a network of on-campus and local Extension offices and educators.	NO INFORMATION PROVIDED
Virginia Department of Emergency Management – Virginia CORPS –	www.virginiacorps.org	Governor Mark Warner's effort to capture the renewed spirit of volunteer service and interest I community emergency preparedness. Virginia Corps serves as a central clearinghouse for a broad range of volunteer efforts statewide and is the state level catalyst an coordination point for Virginia's Citizen Corps.	• CERT Train the Trainer – CERT (Community Emergency Response Team) Program • CERT and CCC supplemental funds grants. Outreach, education and support.

Citizens Corps		level catalyst an coordination point for Virginia's Citizen Corps, Homeland Security and emergency preparedness efforts.	• Citizen Corps Council – Designed to oversee local preparedness efforts and resources esp. in regards to volunteerism. CERT – develops local teams of vol. Citizens who are trained to assist their communities, during or after disasters.
Virginia Drought Monitoring Task Force		VA technical committee of State and Federal agencies charged with tracking drought conditions and reporting to the Governor and his cabinet.	NO INFORMATION PROVIDED
Virginia Ground Water Protection Steering Committee	www.deq.state.va.us /gwpsc	To stimulate, strengthen and coordinate ground water protection activities in Virginia. Because of the importance of ground water as a source of water and as a natural resource to Virginia residents, businesses and industries.	NO INFORMATION PROVIDED
Virginia Housing Development Authority	www.vhda.com	To help Virginians obtain safe, sound and decent housing otherwise unaffordable to them.	NO INFORMATION PROVIDED
Virginia Marine Resources Commission	www.mrc.state.va.u s	It is the mission of the Virginia Marine Resources Commission, as a regulatory agency of the Commonwealth of Virginia, to serve as steward of Virginia's marine and aquatic resources for present and future generations. The mission is accomplished through the promulgation of regulations, developing fishery management plans, and the development of programs to enhance and improve commercial and sport fisheries in Virginia's tidal waters. Virginia Marine Police (see 28.2-106. Code of VA) -Patrol-police tidal waters, water-borne safety, search & rescue -Enforce marine fishery & habitat conservation laws and regulations. -Enforce health laws pertaining to harvesting seafood. –Enforce abandoned vessels-obstructions, boating laws. -Police-patrol water-related installations against terrorist attack. Respond to oil/Hazmat incident where tidal waters are involved to inspect and secure scene. Provide water-borne transportation and general law-enforcement at incident scene.	• Permits are required for encroachments involving state-owned submerged lands pursuant to Section 28.2-1204 of the Code of Virginia. Jurisdiction is asserted to the "ordinary high water mark" in non-tidal waterways that have drainage areas greater than 5 square miles and all tidal waterways beyond the mean low water line. In general, a permit is not required for removal of obstructions or 'hazardous property' for state-owned submerged lands, including what are referred to as "snag and removal." Use of explosives requires review and approval, perhaps including a public review process. Proponents of activities that involve large amounts of debris or removal of sediment are advised to contact VMRC to determine such activities are regulated. VMRC has no mechanism to waive any regulatory requirement as a result of flood disasters or declared state of emergency unless specified by executive order. However, certain situations are handled through the VMRC "General Permit for Emergency Situations and Water Quality Improvement Projects" in no-tidal waterways. Also, following a determination that there is a threat to public or private property or to the public healthy and safety, VMRC exercises authority for an expedited process for issuance of a "General Wetland Permit for Emergency Situations" to allow applicants to stabilize non-vegetated tidal shorelines. • Yes: Virginia Marine Police; search and rescue, National Shellfish Sanitation Program enforcement, cooperative law enforcement with other Federal, State and Local police forces and Emergency Homeland Security on State waters.
Virginia Resources Authority	www.vra.state.va.us	We further the Commonwealth of Virginia's goals in economic development, the environment, public health and safety, and aviation transportation by providing local governments with affordable and innovative infrastructure financing. Administration (2 employees) - the primary responsibility of this department is to provide administrative support, office	• We have provided each of our employees with a written disaster recovery plan and have reviewed the same in staff meetings. • The Authority has maintained an off-site backup of all computer software and data along with a file/office/equipment recovery plan since 1994. In August 2001, the Authority

		space, equipment, and training for the staff of VRA. This department heads up the disaster recovery function of the office - coordinating the file recovery and procurement of space, equipment, supplies and services in the event of a disaster. The Director of Administration serves on the management team of the office and is the leader of the disaster recovery team. Accounting (3 employees) - this department handles payroll, accounts payables, accounts receivable, and financial reporting for the office. In addition, this department oversees the trustee work for the bonds issued by the Authority and the loan servicing for the revolving loan funds. The Controller serves on the management team and is a disaster recovery member. Loan Origination/Legal (4 employees) - this department does all the credit analyses and preparation for closings of VRA's loans - both through the Bond Program and through the Revolving Loan Funds. In addition, this department is responsible for the post-closing compliance for all the RLF loans. The Deputy Director/General Counsel also oversees all departments and performs legal work for the Authority. The Director of Loan Origination and Deputy Director/General Counsel are members of the management team and the disaster recovery team. Marketing (2 employee) - VRA's Development Officer is responsible for outreach to Virginia's local government and the implementation of VRA Marketing Plan. VRA's Executive Director oversees all VRA functions and is a member of the management team and the disaster recovery team.	established a more comprehensive disaster recovery plan, which, in addition to expanding on the previous plan, provides an action plan for several time-out scenarios. • We have established a cross-training program, where an alternate staff member than the person primarily responsible for the function backs each of the essential functions in the office up.
Virginia Save Our Streams	www.vasos.com	The central mission of VA SOS is to 1) provide water resource education utilizing citizen stewardship activities 2) make useful observations of stream sections not currently assessed by state agencies.	• We provide training to citizens to conduct water quality monitoring, mainly on streams and rivers. Our citizens monitors provide water quality data to VA DEQ and report any fish kills or potential hazardous spills to the proper authorities.
Virginia State Climatology Office	www.climate.virginia.edu	A research and service unit of the University of Virginia with a primary mission to provide information and conduct research on the atmospheric environment and its impact on Virginia's economic and ecologic systems. The Virginia State Climatology Office operates primarily in an advisory role to other State, Federal and local agencies regarding all forms of hazards related to the atmospheric environment. It also conducts ongoing research in this field, in order to enhance our understanding of such hazards. The Office also serves as a lead member of the State Drought Monitoring Task	NO INFORMATION PROVIDED
Virginia Volunteer Organization Active in Disaster		VOAD is a coordinating body designed to bring together voluntary organizations to faster more effective service to people affected by disaster. We do this through cooperation, communication and education. VOAD is an umbrella organization of human service agencies, churches and related groups that were willing to use their resources and expertise for the common good following a major disaster that results in human need.	• Each individual voluntary organization does education in disaster preparedness and mitigation. VA VOAD has a semi-annual meeting to teach, train, evaluate and collaborate information. • VA VOAD is mandated to have two meetings yearly. The purpose is to communicate with other members, collaborate with other agencies active Fall meeting assesses response to disasters over the course of the year.

			• Through our various agencies we provide the following: Animal Protection, Building Repair, Child Care, Clean Up, Clothing, Communication, Counseling, Damage Assessment, Disaster Welfare, Financial Assistance, Food(feeding supplies), Human Relations, Information management, Mass Care, Sheltering, Transportation, Volunteers, Warehousing/Bulk Distribution.
Virginia Water Monitoring Council	www.vwrrc.vt.edu	The mission of the VWMC is to promote and facilitate coordination, collaboration and communication of water monitoring programs throughout the Commonwealth of VA.	NO INFORMATION PROVIDED
The following Cooperating Agencies and Organizations did not provide profiles:			
Agriculture & Consumer Services			
Chesapeake Bay Program			
College of William and Mary			
Compensation Board			
Department for the Aging			
Department of Corrections			
Department of Health Professions			
Department of Juvenile Justice			
Department of Mental Health, Mental Retardation			
Department of Professional & Occupational Regulation			
Department of Taxation			
Department of the Blind and Vision Impaired			
Dispute Resolution Center			
Facilities Services & Planning Administration			
FEMA Region III			
Frontier Culture Museum of Virginia			
James Madison University			
Jamestown-Yorktown Foundation			
Motor Vehicle Dealer Board			
National Park Service			
National Weather Service: Offices in Baltimore/Washington, Blacksburg, Morristown (TN) and Sterling			
Norfolk State University			
Office of the Attorney General			
Office of the Governor			
Richard Bland College			
Southwest Virginia Higher Education Center			
Transportation Research Council			
United States Army Corps of Engineers: Huntington, Nashville, Norfolk and Wilmington Districts			
United States Department of the Interior: Bureau of Land Management			
United States Geological Survey			
University of Virginia at Wise			
Virginia Association of Counties			
Virginia Association of Planning District Commissions			
Virginia Association of Soil and Water Conservation			
Virginia Center for School Safety			
Virginia Code Commission			
Virginia College Savings Plan			

Virginia Commonwealth University
Virginia Department of Health
Virginia Economic Development Partnership
Virginia Employment Commission
Virginia Information Technology Agency: Virginia Geographic Information Network
Virginia Municipal League
Virginia Museum of Fine Arts
Virginia National Guard
Virginia Polytechnic Institute and State University
Virginia Port Authority
Virginia State Police
Virginia Tourism Authority
Worker’s Compensation Commission

Appendix E – Steering Committee Meetings

First Steering Committee Meetings
July 28, 2003

State Mitigation Planning Committee – List of Agencies Contacted to Attend June 2003

Agency Name:	Agency Contact:	Title of Contact:
American Red Cross National Office	Ms. Pat Appino	State Readiness Associate
American Red Cross National Office	Mr. Ken Deutsch	Manager
American Red Cross	Mr. Bob Buckman	
American Red Cross	Mr. Rick Russell	
Bureau of Insurance	Mr. Alfred Gross	Commissioner of Insurance
Chesapeake Bay Commission	Ms. Melanie Davenport	Virginia Director
Chesapeake Bay Foundation	Mr. Ray Hoagland	Virginia Executive Director
Chesapeake Bay Local Assistance Dept	Ms. Martha Little	Chief of Planning
Chesapeake Bay Program		
Commission on Local Government	Ms. Adele MacLean	Intergovernmental Relations Specialist
Dept of Agriculture and Consumer Services	Mr. Richard Saunders	Program Manager, Office of Dairy and Foods
Dept of Business Assistance	Mr. Rob Blackmore	Senior Executive Assistant
Dept of Conservation and Recreation	Mr. Jon Phillipe	Director
Dept of Conservation and Recreation	Mr. Joey Fagan	Karst Protection Specialist
Dept of Conservation and Recreation	Mr. Corey Garyotis	Floodplain Programs and NFIP State Coordinator
Dept of Conservation and Recreation		
Dept of Education	Ms. Jo Lynne DeMary	State Superintendent of Public Instruction
Dept of Emergency Management	Mr. Richard Dameron	State Hazard Mitigation Officer

Dept of Emergency Management	Mr. Art Warren	Radiological Program Manager

Agency Name:	**Agency Contact:**	**Title of Contact:**
Dept of Emergency Management	Mr. Brett Burdick	Technological Hazards Program Manager
Dept of Emergency Management	Mr. Gordon Barwell	Field Services Program Manager
Dept of Environmental Quality	Mr. David Ormes	Emergency Planning
Dept of Fire Programs	Mr. Adam Thiel	Director
Dept of Forestry		Chief, Forest Protection
Dept of Game and Inland Fisheries	Mr. William Woodfin Jr.	Director
Dept of General Services	Ms. Elzy Williams	Facilities Design and Construction Engineer
Dept of General Services	Mr. Demerst Smit	Deputy Director
Dept of General Services	Mr. John E. Forrest	Director
Dept of Health	Mr. Everette Vaughan	Disaster Response Coordinator
Dept of Historical Resources	Ms. Kathleen Kilpatrick	Director
Dept of Housing and Community Development	Mr. Jack Proctor	Deputy Director for Building and Fire Regulation
Dept of Labor and Industry	Mr. E.A. Hegamyer	Assistant Commissioner
Dept of Military Affairs	Maj. Gen. Claude Williams	The Adjutant General
Dept of Mines, Minerals and Energy	Ms. Cheryl Cashman	
Dept of Mines, Minerals and Energy	Mr. Steve Walz	
Dept of Planning and Budget	Mr. Richard Brown	Director
Dept of Rail and Public Transportation	Mr. Thomas Stewart	Rail Passenger Programs Manager

Dept of Technology Planning	Mr. William Shinar	VGIN Coordinator

Agency Name:	**Agency Contact:**	**Title of Contact:**
Dept of Transportation	Mr. Perry Cogburn	Deputy Director, Emergency Operations
Dept of Treasury	Mr. Don LeMond	Director
Division of Drinking Water	Mr. Robert Taylor	Director
Federal Emergency Management Agency	Mr. Robert Linck	
National Park Service	Ms. Fran Mainella	Director
National Resources Conservation Service	Ms. Denise Doetzer	State Conservationist
National Weather Service	Mr. James Travers	Meteorologist-In-Charge
National Weather Service		
National Weather Service	Mr. Jerry McDuffie	Meteorologist-In-Charge
National Weather Service	Mr. Anthony Siebers	Meteorologist-In-Charge
Office of Commonwealth Preparedness	The Hon. John Hager	Assistant to the Governor for Commonwealth Preparedness
Office of the Attorney General	The Hon. Jerry Kilgore	Attorney General
Salvation Army		
State Corporation Commission	Mr. Hullihen Moore	Chairman
Transportation Research Council	Mr. Gary Allen	Director
U.S. Geological Survey	Mr. Ward Staubitz	
U.S. Army Corps of Engineers	COL Charles Fiala Jr.	Commander and District Engineer

U.S. Army Corps of Engineers	COL John Rivenburgh	District Engineer
U.S. Army Corps of Engineers	COL Steve Gay	District Engineer

Agency Name:	**Agency Contact:**	**Title of Contact:**
U.S. Army Corps of Engineers	COL David Hansen	District Engineer
U.S. Army Corps of Engineers	COL Charles Alexander	District Engineer
U.S. Department of the Interior	Ms. Rebecca Watson	Assistant Secretary
Va Advisory Commission on Intergovernmental Relations	The Hon. Emmitt Hanger Jr.	Chairman
Va Association of Counties	Mr. James Campbell	Executive Director
Va Association of Planning District Commissions	Ms. Kristen Umstattd	President
Va Association of Soil and Water Conservation Districts	Ms. Stephanie Martin	Executive Director
Va Association of Zoning Officials	Mr. Carroll Seaborn	President
Va Biotechnology Research Park	Mr. Robert Skunda	President and CEO
Va Center for School Safety	Ms. Donna Bowman	Director
Va Code Commission	Del. William Howell	Chairman
Va Community College System	Mr. Glenn DuBois	Chancellor
Va Community Policing Institutes	Ms. Lynda O'Connell	Executive Director
Va Cooperative Extension Service	Ms. Judith Jones	State Administrator
Va CORPS	Ms. Suzanne Simmons	
Va Drought Monitoring Task Force	Mr. Terry Wagner	
Va Economic Development Partnership	Mr. Bob Burnley	Director, Technical Services and Information Systems

Va Ground Water Protection Steering Committee	Ms. Mary Ann Massie	
Va Housing Development Authority	Mr. George Peterson	Support Services Director

Agency Name:	**Agency Contact:**	**Title of Contact:**
Va Marine Resources Commission	Mr. Robert Grabb	Habitat Management Chief
Va Marine Resources Commission	Col. Steven Bowman	Law Enforcement Chief
Va Municipal League	Mr. Greg Dickie	Direcor of Underwriting and Marketing
Va Port Authority	Mr. J. Robert Bray	Executive Director
Va Resources Authority	Ms. Mary Barnes	Director of Loan Organization
Va Save Our Streams	Mr. Jay Gilliam	Coordinator
Va State Climatology Office	Dr. Patrick Michaels	State Climatologist
Va Tourism Authority		
Va Water Monitoring Council	Ms. Katie Register	
Voluntary Organizations Active in Disaster	Rev. Frank Jennings	President

June 6, 2003

«Contact_Sal» «Contact_First» «Contact_Last» «Surname», «Contact_Title»
«Department_Name»
«Division_Name»
«Address_1»
«Address_2»
«City», «State» «ZIP»

Dear «Contact_Sal» «Contact_Last»:

The Virginia Department of Emergency Management (VDEM) is writing to request that you or a representative from your agency participate as a member of the State Mitigation Planning Committee during the current revision of the state Hazard Mitigation Plan (Volume 6 of the Commonwealth of Virginia Emergency Operations Plan).

The Disaster Mitigation Act of 2000 (DMA2K), promulgated nationally by the Federal Emergency Management Agency, has implemented specific planning requirements that apply to the Commonwealth of Virginia and all Commonwealth counties, cities, and towns. Completing this planning process can provide security and fiscal benefits to the Commonwealth and its citizens. Now this process also is a pre-condition for the state and its localities to qualify for both pre and post-disaster mitigation funding from the federal government. As a result, the July 2001 Commonwealth of Virginia Hazard Mitigation Plan needs to be updated to satisfy the new mitigation planning requirements of DMA2K.

While VDEM is the lead state agency in developing and maintaining this plan, it cannot complete the data gathering and analysis portions of the plan without your agency's help. Thus, VDEM is requesting your assistance in this revision effort.

The initial meeting of the State Mitigation Planning Committee is scheduled for Monday, July 28, 2003, and I request that you or a representative from your agency participate in this kick-off meeting. This meeting will provide the background and timeline for this current planning effort, and discuss the roles VDEM would like each agency to play in the development of the updated mitigation plan. You or your agency representative will be asked to attend the four principal meetings of the State Mitigation Planning Committee over the next year, and perhaps participate on one or more of the three subcommittees needed to gather the data necessary for this plan.

Enclosed are the kick-off meeting registration form and draft agenda. Also enclosed is a survey about your agency and its programs as they might relate to hazard mitigation. If your agency took part in the development of the July 2001 plan, there also may be an agency profile with this letter. Please use that profile as a guide as you answer the survey questions. Please return the completed agency survey form with your registration to VDEM using the enclosed self-addressed stamped envelope no later than June 30, 2003.

Thank you in advance for your participation in this process. If you have any questions please contact David Corzilius, Mitigation Planning Coordinator, by phone at (804) 897-6500, extension 6529, or by email at dcorzilius@vdem.state.va.us.

Sincerely,

Michael M. Cline

MMC/rod

Enclosures:

- Meeting agenda
- Meeting registration form
- Agency survey
- Past agency profile (selected agencies only)
- Self-addressed stamped envelope
- List of invited state agencies

INITIAL MEETING of the

STATE MITIGATION PLANNING COMMITTEE

FOR THE DEVELOPMENT OF THE

COMMONWEALTH OF VIRGINIA ALL-HAZARDS MITIGATION PLAN

Holiday Inn Select, Koger Business Center
1021 Koger Center Boulevard
Richmond, VA 23235-4756

July 28, 2003

Meeting Agenda

9:30-10:00 AM	**Registration**	
10:00-10:15 AM	**Opening Comments**	**Michael Cline**
10:15-10:30 AM	**Introductions**	**Mary Camp**
10:30-11:15 AM	**Why are we having this meeting?** Purpose of this meeting Overview of Disaster Mitigation Act of 2000 State planning requirements/deadlines under DMA2K	**Michelle Pope**
11:15-12:00 PM	**Overview of State Hazard Mitigation Plan Development** Plan components Data to complete this plan Planning timeline FOIA Considerations	**David Corzilius**
12:00-1:00 PM	**Lunch**	
1:00-1:30 PM	**Role of Agencies in State Mitigation Plan Development** VDEM role Agency roles Agency presentations: Division of Risk Management Department of Forestry	**David Corzilius**
1:30-2:00 PM	**Role of State Mitigation Planning Committee** State Mitigation Planning Committee tasks Timeline for Committee efforts	**Elaine Meil**
2:00-2:30 PM	**Subcommittee Breakout Session**	
	Hazards Identification Sub-committee	Elaine Meil
	Vulnerability Assessment Sub-committee	David Corzilius
	Mitigation Strategies Sub-committee	Michelle Pope

Second Steering Committee Meeting
February 27, 2004

COMMONWEALTH of VIRGINIA

Department of Emergency Management

MICHAEL M. CLINE
State Coordinator

JANET L. CLEMENTS
Deputy Coordinator

L. RALPH JONES, JR.
Deputy Coordinator

10501 Trade Court
Richmond, Virginia 23236-3713
(804) 897-6500
(TDD) 674-2417
FAX (804) 897-6506

February 6, 2004

Dear ,

You are cordially invited to attend the **second meeting** of the State Hazard Mitigation Planning Committee on **Friday, February 27, 2004,** at the Holiday Inn Koger Business Center just off Midlothian Turnpike (a link to directions is provided below). Registration will start at 9:30 AM, and the meeting will run from 10:00 AM to about 3:00 PM with a break for lunch (provided) from 12 PM to 1 PM. A draft agenda for this meeting is included with this letter; a final agenda will be included in your meeting packet. Please **RSVP** for this meeting by **Wednesday, February 18, 2004** by faxing the attached registration form to David Corzilius at 804-897-6526. If you have any questions, you may call David at 804-897-6500, extension 6529, or email him at dcorzilius@vdem.state.va.us.

It is very important that your agency be represented at this meeting and take an active role in these discussions. This second meeting will provide a overview of the results of the Commonwealth's hazard identification and risk assessment process and begin the development of the Commonwealth's new mitigation goals, strategies, and projects. This is a very important meeting in that this committee will be laying the foundation of the Commonwealth's new Hazard Mitigation Plan by approving the hazard assessment and beginning the development of the mitigation goals and projects.

In an attempt to counter delays caused by Hurricane Isabel, VDEM hired the Virginia Tech Center for Geospatial Information Technology (CGIT) last November to assist with this planning process. CGIT has been working closely with VDEM these last several months to pull together the hazards assessment that will be presented at this meeting. Together, VDEM and CGIT will provide a summary of the hazard assessment results and each agency will receive an agency-specific listing of the potential impacts of those hazards on its facilities. The full Committee then will begin the process of identifying general mitigation goals for the Commonwealth. Once these general mitigation goals have been identified, each agency will be asked to develop agency-specific mitigation projects to address the potential impacts on its facilities identified by the hazards assessment. The Mitigation Subcommittee will be asked to coordinate, collect, and compile the results of your agency's efforts in preparation for our third meeting later this year.

In addition to your participation in this next meeting, VDEM also requests that you review the enclosed draft copy of your agency profile. VDEM has compiled this agency summary based on the information you provided at our first meeting. This profile will be used in the mitigation plan to show how other state agencies assist with mitigation planning, projects, and funding across the Commonwealth. Please review this profile and make any additions or corrections as necessary, and bring the edited copy with you to the February 27th meeting to return it to VDEM at that time.

Because of Hurricane Isabel, VDEM had to push back our planning schedule by nearly a month, resulting in our current delay for the second meeting. We apologize for not keeping you better informed about these delays and their causes. However, VDEM is positive that having CGIT assist us in this process will allow us to stay on schedule from this point on *and* still complete this plan by the required deadline. This will mean that any future requests to your agency for data, information, or assistance need to be handled as promptly as possible so we can continue to meet our deadlines. In all fairness, VDEM and CGIT will try to provide as much lead time as possible for those requests so that we interfere as little as possible with your own work. A summary of the revised timeline is provided below.

Thank you very much for your continuing interest and participation in this planning process. We look forward to receiving your RSVP for this meeting by February 18, and seeing you at the meeting on February 27.

Sincerely,

Michelle Pope
Acting State Hazard Mitigation Officer

Attachments: Draft Agenda for the February 27, 2004 meeting
Meeting RSVP form to be returned by February 18, 2004
Draft Agency Profile to be edited

Directions to the meeting: http://go.vicinity.com/sixcont/bidMap.d?BID=RICKO&brandname=_holidayinn.

MP/dbc

Revised State Mitigation Planning Timeline:

1.	***2nd meeting of the State Hazard Mitigation Planning Committee (SHMPC)***	**Feb. 27, 2004**
2.	Reports from Mitigation Subcommittee and other ad hoc committees due	Mar 26, 2004
3.	Draft mitigation strategies section for review by VDEM/FEMA	Apr. 5, 2004
4.	Other draft sections, as completed, for review by VDEM/FEMA	Apr. 16-23, 2004
5.	Draft sections of plan ready for review by SHMP Committee	April 28, 2004
6.	***3rd meeting of the SHMPC***	**May 26, 2004**
7.	SHMP Committee comments on draft sections due	June 1, 2004
8.	Completed draft plan for review by VDEM/FEMA	June 14-25, 2004
9.	Revised draft (final draft) plan ready for SHMP Committee review	June 28, 2004
10.	***4th meeting of the SHMPC***	**July 20, 2004**
11.	SHMP Committee comments on final draft plan due	July 22, 2004
12.	Final plan ready for VDEM review	July 26, 2004
13.	Final Draft Plan completed	Aug. 2, 2004
14.	FEMA III review of Final Draft plan	Aug. 3 to Sept. 3, 2004
15.	Revise Final Draft based on FEMA comments	Sept. 3-10, 2004
16.	***Final State Mitigation Plan ready for FEMA review and approval***	**Sept. 10, 2004**
17.	FEMA III review of Final State Mitigation Plan	Sept. 13 to Oct. 31, 2004
18.	**FEMA III notification to State of Final plan approval**	**Nov. 1, 2004**

SECOND MEETING of the

STATE HAZARD MITIGATION PLANNING COMMITTEE

FOR THE DEVELOPMENT OF THE

COMMONWEALTH OF VIRGINIA ALL-HAZARDS MITIGATION PLAN

Holiday Inn Select, Koger Business Center
1021 Koger Center Boulevard
Richmond, VA 23235-4756

February 27, 2004

Meeting Agenda

9:30-10:00 AM	**Registration**	
10:00-10:15 AM	**State Agency Support of Mitigation Planning and EMAP efforts**	**Michael Cline**
10:15-10:30 AM	**Introductions**	**Mary Camp**
10:30-10:45 AM	**Here we are again…**	**David Corzilius**
	Review of State Planning Efforts to Date	
	Today's Meeting Topics	
	Review and discussion of Commonwealth hazard summary spreadsheet	
	Analysis of Human-caused hazards	
	State vs. Local Loss estimations	
	Differences in items assessed	
	Incorporating Local Results into State HMP	
	Where does this lead to after this meeting?	
10:45-12:00 PM	**Overview of Hazards Identification and Risk Assessment Results**	**Dr. Shane Parson**
	Study Basis	
	Hazard by Hazard HIRA results	
	Summary of Commonwealth Analysis	
	State Agency Case Studies	
12:00-12:45 PM	**Lunch**	
12:45-1:30 PM	**Development of Commonwealth Mitigation Goals & Strategies**	**Michelle Pope**
	Definitions	
	1 hour breakout session tasks	
1:30-2:30 PM	**Mitigation Strategies Breakout Session**	**Various**
	Review Commonwealth Mitigation Goals	
	Develop Commonwealth Mitigation Strategies	
2:30-3:00 PM	**Summary of Breakout Session Efforts and Wrap-up**	**David Corzilius**
	Collect Breakout Session Ideas	
	Where do agencies go from here?	
	State Agency HIRA summaries in packet	
	Correspondence to follow in next few weeks	
	Developing Agency-specific Objectives/Projects based on Goals & Strategies	
	Upcoming deadlines for this part of the process	
	Mitigation Subcommittee tasks/deadlines after this meeting	
	Next Meeting: May 26, 2004	

3:00 PM .....Mitigation Subcommittee meeting (short) .....Various

Third Steering Committee Meeting
May 26, 2004

COMMONWEALTH of VIRGINIA

Department of Emergency Management

MICHAEL M. CLINE
State Coordinator

JANET L. CLEMENTS
Deputy Coordinator

L. RALPH JONES, JR.
Deputy Coordinator

10501 Trade Court
Richmond, Virginia 23236-3713
(804) 897-6500
(TDD) 674-2417
FAX (804) 897-6506

April 30, 2004

[name]
[title]
[organization]
[address]
[city], [state] [zip]

Dear State Hazard Mitigation Planning Committee Member,

You are cordially invited to attend the third meeting of the State Hazard Mitigation Planning Committee on **Wednesday, May 26, 2004,** at the **Sheraton Park South** just off Midlothian Turnpike. Please note that this is a change of location from the last meeting; directions are provided with this letter. Registration will start at 9:30 AM, and the meeting will run from 10:00 AM to about 3:30 PM with a break for lunch (provided) from 12 PM to 1 PM. A draft agenda for this meeting also is included with this letter. Please **RSVP** for this meeting by **Monday, May 17, 2004** by faxing the attached registration form to Wendy Hoffman at 804-897-6536. Any questions about this meeting should be directed to David Corzilius by phone at 804-897-6500, extension 6529, or by email him dcorzilius@vdem.state.va.us.

It is very important that your agency or organization be represented at this meeting and take an active role in the discussions planned. This meeting will provide an overview of the Commonwealth's mitigation planning process to date in the morning and an opportunity for input on the current list of proposed mitigation projects and their priority ranking within this plan. Staff from the Institute for Environmental Negotiation will facilitate the breakout sessions at this meeting to review and rank these projects.

This meeting will be one of the few opportunities your agency will have to participate in the review, revision, and ranking of these mitigation projects. It is also critical that your agency continue propose mitigation projects up to May 20th. The May 26th meeting will review and rank the list of projects available as of May 20th. You may view the current list of proposed projects by going to the website at http://www.cgit.vt.edu/, and logging in with the ID "vdem" and the password "hokies03." There is a new link there to allow you to view the all the proposed mitigation projects entered since the last meeting. Thank you very much for your continuing interest and participation in this planning process. We look forward to receiving your RSVP for this meeting by May 17, and seeing you at the meeting on May 26.

Sincerely,

Michael M. Cline

Attachments: Driving Directions to Sheraton Park South
Draft Agenda for the May 26, 2004 meeting
Meeting RSVP form to be returned by May 17, 2004

Third Meeting of the

STATE HAZARD MITIGATION PLANNING COMMITTEE

FOR THE COMMONWEALTH OF VIRGINIA ALL-HAZARDS MITIGATION PLAN

Location of Meeting: Sheraton Park South
9901 Midlothian Turnpike
Richmond, VA 23235
804-323-1145

Date of Meeting: **May 26, 2004**

Meeting Agenda

9:30-10:00 AM	**Registration**	
10:00-10:15 AM	**State Agency Support of Mitigation Planning and EMAP results**	**Janet Clements**
10:15-10:30 AM	**Introductions**	**Deborah Mills**
10:30-10:45 AM	**Here we are again…** Review of State Planning Efforts to Date Today's Meeting Topics Review and discussion of Commonwealth hazard summary spreadsheet What comes after this meeting?	**Dr. Shane Parson**
10:45-11:15 AM	**Review of Hazards Identification and Risk Assessment Results** Summary of Commonwealth Analysis Data concerns from February meeting	**Dr. Shane Parson**
11:15-12:00 PM	**Summary of Current Mitigation Goals, Objectives, and Projects** Introduce current projects list Overview of afternoon activities	**Dr. Shane Parson**
12:00-12:45 PM	**Lunch**	
12:45 – 3:00 PM	**Small Group Assignments** **UVA Institute for Environmental Negotiation** Definitions and groups Mitigation Project Ranking Priorities Review of Objectives Supplementing Projects and Strategies Continue entering agency-mitigation projects based on Goals & Objectives Upcoming deadlines and products	
3:00 – 3:15 PM	**Summary**	

Next Meeting: Monday, July 19, 2004

Fourth Steering Committee Meeting
July 19, 2004

COMMONWEALTH of VIRGINIA

Department of Emergency Management

MICHAEL M. CLINE
State Coordinator

JANET L. CLEMENTS
Deputy Coordinator

L. RALPH JONES, JR.
Deputy Coordinator

10501 Trade Court
Richmond, Virginia 23236-3713
(804) 897-6500
(TDD) 674-2417
FAX (804) 897-6506

November 22, 2004

Dear State Hazard Mitigation Planning Committee Member:

You are cordially invited to attend the Final meeting of the State Hazard Mitigation Planning Committee on **Monday, July 19 2004,** at the **Sheraton Park South**. Registration will start at 9:30 am, and the meeting will run from 10:00 am to about 3:30 pm with lunch provided. A draft agenda is attached. Please **RSVP** for this meeting by **Wednesday, July 14, 2004,** by faxing the attached registration form to Wendy Hoffman at 804-897-6506. Any questions about this meeting should be directed to me by phone at 804-897-6500, ext. 6563, or by email at dmills@vdem.state.va.us.

It is very important that your agency or organization be represented at this meeting and take an active role in the discussions planned. This final meeting of the Steering committee will include the following agenda items:

- Presentation of the Draft *Virginia Emergency Operations Plan – Volume 6 Hazard Mitigation;*
- Instructions on how to review and comment on the plan draft;
- Instructions on ranking projects using the Hazard Mitigation web site previously used to submit projects http://www.cgit.vt.edu/. You may view the current list of proposed projects by going to the Web site at and logging in with the ID "vdem" and the password "hokies03." There is a new link there to allow you to view all the proposed mitigation projects entered since the last meeting; and
- Organization into working committees to aid implementation of the adopted plan and revision of the plan to include Terrorism by 2007.

Included is the draft plan on CD, an RSVP form, draft agenda and directions to the meeting site. We will give you specific instructions on review of the plan at the July 19 meeting. You may wish to print sections

of interest to familiarize yourself with the plan and its format.

This meeting is very important as we complete the planning process to develop the 2004 Hazard Mitigation Plan. The committee structure that we will determine at this meeting will be critical to plan implementation. In addition, revision of the plan will begin almost as soon as it is approved by FEMA. The 2007 revision will require uploading of local 322 plans as well as expansion to include human-caused hazards.

Thank you very much for your continuing interest and participation in this planning process. We look forward to receiving your RSVP for this meeting July 14, and seeing you at the meeting on July 19, 2004.

Sincerely,

Deborah Gordon Mills, C.F.M.
Hazard Mitigation Program Manager

Attachments

Fourth Meeting of the

STATE HAZARD MITIGATION PLANNING COMMITTEE FOR THE COMMONWEALTH OF VIRGINIA ALL-HAZARDS MITIGATION PLAN

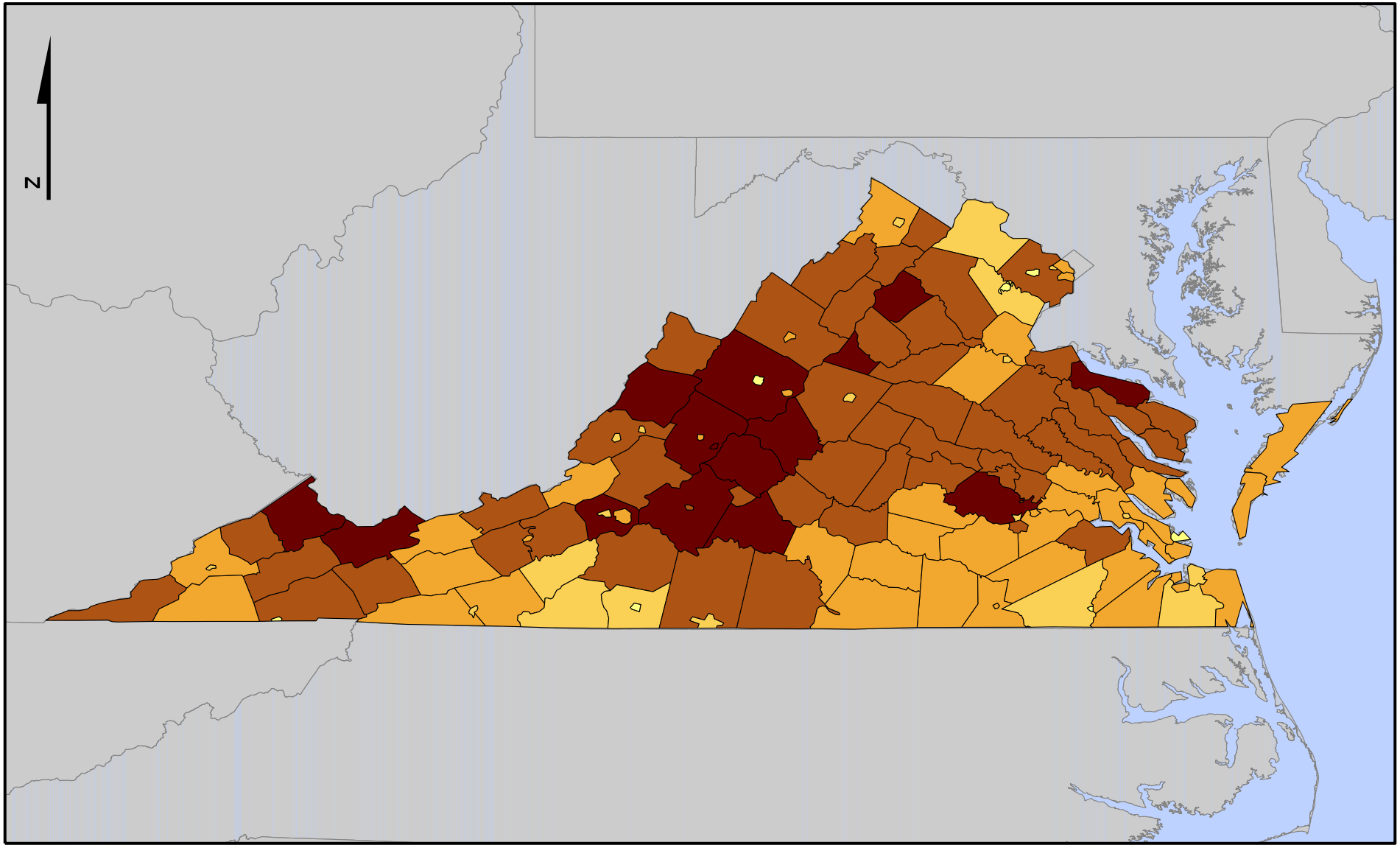
Sheraton Park South
9901 Midlothian Turnpike
Richmond, VA 23235
804-323-1145

July 19, 2004

Meeting Agenda

9:30-10:00 AM	**Registration**	
10:00-10:15 AM	**Welcome and Introductions**	**Deborah Mills**
10:15-10:30 AM	**Here we are again…** Review of State Planning Efforts to Date Today's Meeting Topics	**Deborah Mills**
10:30-11:00AM	**Draft Commonwealth Standard Hazard Mitigation Plan** Plan Summary Missing Pieces Steering Committee Review	**Dr. Shane Parson** **Deborah Mills**
11:00-11:30 AM	**Determining Strategy and Project Criteria** Ranking Criteria Log-in and Vote!!	**Rachael Heltz Herman**
11:30 – 11:45	**Planning for Human-Caused Hazards**	**Bob Gregory**
11:45 – Noon	**Making the Plan Work**	**Deborah Mills**
12:00-12:45 PM	**Lunch**	
12:45 – 3:00 PM	**Small Group Assignments** Define Purpose of sub-committee Identify Missing members Determine Primary Contact Priority Tasks for next 6 months Next meeting/conference call/email	**UVA Institute for Environmental Negotiation**
3:00 – 3:15 PM	**Summary**	

FEDERALLY DECLARED DISASTERS 1969-2004



Number of Occurences

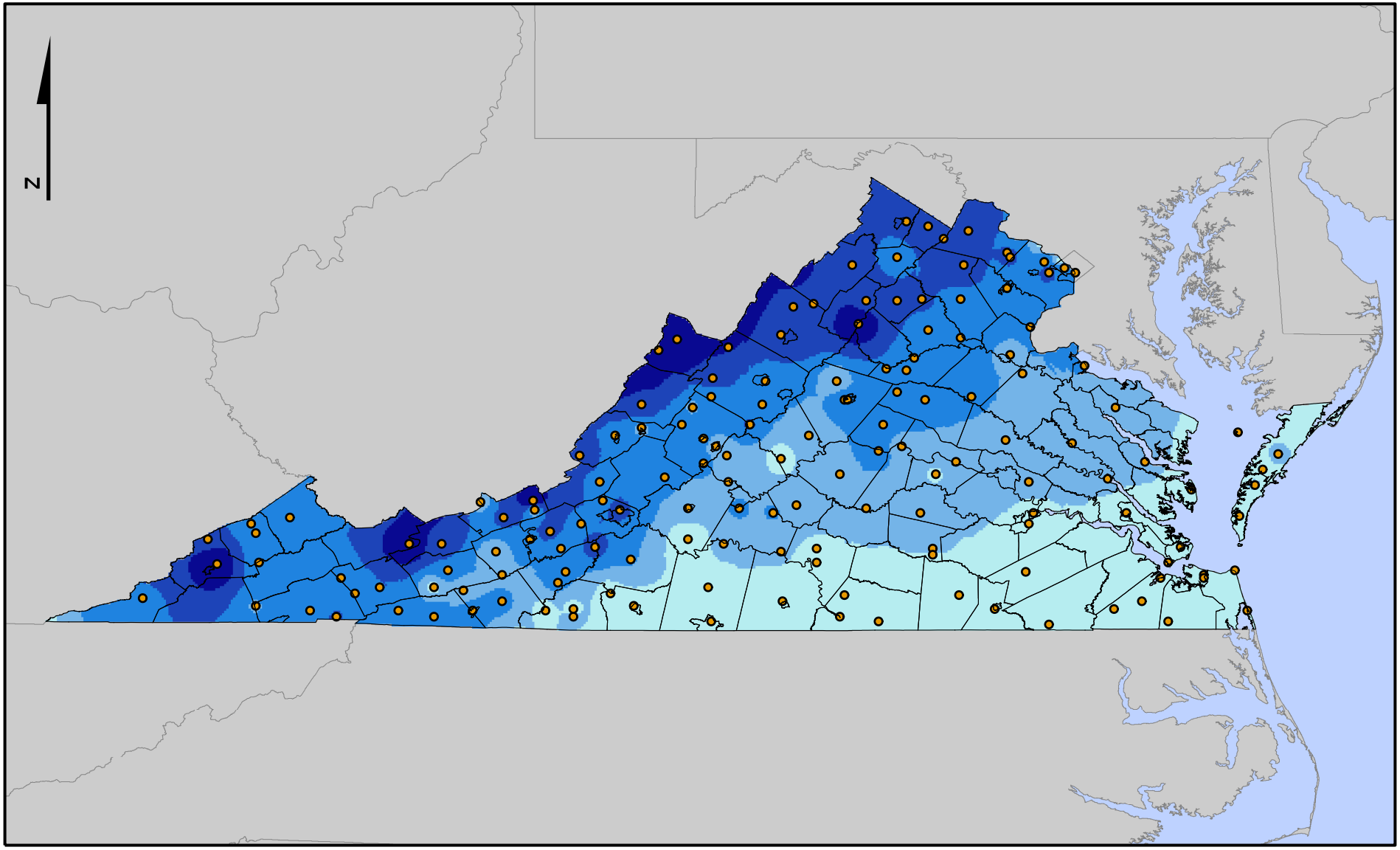
1 - 3 | 4 - 5 | 6 - 7 | 8 - 9 | 10 - 13

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: July 2004

Data Sources: FEMA, VT CGIT

VIRGINIA SNOWFALL (inches)



Weather Stations

2.65 - 10.69

10.69- 16.12

16.12- 21.55

21.55 - 29.37

29.37 - 58.26

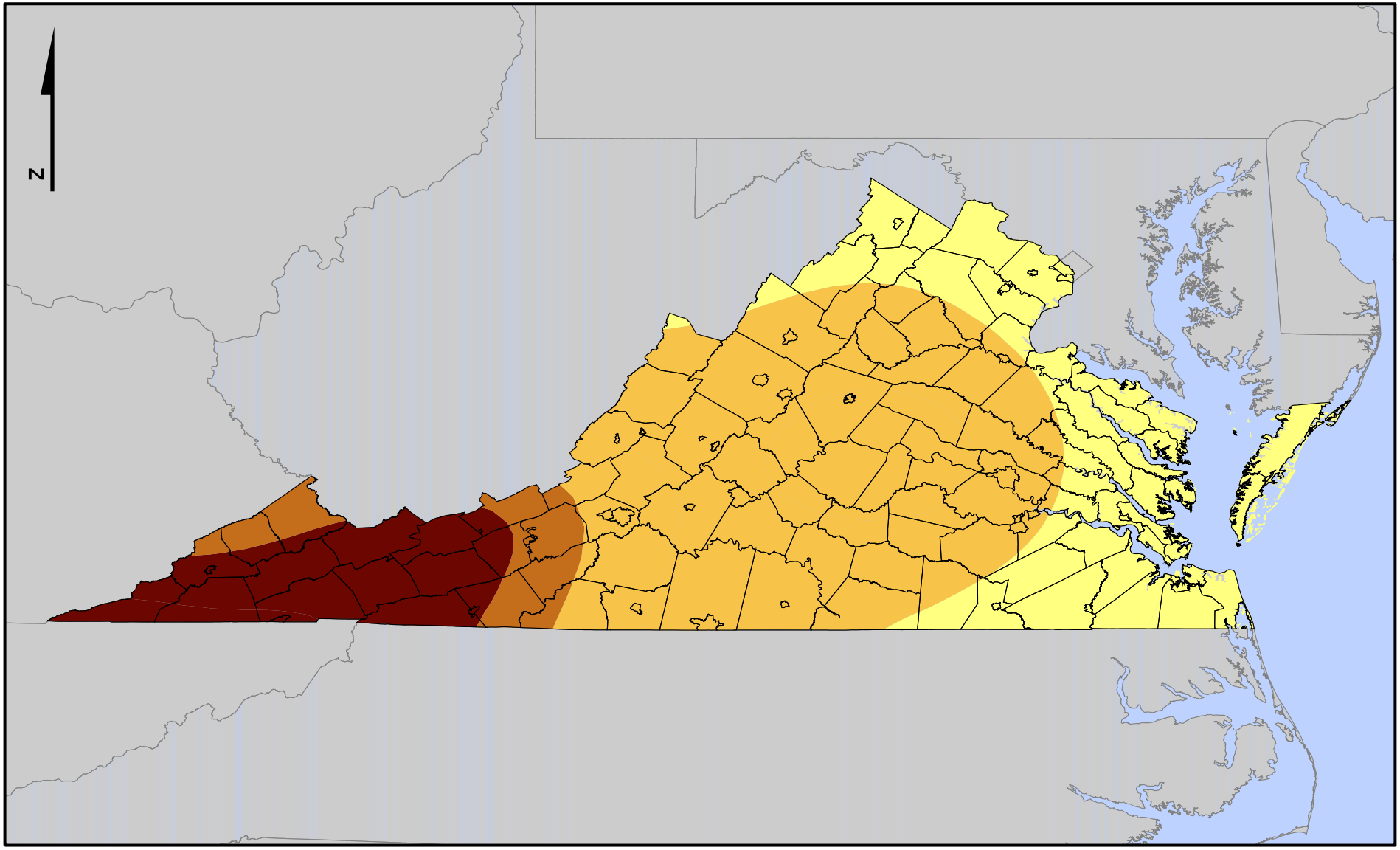
VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: July 2004

Data Sources: NOAA Snowfall Records, SE Regional Climate Center, VT CGIT

EARTHQUAKE PROBABILITY FOR VIRGINIA



10% Probability of Exceeding Peak Acceleration (%g) in 50 years.

1 - 2	5 - 6
3 - 4	7

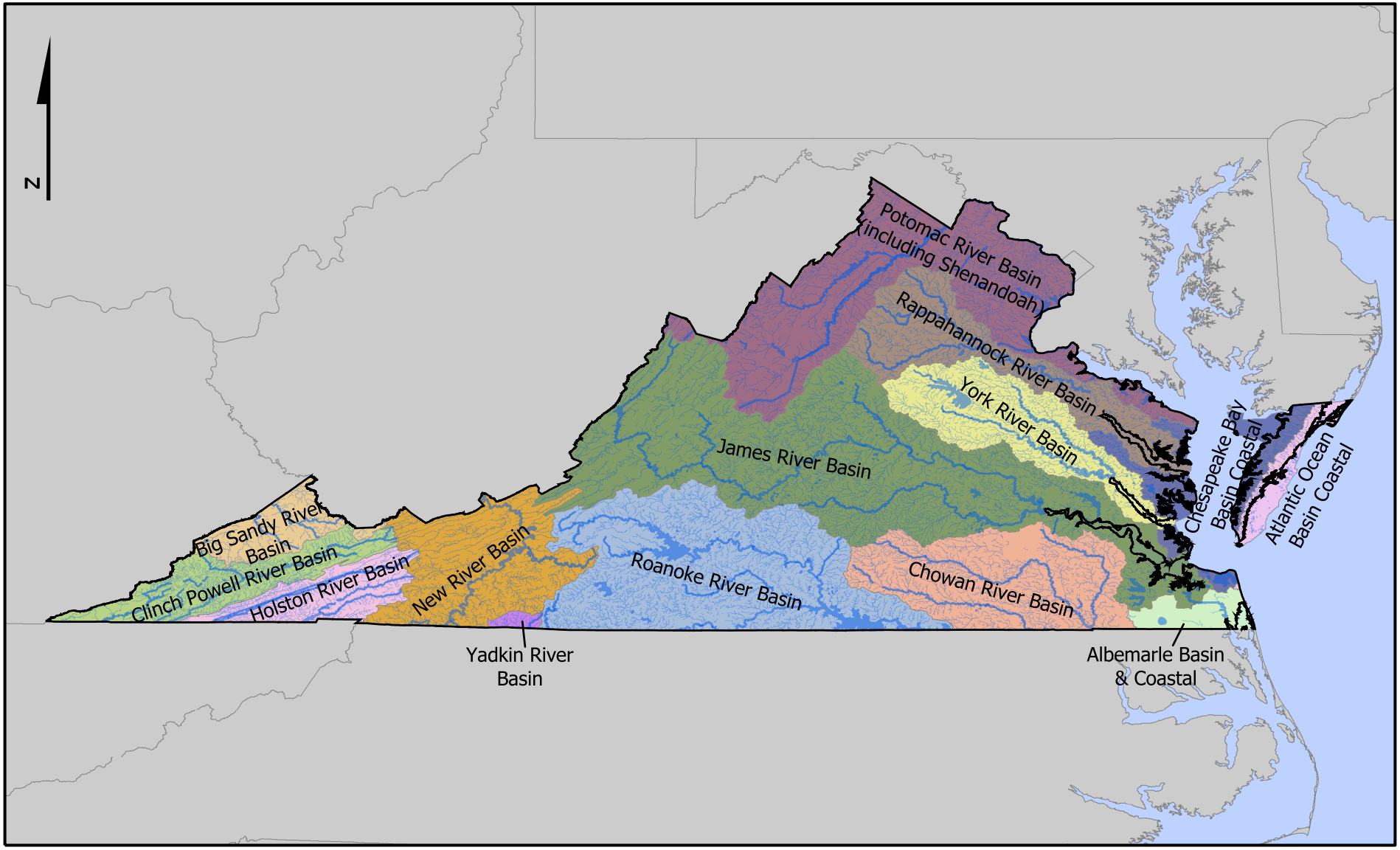
VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

Data Sources: USGS Historical Seismicity Data, VT CGIT

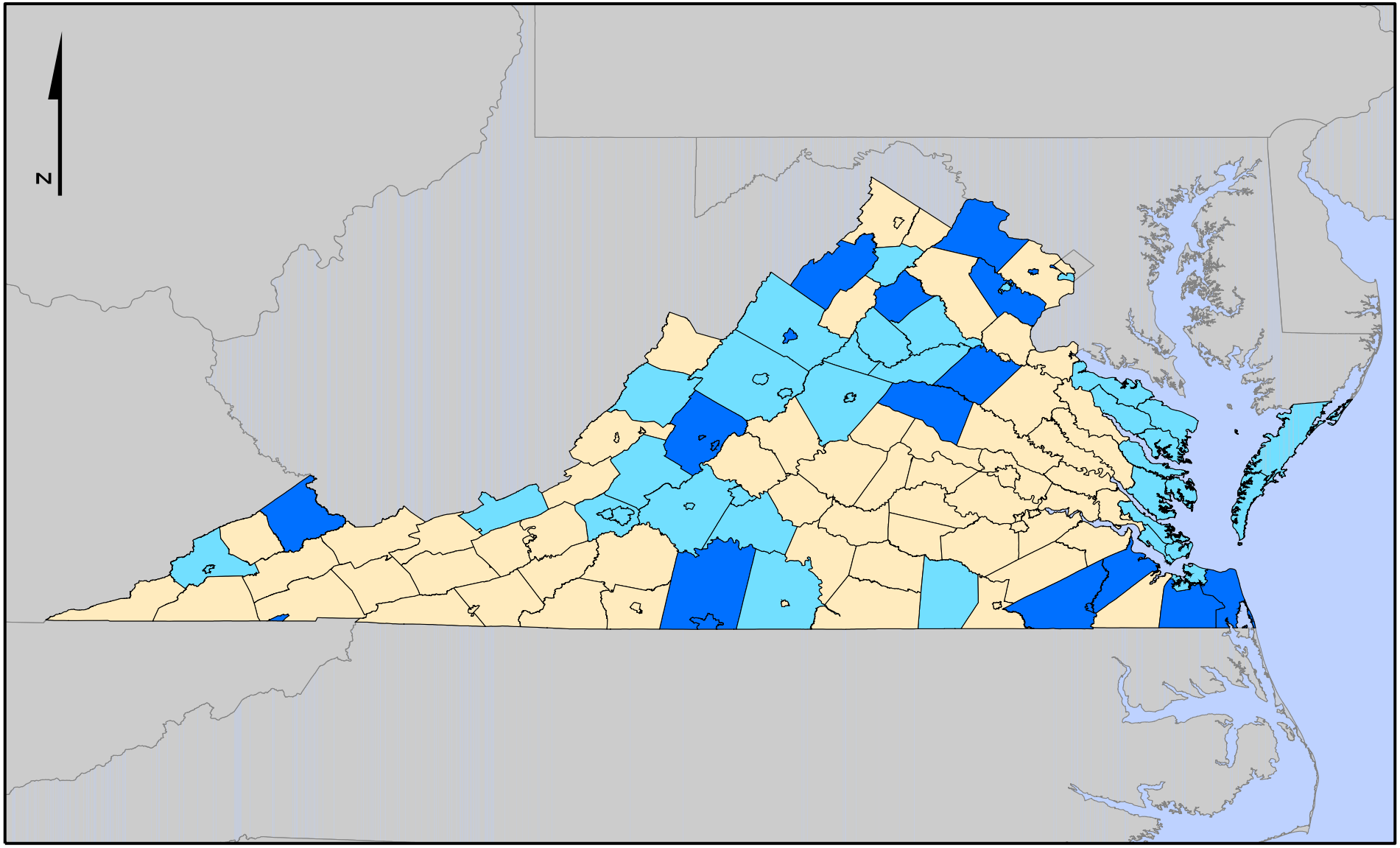
MAJOR WATERSHEDS OF VIRGINIA



- Albemarle Basin & Coastal
- Atlantic Ocean Basin Coastal
- Big Sandy River Basin
- Chesapeake Bay Basin Coastal
- Chowan River Basin
- Clinch Powell River Basin
- Holston River Basin
- James River Basin
- New River Basin
- York River Basin
- Potomac River Basin - including Shenandoah
- Rappahannock River Basin
- Roanoke River Basin
- Yadkin River Basin

Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: February 2004
Data Sources: Virginia Department of Conservation and Recreation, VT CGIT

VIRGINIA FLOODPLAIN MAP FORMAT STATUS 2004



DFIRM (21)

Q3 (44)

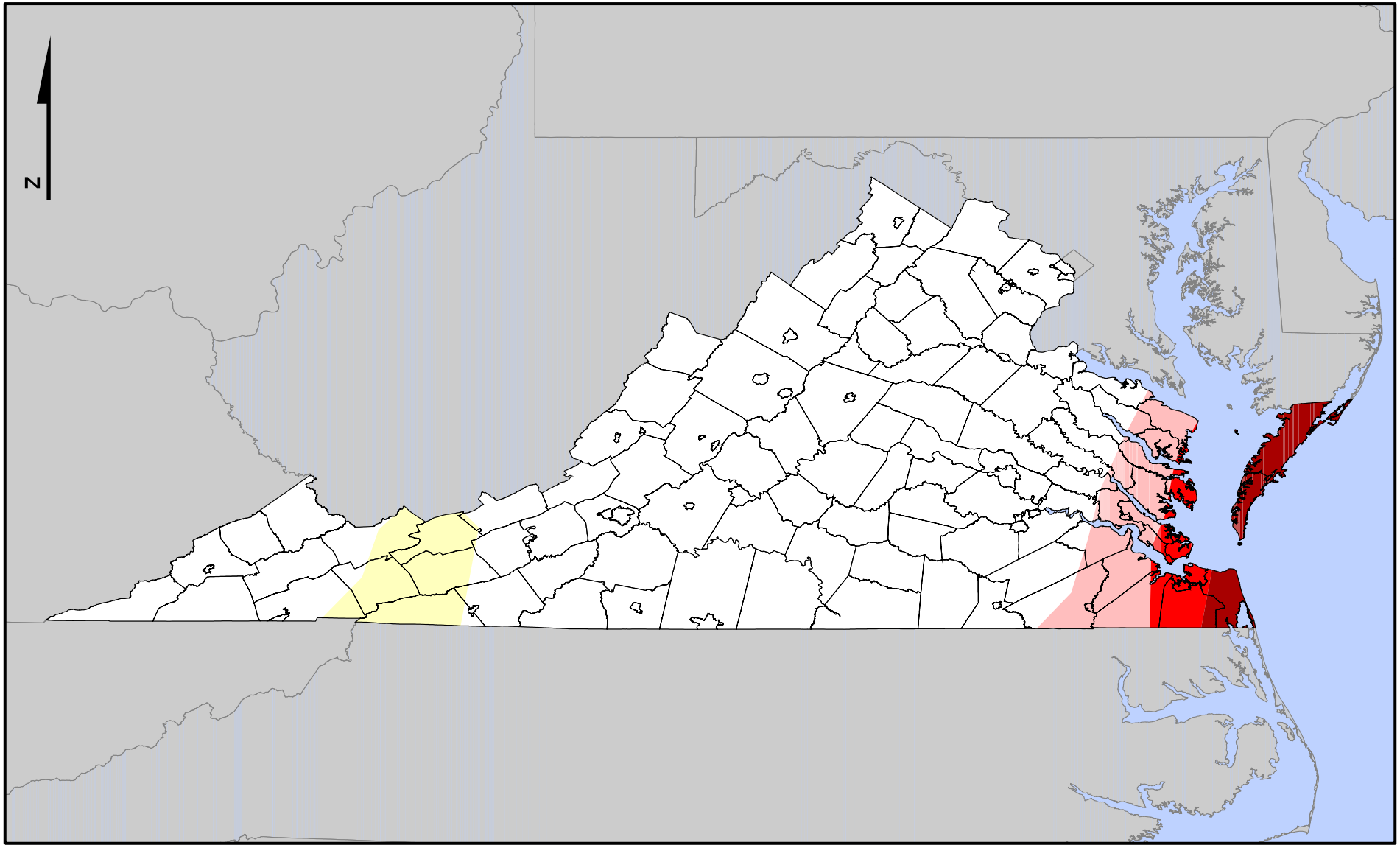
Paper FIRM (71)

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

Data Sources: FEMA Digitial and Paper Flood Maps, Nikki Roberts with FEMA Region III, VT CGIT

BASIC WIND SPEEDS USED IN DESIGN & CONSTRUCTION



Windspeeds in miles per hour

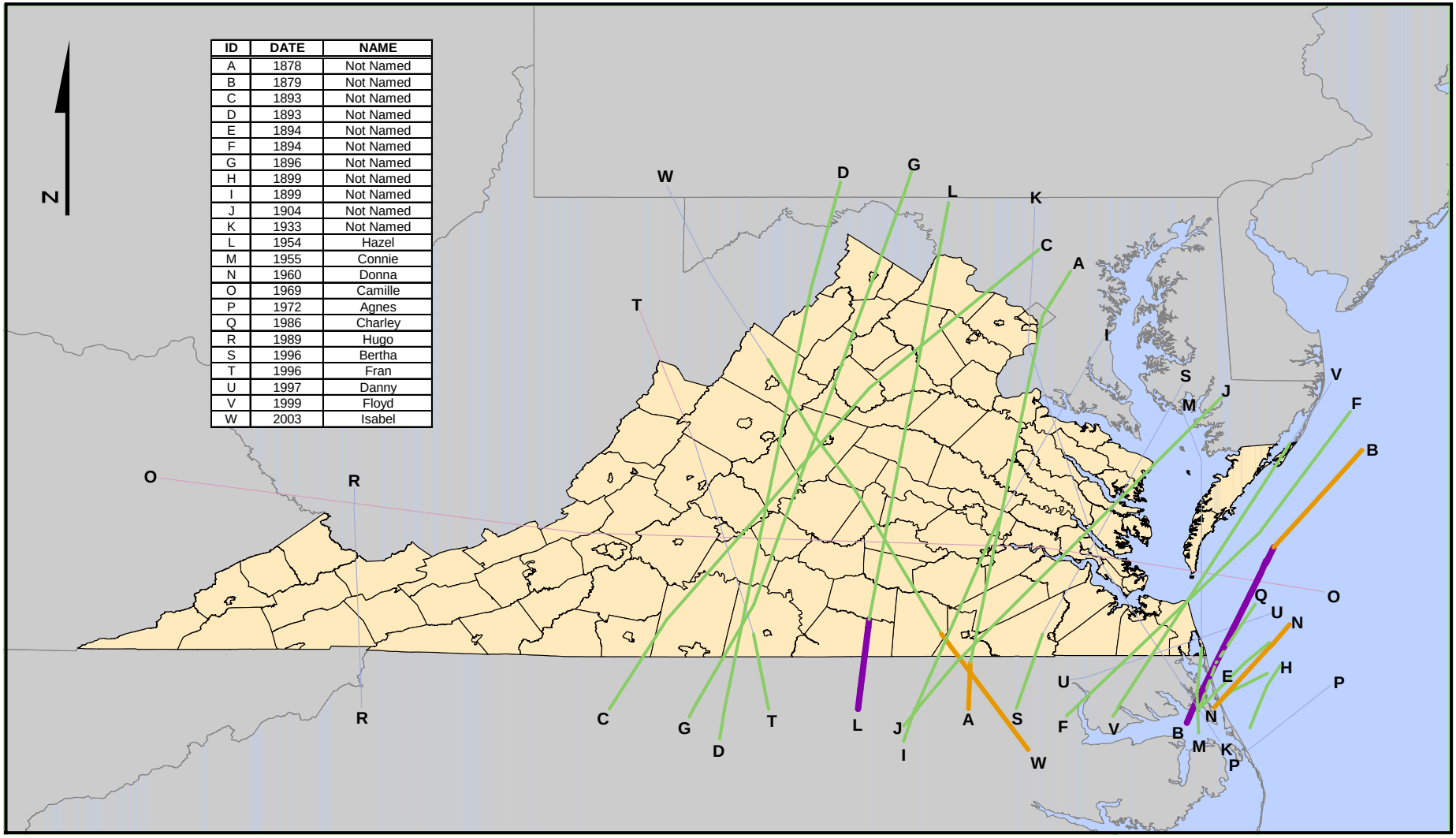
- 120+
- 100-120
- 90-100
- 80-90
- Special Wind Region

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: July 2004

Data Sources: ASCE wind design speed, VT CGIT

HURRICANE TRACKS IN VIRGINIA 1851-2003



ID	DATE	NAME
A	1878	Not Named
B	1879	Not Named
C	1893	Not Named
D	1893	Not Named
E	1894	Not Named
F	1894	Not Named
G	1896	Not Named
H	1899	Not Named
I	1899	Not Named
J	1904	Not Named
K	1933	Not Named
L	1954	Hazel
M	1955	Connie
N	1960	Donna
O	1969	Camille
P	1972	Agnes
Q	1986	Charley
R	1989	Hugo
S	1996	Bertha
T	1996	Fran
U	1997	Danny
V	1999	Floyd
W	2003	Isabel

Tropical Depression (17-38 mph)

Tropical Storm (39 - 73 mph)

Category 1 (74 - 95 mph)

Category 2 (96 - 110 mph)

Category 3 (111 - 126 mph)

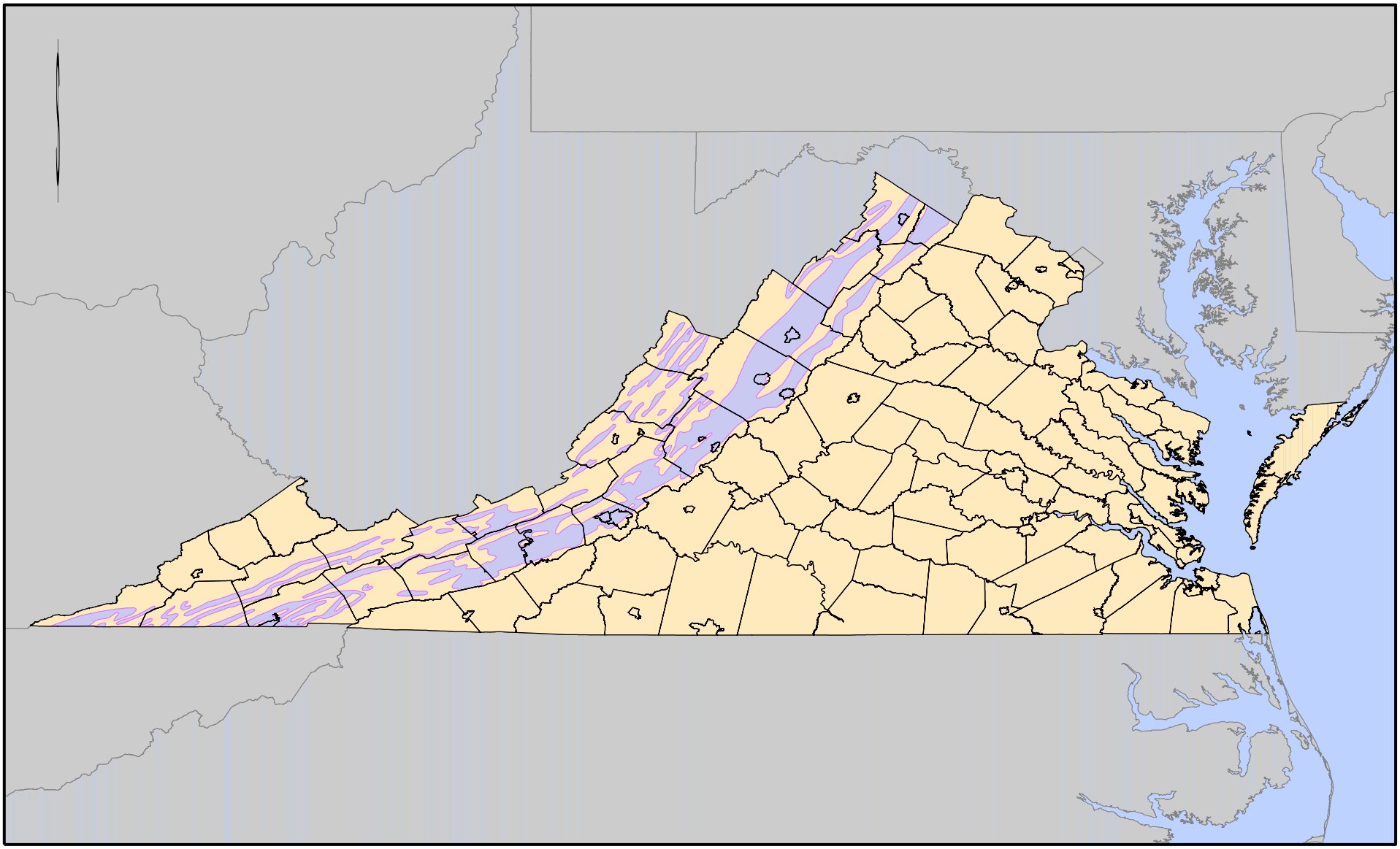
*Saffir-Simpson Hurricane Scale

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: April 2004

Data Sources: Tropical Storm History USGS, National Weather Service Tropical Prediction Center
National Hurricane Center

KARST REGIONS IN VIRGINIA



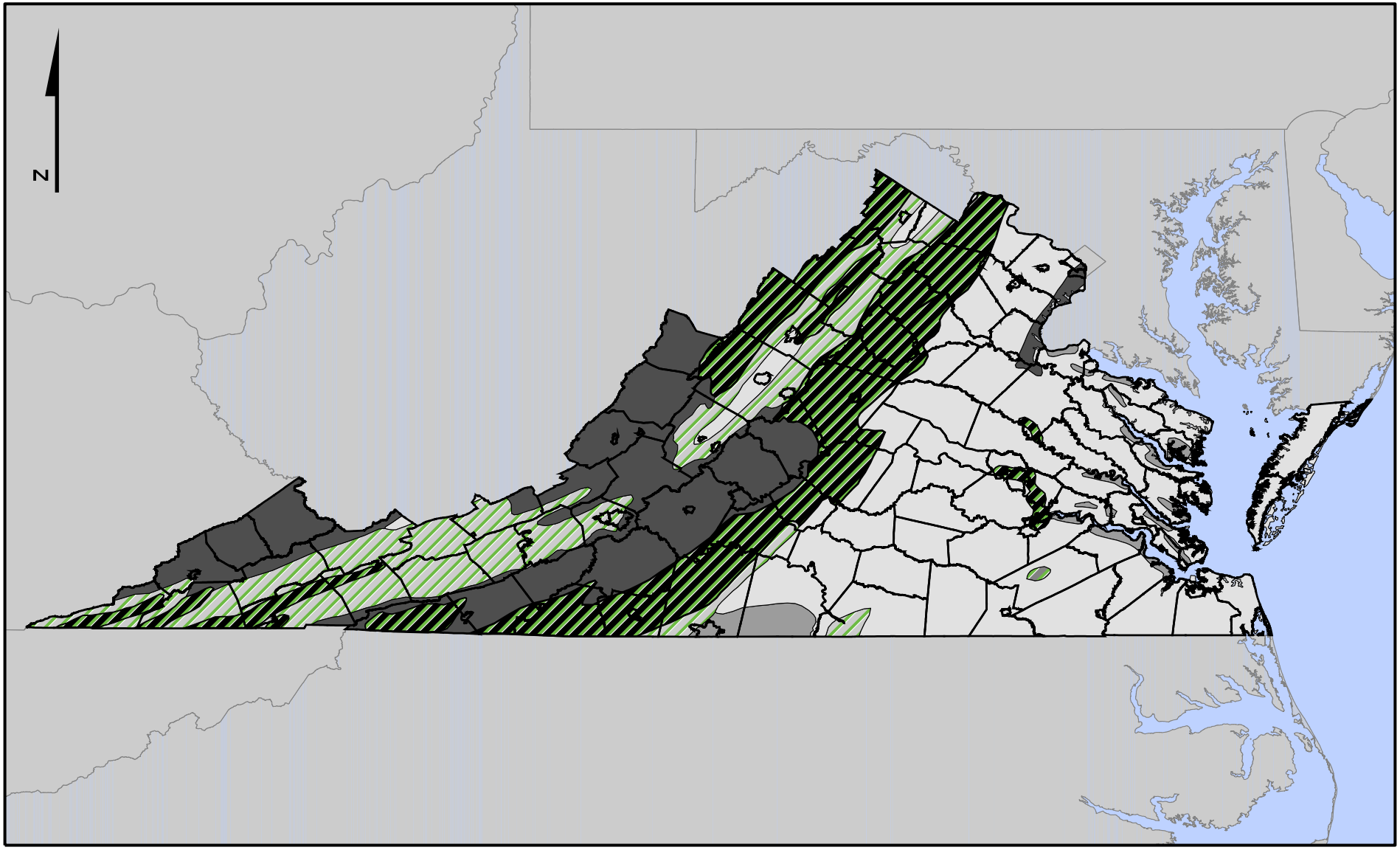
Karst Regions

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

Data Sources: USGS Aquifer Map, VT CGIT

LANDSLIDE HAZARDS FOR VIRGINIA



Susceptibility
- High Susceptibility & High Incidence
- High Susceptibility & Low Incidence
- Moderate Susceptibilty & Low Incidence

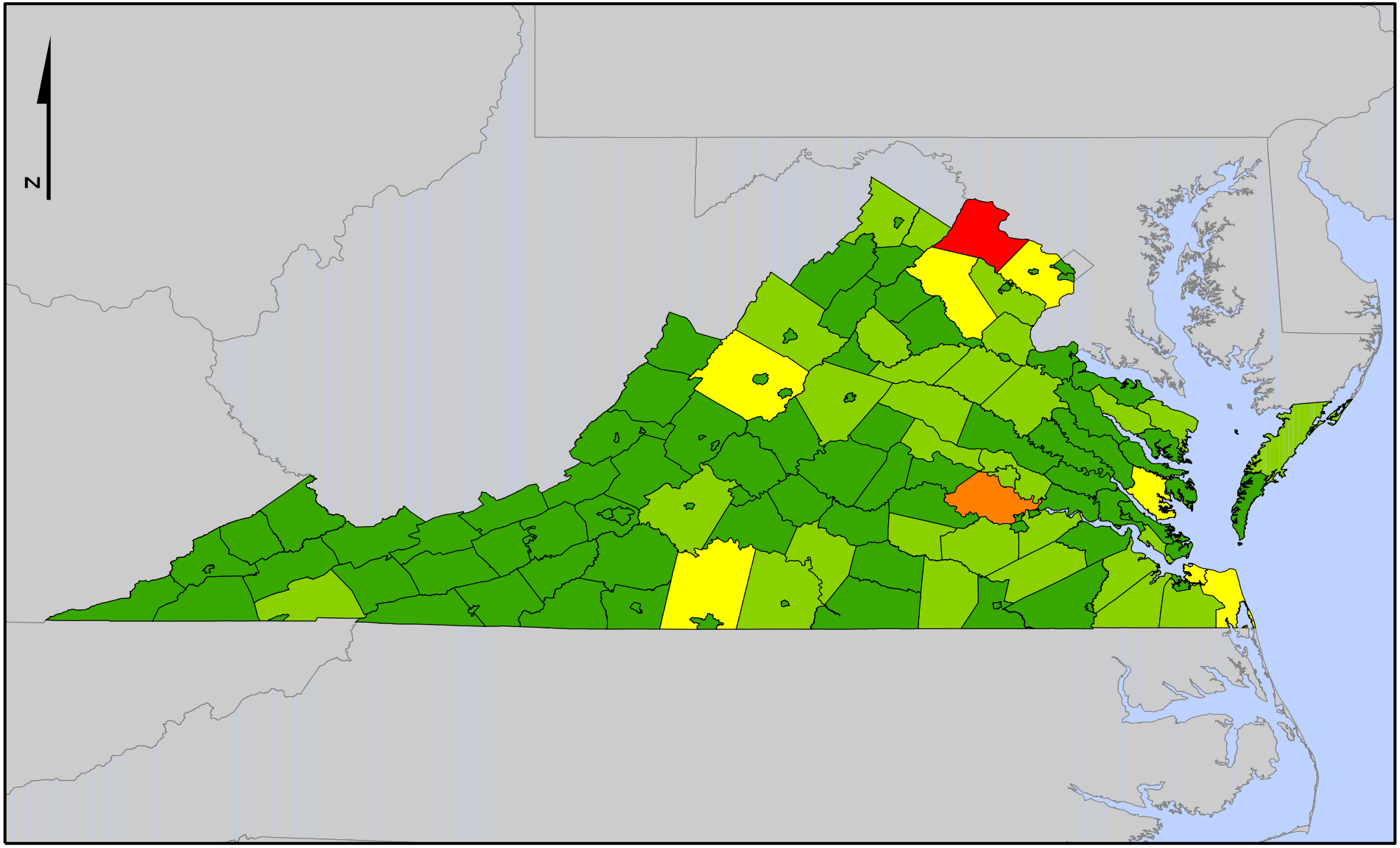
Incidence
- High Incidence
- Moderate Incidence
- Low Incidence

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

Data Sources: USGS Nationsl Landslide Map, VT CGIT

TORNADO TOTALS IN VIRGINIA



Tornado Totals (number of Counties)

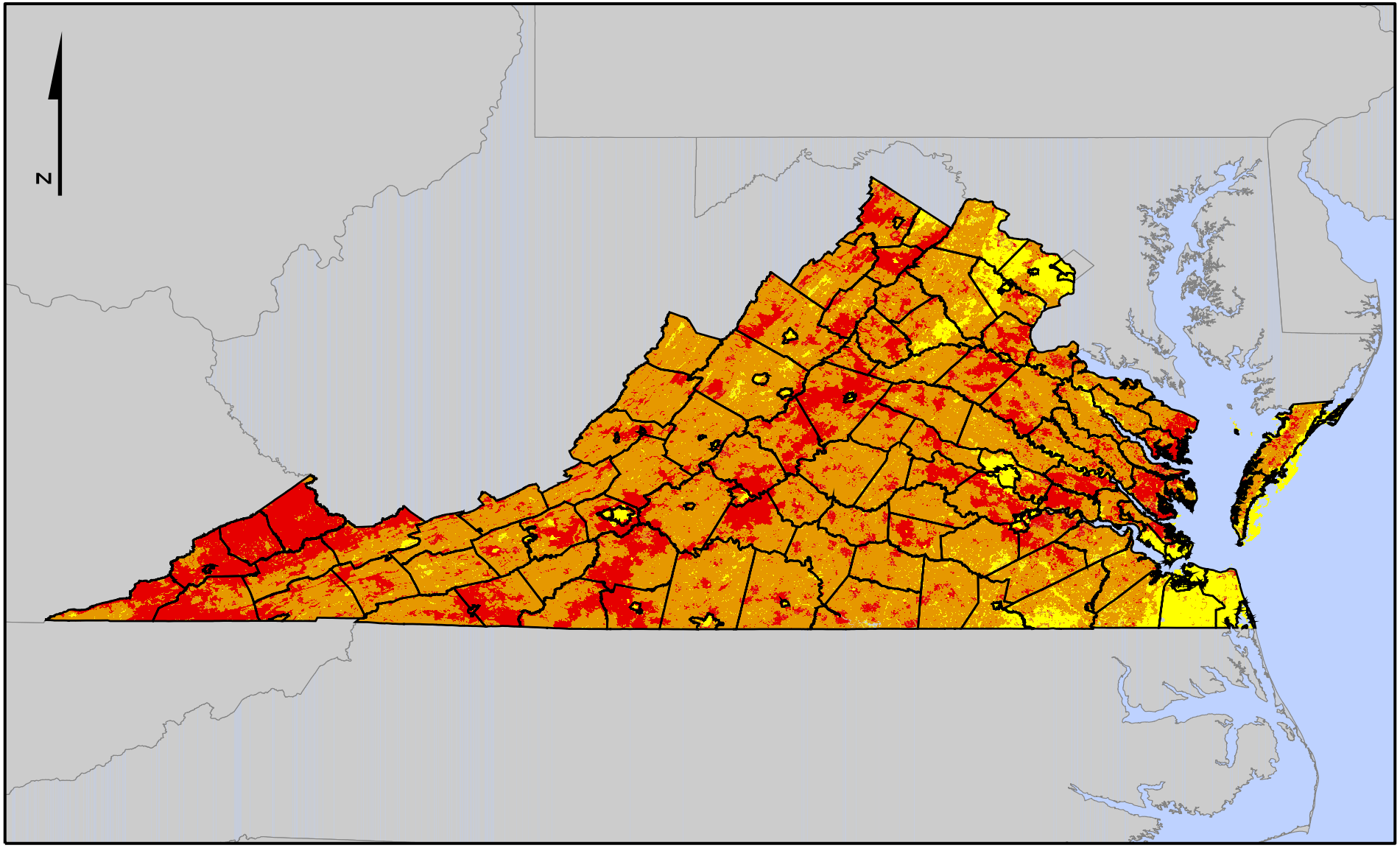
- 0 - 4 (97)
- 5 - 8 (30)
- 9 - 12 (7)
- 13 - 16 (1)
- 17 - 20 (1)

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

Data Sources: NOAA tornado database, VT CGIT

FIRE RANK IN VIRGINIA



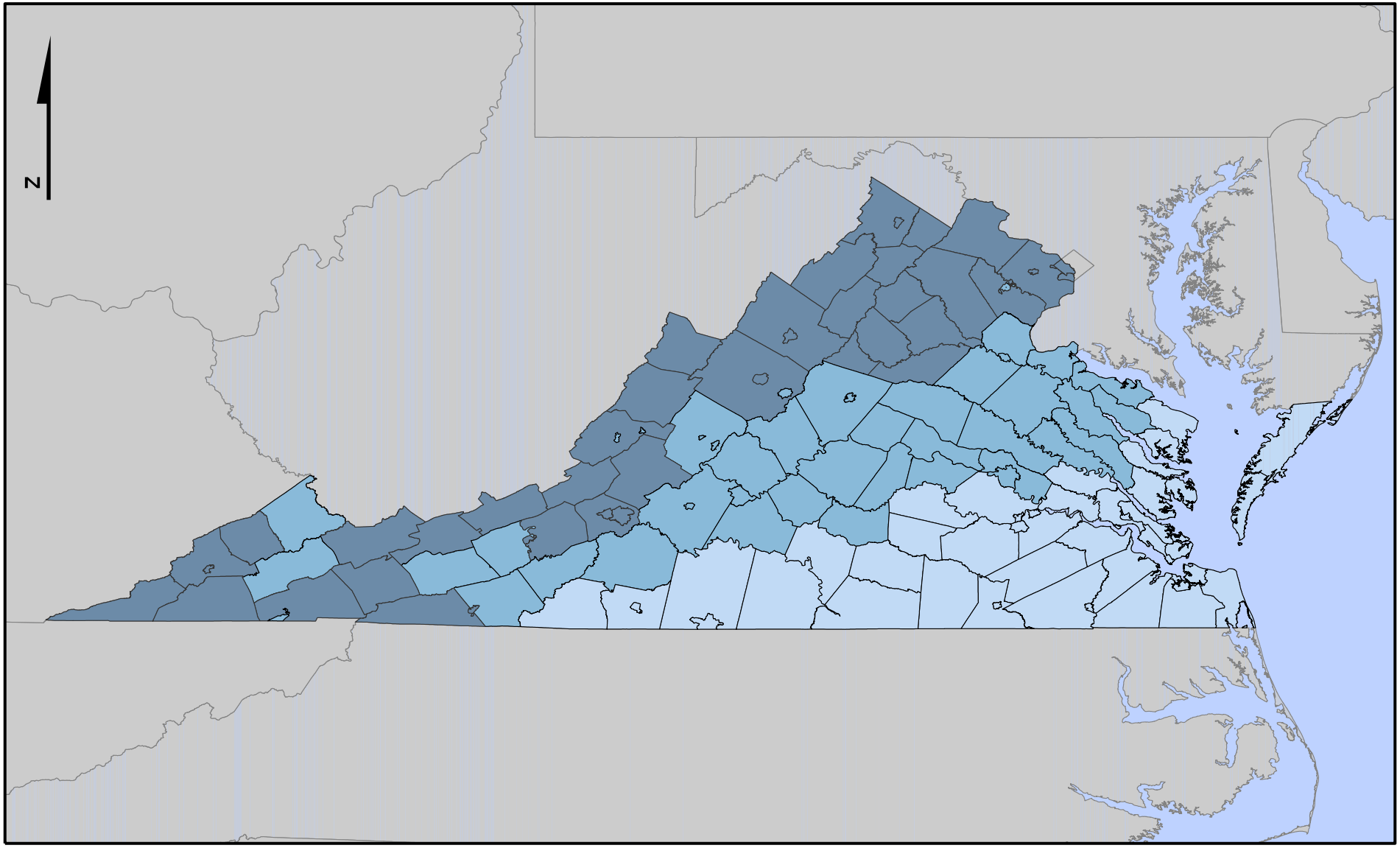
1 - Low 2 - Medium 3 - High

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

Data Sources: Virginia Department of Forestry Fire Risk Mapping, VT CGIT

WINTER STORM SEVERITY FOR VIRGINIA



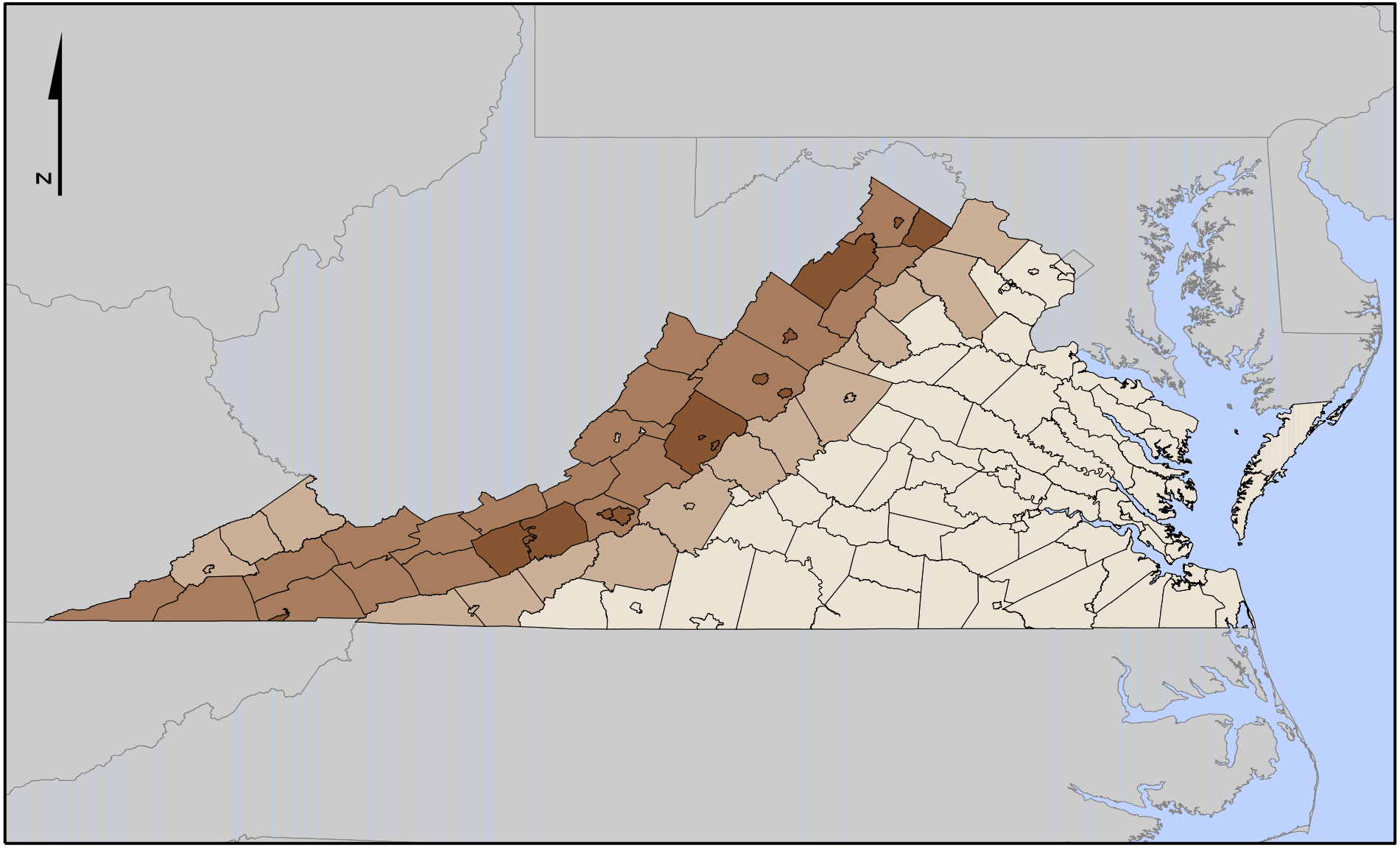
Low Severity | Medium Severity | High Severity

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

Data Sources: NOAA snowfall records VT CGIT

KARST RANK PER COUNTY



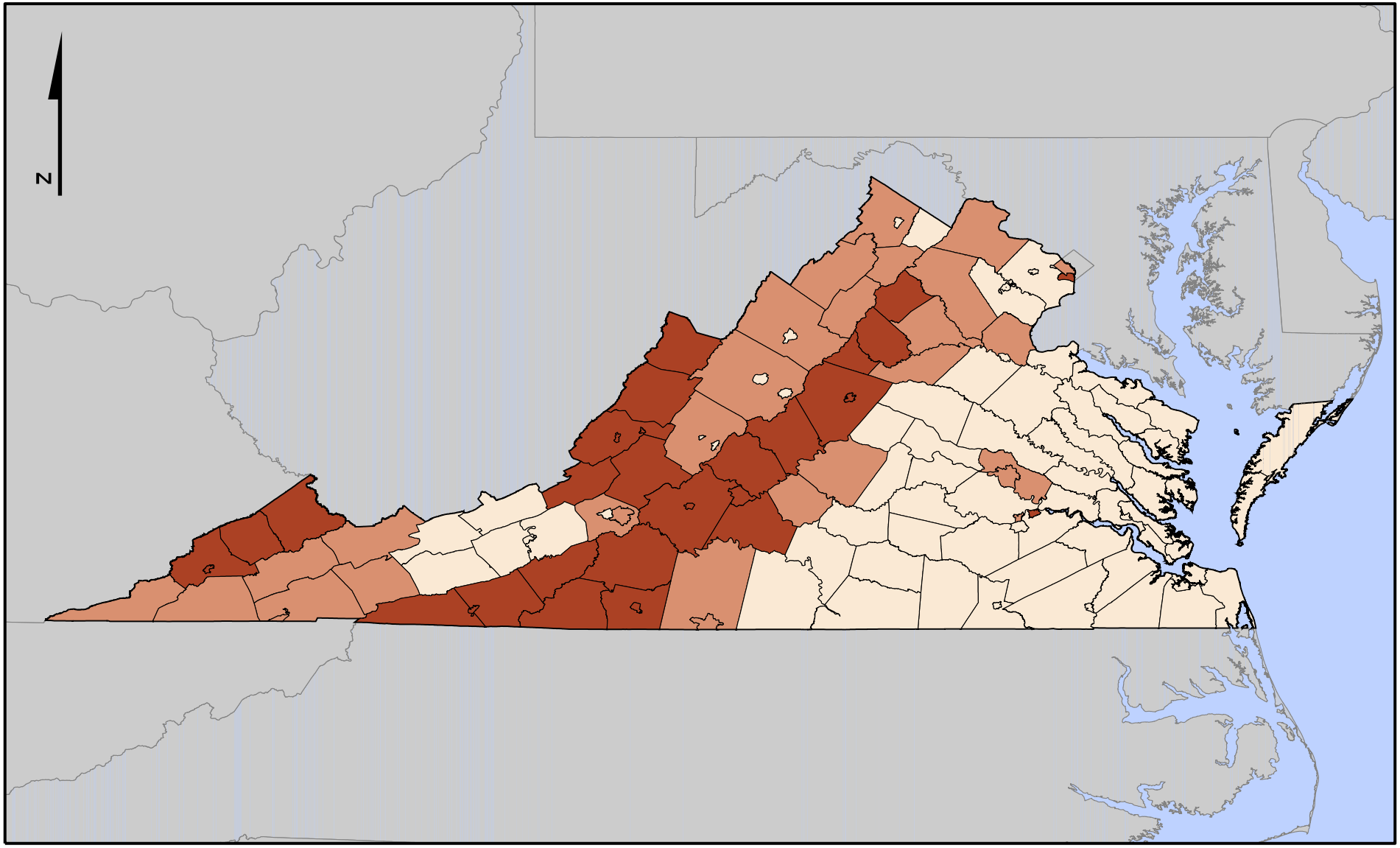
0 1 2.0 - 2.5 2.6 - 3

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

Data Sources: USGS Aquifer Map, VT CGIT

LANDSLIDE RANK PER COUNTY



1.0 - 1.5

1.5 - 2.5

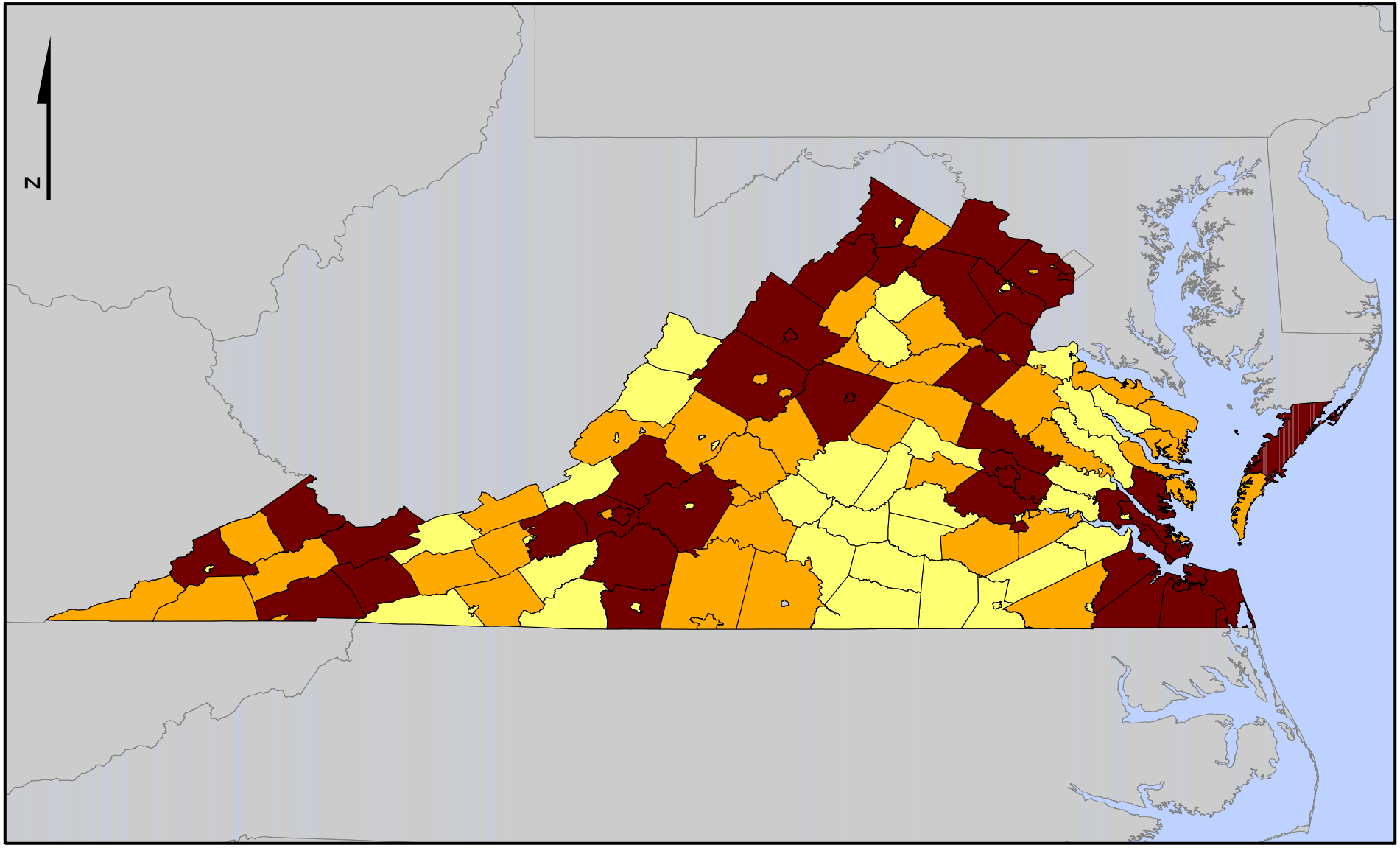
2.5 - 3.0

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

Data Sources: USGS Nationsl Landslide Map, VT CGIT

VIIRGINIA POPULATION HIRA - FINAL OVERALL HAZARDS RANK

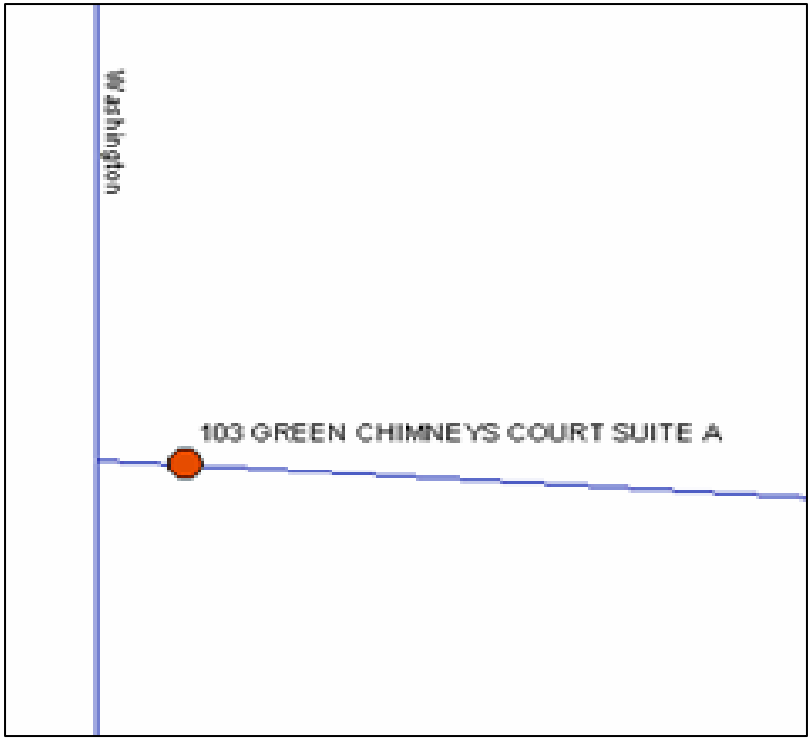


High Medium Low

Map prepared by Virginia Tech Center for Geospatial Information Technology

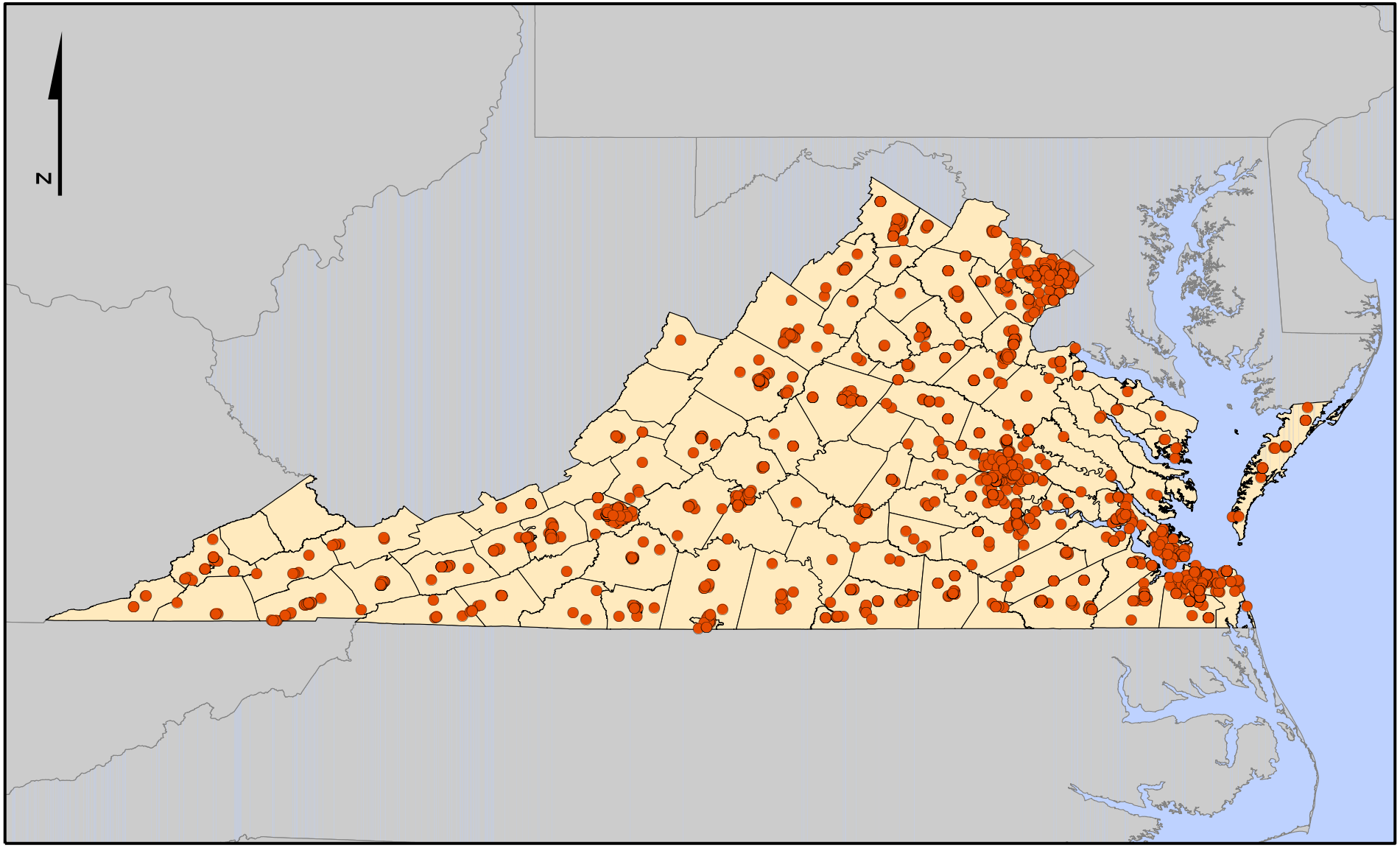
Date: July 2004

Data Sources: VDEM Population HIRA, VT CGIT



Geocoding Example:
Probation & Parole District # 41
103 Green Chimneys Court Suite A
Ashland, VA 23005

GEOCODED FACILITIES

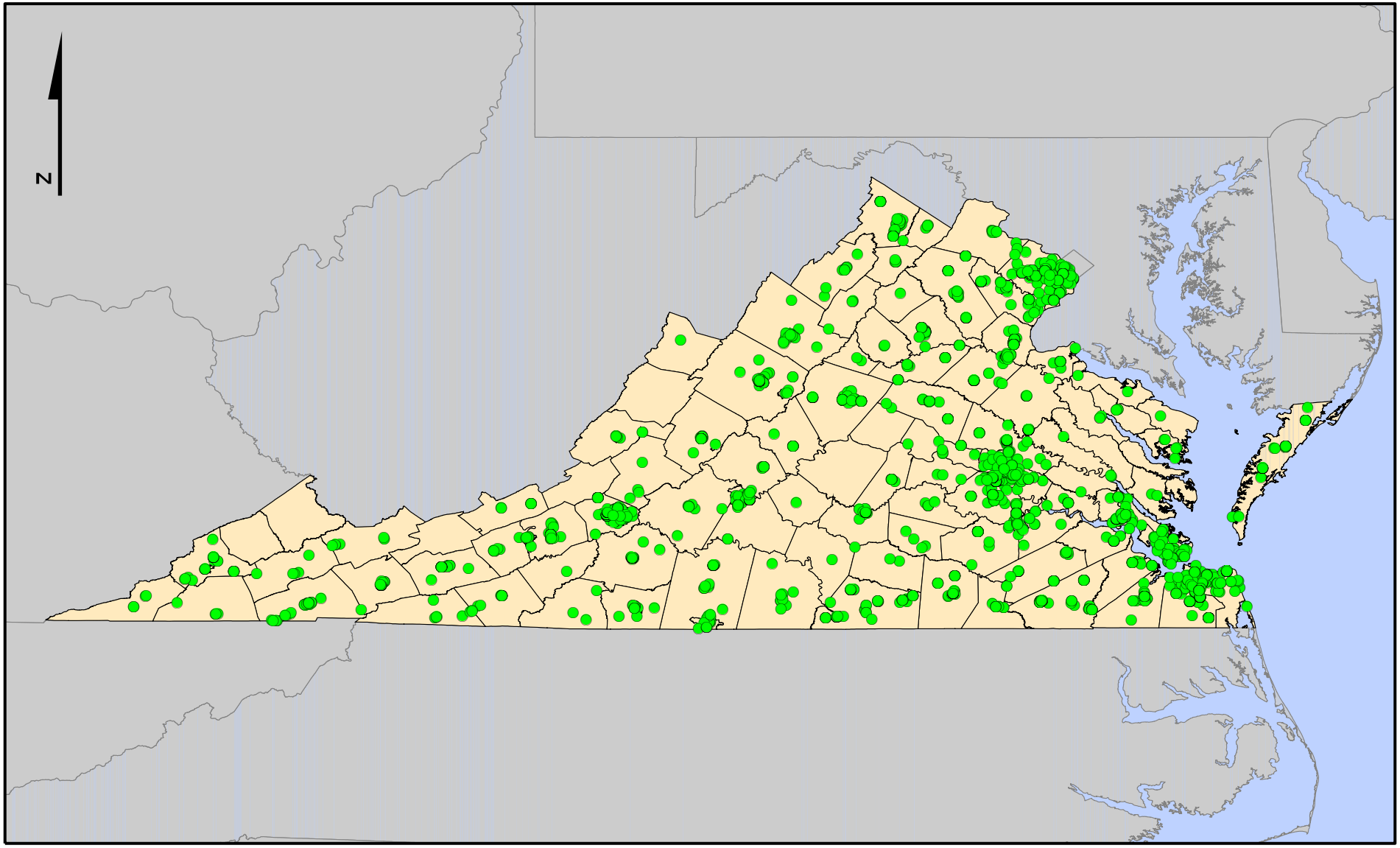


Geocoded Facilities

Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: February 2004
Data Sources: DOQQ, ESRI data layers, VT CGIT

Polygon Example:
James River Corrections Center
DOQQ: Perkinsville SW 37077f78

FACILITIES POLYGONS



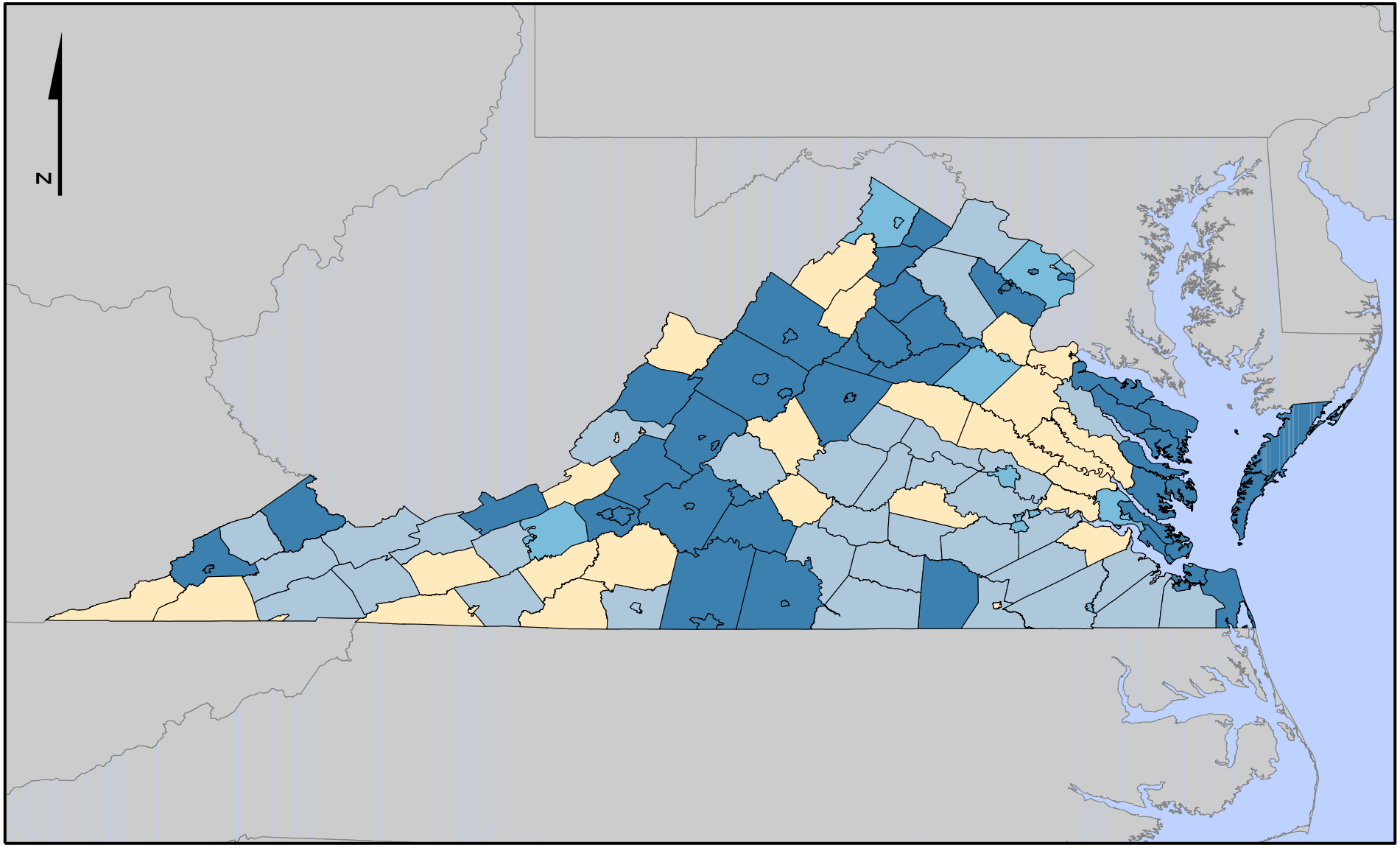
Facilities Polygons

Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: February 2004

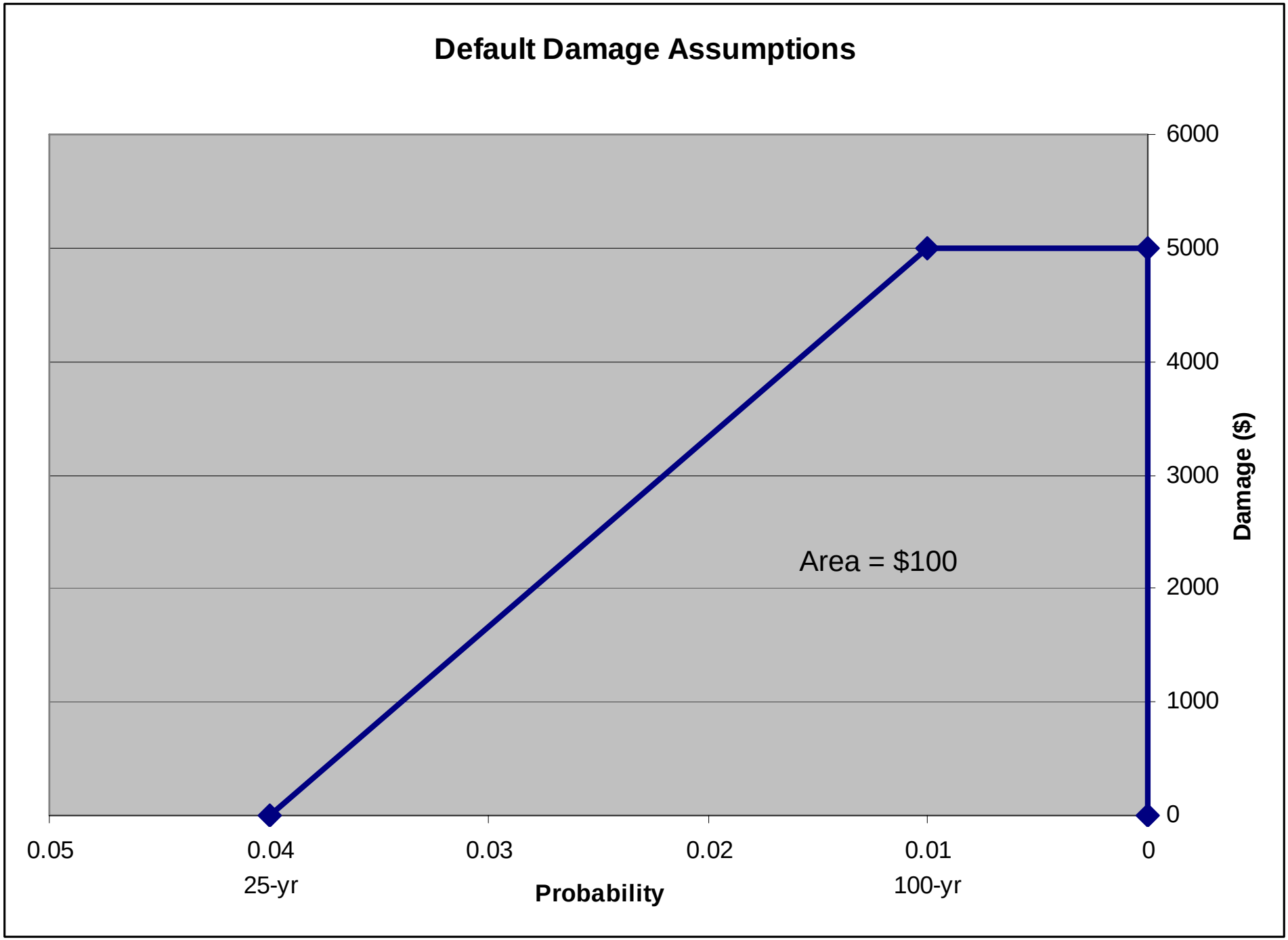
Data Sources: DOQQ, ESRI data layers, VT CGIT

VIRGINIA FLOODING SOURCE DATA



Q3 (56)
DIGITIZED (15)
PARTIAL (35)
NONE (30)

Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: February 2004
Data Sources: FEMA Digitial and Paper Flood Maps, VT CGIT


Default Damage Assumptions
6000
5000
4000
3000
2000
1000
0
Damage ($)
Area = $100
0.05
0.04
25-yr
0.03
0.02
0.01
100-yr
0
Probability

Grand Totals

Locations	**12,918**	Agencies	**211**

Location Summary

	County	Geocode	Polygon	Total
Total	**5,431**	**2,406**	**5,081**	**12,918**

Flood Summary

	no	partial	unknown	yes	Total
Total	**4,638**	**2,042**	**3,239**	**2,999**	**12,918**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**133**	**1,466**	**3,039**	**4,638**
partial	**0**	**0**	**2,042**	**2,042**
unknown	**2,810**	**429**	**0**	**3,239**
yes	**2,488**	**511**	**0**	**2,999**
Total	**5,431**	**2,406**	**5,081**	**12,918**

Estimated Flood Locations	**3230**
Estimated Annual Flood Losses	**$1,894,882**

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0330**	**0.0002**	**0.3299**	**0.3982**	**0.3297**	**0.1328**

VAPS Flood Zones vs. New Flood Zones

	A	B	C	NO	U	X	YES	Total
no	**776**	**12**	**152**	**141**	**3,244**	**281**	**32**	**4,638**
partial	**164**	**15**	**17**	**30**	**1,745**	**67**	**4**	**2,042**
unknown	**0**	**0**	**0**	**0**	**3,239**	**0**	**0**	**3,239**
yes	**2,889**	**0**	**0**	**0**	**49**	**3**	**58**	**2,999**
Total	**3,829**	**27**	**169**	**171**	**8,277**	**351**	**94**	**12,918**

AUDITOR OF PUBLIC ACCOUNTS

Location Summary

	Geocode	Polygon	Total
Total	**2**	**1**	**3**

Flood Summary

	no	partial	yes	Total
Total	**1**	**1**	**1**	**3**

Location vs. Flood

	Geocode	Polygon	Total
no	**1**	**0**	**1**
partial	**0**	**1**	**1**
yes	**1**	**0**	**1**
Total	**2**	**1**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **1** Locations
	1	**0.35**	**$4**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.78**	**0.90**	**0.79**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0438**	**0.0003**	**0.2963**	**0.2276**	**0.2828**	**0.1325**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.89**	**0.63**	**0.29**	**0.35**	**0.33**	**0.74**

AUGUSTA CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**34**	**34**

Flood Summary

	partial	Total
Total	**34**	**34**

Location vs. Flood

	Polygon	Total
partial	**34**	**34**
Total	**34**	**34**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **34** Locations
	2	**0.07**	**$9,674**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.82**	**0.75**	**0.91**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.5098**	**0.3939**	**0.3953**	**0.4176**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.31**	**0.93**	**0.67**	**0.60**	**0.95**

BLAND CORRECTIONAL CENTER

Location Summary

	County	Polygon	Total
Total	**1**	**87**	**88**

Flood Summary

	partial	unknown	Total
Total	**87**	**1**	**88**

Location vs. Flood

	County	Polygon	Total
partial	**0**	**87**	**87**
unknown	**1**	**0**	**1**
Total	**1**	**87**	**88**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **86** Locations
	30	**0.34**	**$108,998**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.97**	**0.89**	**0.98**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5556**	**0.4710**	**0.2222**	**0.4095**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**1.00**	**0.81**	**0.17**	**0.94**

BLUE RIDGE COMMUNITY COLLEGE

Location Summary

	County	Geocode	Polygon	Total
Total	**1**	**1**	**11**	**13**

Flood Summary

	no	yes	Total
Total	**12**	**1**	**13**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**1**	**11**	**12**
yes	**1**	**0**	**0**	**1**
Total	**1**	**1**	**11**	**13**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.08**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.75**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5556**	**0.3226**	**0.4137**	**0.4628**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.28**	**0.96**	**0.53**	**0.85**	**0.99**

BRUNSWICK CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**32**	**32**

Flood Summary

	no	Total
Total	**32**	**32**

Location vs. Flood

	Polygon	Total
no	**32**	**32**
Total	**32**	**32**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.1597**	**0.5440**	**0.1968**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.54**	**0.08**	**0.90**	**0.07**	**0.00**

BUCKINGHAM CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**47**	**47**

Flood Summary

	no	Total
Total	**47**	**47**

Location vs. Flood

	Polygon	Total
no	**47**	**47**
Total	**47**	**47**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.3704**	**0.5465**	**0.5342**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.14**	**0.75**	**0.91**	**0.95**	**0.00**

CATAWBA HOSPITAL

Location Summary

	Polygon	Total
Total	**45**	**45**

Flood Summary

	no	Total
Total	**45**	**45**

Location vs. Flood

	Polygon	Total
no	**45**	**45**
Total	**45**	**45**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.4444**	**0.6642**	**0.3715**	**0.3475**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.37**	**0.87**	**0.99**	**0.56**	**0.90**

CENTRAL REGION CORRECTIONAL FIELD UNITS

Location Summary

	County	Geocode	Polygon	Total
Total	**34**	**51**	**1**	**86**

Flood Summary

	no	unknown	yes	Total
Total	**6**	**76**	**4**	**86**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**5**	**1**	**6**
unknown	**33**	**43**	**0**	**76**
yes	**1**	**3**	**0**	**4**
Total	**34**	**51**	**1**	**86**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **3** Locations
	4	**0.40**	**$868**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.86**	**0.90**	**0.83**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0205**	**0.0001**	**0.1779**	**0.3722**	**0.2238**	**0.0039**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.65**	**0.48**	**0.12**	**0.60**	**0.20**	**0.59**

CENTRAL STATE HOSPITAL

Location Summary

	County	Polygon	Total
Total	**1**	**17**	**18**

Flood Summary

	partial	unknown	Total
Total	**17**	**1**	**18**

Location vs. Flood

	County	Polygon	Total
partial	**0**	**17**	**17**
unknown	**1**	**0**	**1**
Total	**1**	**17**	**18**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **11** Locations
	1	**0.05**	**$14,403**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.69**	**0.72**	**0.94**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.1481**	**0.4775**	**0.1852**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.39**	**0.00**	**0.82**	**0.00**	**0.00**

CENTRAL VIRGINIA COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**13**	**13**

Flood Summary

	no	Total
Total	**13**	**13**

Location vs. Flood

	Polygon	Total
no	**13**	**13**
Total	**13**	**13**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.2963**	**0.4302**	**0.5556**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.29**	**0.73**	**0.95**	**0.00**

CENTRAL VIRGINIA TRAINING CENTER

Location Summary

	Polygon	Total
Total	**99**	**99**

Flood Summary

	no	Total
Total	**99**	**99**

Location vs. Flood

	Polygon	Total
no	**99**	**99**
Total	**99**	**99**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.2963**	**0.6027**	**0.5556**	**0.1481**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.58**	**0.94**	**0.96**	**0.79**

CHESAPEAKE BAY LOCAL ASSISTANCE DEPARTMENT

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

CHRISTOPHER NEWPORT UNIVERSITY

Location Summary

	Polygon	Total
Total	**24**	**24**

Flood Summary

	no	Total
Total	**24**	**24**

Location vs. Flood

	Polygon	Total
no	**24**	**24**
Total	**24**	**24**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0711**	**0.0006**	**0.1481**	**0.2113**	**0.2190**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.93**	**0.97**	**0.00**	**0.17**	**0.15**	**0.00**

CIRCUIT COURTS

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

COFFEEWOOD CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**45**	**45**

Flood Summary

	partial	Total
Total	**45**	**45**

Location vs. Flood

	Polygon	Total
partial	**45**	**45**
Total	**45**	**45**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **45** Locations
	0	**0.00**	**$203**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.67**	**0.67**	**0.80**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5556**	**0.2283**	**0.4620**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.25**	**1.00**	**0.35**	**0.90**	**0.00**

COMBINED DISTRICT COURTS

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

COMMISSION ON VIRGINIA ASAP

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2037**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.09**	**0.60**	**0.00**

COMMONWEALTH COMPETITION COUNCIL

Location Summary

	County	Total
Total	**1**	**1**

Flood Summary

	yes	Total
Total	**1**	**1**

Location vs. Flood

	County	Total
yes	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**1.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**1.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2216**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.20**	**0.60**	**0.00**

COMMONWEALTH CTR FOR CHILDREN & ADOLESCENTS

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.5556**	**0.4074**	**0.4244**	**0.4551**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.30**	**0.99**	**0.67**	**0.86**	**0.98**

COMPENSATION BOARD

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

COUNCIL ON HUMAN RIGHTS

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

COURT OF APPEALS OF VIRGINIA

Location Summary

	County	Geocode	Total
Total	**6**	**7**	**13**

Flood Summary

	no	unknown	yes	Total
Total	**3**	**6**	**4**	**13**

Location vs. Flood

	County	Geocode	Total
no	**0**	**3**	**3**
unknown	**6**	**0**	**6**
yes	**0**	**4**	**4**
Total	**6**	**7**	**13**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	4	**0.57**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.86**	**0.95**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0586**	**0.0002**	**0.2849**	**0.2772**	**0.2692**	**0.0707**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.92**	**0.53**	**0.24**	**0.46**	**0.32**	**0.64**

D. M. H. M. R. & S. A. S.

Location Summary

	County	Geocode	Polygon	Total
Total	**3**	**3**	**1**	**7**

Flood Summary

	no	unknown	Total
Total	**3**	**4**	**7**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**2**	**1**	**3**
unknown	**3**	**1**	**0**	**4**
Total	**3**	**3**	**1**	**7**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.3651**	**0.4798**	**0.4259**	**0.2402**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.50**	**0.72**	**0.84**	**0.87**	**0.88**

DABNEY S. LANCASTER COMMUNITY COLLEGE

Location Summary

	County	Polygon	Total
Total	**5**	**8**	**13**

Flood Summary

	no	unknown	Total
Total	**8**	**5**	**13**

Location vs. Flood

	County	Polygon	Total
no	**0**	**8**	**8**
unknown	**5**	**0**	**5**
Total	**5**	**8**	**13**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4330**	**0.4485**	**0.1951**	**0.3255**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.85**	**0.79**	**0.06**	**0.89**

DANVILLE COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**9**	**9**

Flood Summary

	no	Total
Total	**9**	**9**

Location vs. Flood

	Polygon	Total
no	**9**	**9**
Total	**9**	**9**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.1852**	**0.2325**	**0.4238**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.15**	**0.37**	**0.86**	**0.00**

DEEP MEADOW CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**38**	**38**

Flood Summary

	no	Total
Total	**38**	**38**

Location vs. Flood

	Polygon	Total
no	**38**	**38**
Total	**38**	**38**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.2963**	**0.4366**	**0.1852**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.16**	**0.28**	**0.76**	**0.00**	**0.00**

DEERFIELD CORRECTIONAL CENTER

Location Summary

	Geocode	Polygon	Total
Total	**1**	**23**	**24**

Flood Summary

	no	partial	Total
Total	**2**	**22**	**24**

Location vs. Flood

	Geocode	Polygon	Total
no	**1**	**1**	**2**
partial	**0**	**22**	**22**
Total	**1**	**23**	**24**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **22** Locations
	20	**0.83**	**$42,565**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.94**	**0.98**	**0.95**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0339**	**0.0000**	**0.1713**	**0.3485**	**0.2083**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.80**	**0.20**	**0.10**	**0.58**	**0.10**	**0.00**

DEPARTMENT FOR THE AGING

Location Summary

	County	Total
Total	**1**	**1**

Flood Summary

	unknown	Total
Total	**1**	**1**

Location vs. Flood

	County	Total
unknown	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.2963**	**0.3805**	**0.3110**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.44**	**0.29**	**0.63**	**0.44**	**0.00**

DEPARTMENT FOR THE BLIND & VISION IMPAIRED

Location Summary

	County	Geocode	Total
Total	**2**	**12**	**14**

Flood Summary

	no	unknown	Total
Total	**11**	**3**	**14**

Location vs. Flood

	County	Geocode	Total
no	**0**	**11**	**11**
unknown	**2**	**1**	**3**
Total	**2**	**12**	**14**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0269**	**0.0019**	**0.3386**	**0.2209**	**0.3355**	**0.1002**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.72**	**0.99**	**0.65**	**0.19**	**0.51**	**0.70**

DEPARTMENT FOR THE DEAF & HARD-OF-HEARING

Location Summary

	Geocode	Total
Total	**2**	**2**

Flood Summary

	no	yes	Total
Total	**1**	**1**	**2**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
yes	**1**	**1**
Total	**2**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.50**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.93**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0003**	**0.3704**	**0.1852**	**0.2954**	**0.2103**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.61**	**0.76**	**0.01**	**0.36**	**0.86**

DEPARTMENT OF ACCOUNTS

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

Location Summary

	County	Geocode	Total
Total	**20**	**13**	**33**

Flood Summary

	no	unknown	Total
Total	**9**	**24**	**33**

Location vs. Flood

	County	Geocode	Total
no	**1**	**8**	**9**
unknown	**19**	**5**	**24**
Total	**20**	**13**	**33**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0465**	**0.0001**	**0.2862**	**0.3808**	**0.3100**	**0.1290**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.89**	**0.38**	**0.25**	**0.63**	**0.43**	**0.73**

DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL

Location Summary

	County	Geocode	Total
Total	**111**	**186**	**297**

Flood Summary

	no	unknown	yes	Total
Total	**131**	**130**	**36**	**297**

Location vs. Flood

	County	Geocode	Total
no	**0**	**131**	**131**
unknown	**87**	**43**	**130**
yes	**24**	**12**	**36**
Total	**111**	**186**	**297**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	36	**0.22**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.98**	**0.87**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0524**	**0.0004**	**0.3535**	**0.3381**	**0.3504**	**0.0885**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.91**	**0.68**	**0.70**	**0.56**	**0.52**	**0.67**

DEPARTMENT OF AVIATION

Location Summary

	Geocode	Total
Total	**3**	**3**

Flood Summary

	unknown	Total
Total	**3**	**3**

Location vs. Flood

	Geocode	Total
unknown	**3**	**3**
Total	**3**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.3704**	**0.4321**	**0.2898**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.35**	**0.79**	**0.73**	**0.35**	**0.00**

DEPARTMENT OF BUSINESS ASSISTANCE

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2037**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.09**	**0.60**	**0.00**

DEPARTMENT OF CHARITABLE GAMING

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

DEPARTMENT OF CONSERVATION & RECREATION

Location Summary

	County	Geocode	Polygon	Total
Total	**731**	**80**	**197**	**1,008**

Flood Summary

	no	partial	unknown	yes	Total
Total	**210**	**53**	**743**	**2**	**1,008**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**66**	**144**	**210**
partial	**0**	**0**	**53**	**53**
unknown	**731**	**12**	**0**	**743**
yes	**0**	**2**	**0**	**2**
Total	**731**	**80**	**197**	**1,008**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **48** Locations
	3	**0.01**	**$1,756**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.85**	**0.70**	**0.86**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0340**	**0.0001**	**0.2769**	**0.4911**	**0.3091**	**0.1010**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.80**	**0.31**	**0.23**	**0.86**	**0.42**	**0.71**

DEPARTMENT OF CORRECTIONAL EDUCATION

Location Summary

	County	Geocode	Polygon	Total
Total	**47**	**36**	**32**	**115**

Flood Summary

	no	partial	unknown	yes	Total
Total	**47**	**8**	**17**	**43**	**115**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**23**	**24**	**47**
partial	**0**	**0**	**8**	**8**
unknown	**13**	**4**	**0**	**17**
yes	**34**	**9**	**0**	**43**
Total	**47**	**36**	**32**	**115**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **6** Locations
	44	**0.45**	**$308**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.99**	**0.93**	**0.81**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0285**	**0.0001**	**0.2712**	**0.3719**	**0.2831**	**0.0765**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.75**	**0.43**	**0.22**	**0.60**	**0.34**	**0.65**

DEPARTMENT OF CORRECTIONS

Location Summary

	County	Geocode	Polygon	Total
Total	**5**	**5**	**2**	**12**

Flood Summary

	no	unknown	Total
Total	**7**	**5**	**12**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**5**	**2**	**7**
unknown	**5**	**0**	**0**	**5**
Total	**5**	**5**	**2**	**12**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0213**	**0.0001**	**0.2963**	**0.4406**	**0.3759**	**0.0944**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.67**	**0.49**	**0.29**	**0.77**	**0.58**	**0.68**

DEPARTMENT OF CORRECTIONS - EMPLOYEE RELATIONS

Location Summary

	County	Geocode	Polygon	Total
Total	**76**	**19**	**1**	**96**

Flood Summary

	no	unknown	yes	Total
Total	**14**	**41**	**41**	**96**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**2**	**11**	**1**	**14**
unknown	**36**	**5**	**0**	**41**
yes	**38**	**3**	**0**	**41**
Total	**76**	**19**	**1**	**96**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **26** Locations
	41	**0.75**	**$44,951**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.99**	**0.97**	**0.96**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0271**	**0.0000**	**0.3453**	**0.4365**	**0.3093**	**0.0768**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.73**	**0.29**	**0.67**	**0.75**	**0.42**	**0.65**

DEPARTMENT OF CRIMINAL JUSTICE SERVICES

Location Summary

	County	Geocode	Polygon	Total
Total	**4**	**2**	**25**	**31**

Flood Summary

	no	unknown	Total
Total	**27**	**4**	**31**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**2**	**25**	**27**
unknown	**4**	**0**	**0**	**4**
Total	**4**	**2**	**25**	**31**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0313**	**0.0001**	**0.2210**	**0.3142**	**0.2465**	**0.0112**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.78**	**0.38**	**0.21**	**0.50**	**0.27**	**0.60**

DEPARTMENT OF EDUCATION

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

DEPARTMENT OF EMERGENCY MANAGEMENT

Location Summary

	County	Geocode	Total
Total	**38**	**10**	**48**

Flood Summary

	no	unknown	yes	Total
Total	**9**	**38**	**1**	**48**

Location vs. Flood

	County	Geocode	Total
no	**0**	**9**	**9**
unknown	**38**	**0**	**38**
yes	**0**	**1**	**1**
Total	**38**	**10**	**48**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.10**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.78**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0504**	**0.0001**	**0.1767**	**0.3842**	**0.2290**	**0.0103**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.90**	**0.45**	**0.12**	**0.64**	**0.21**	**0.60**

DEPARTMENT OF EMPLOYMENT DISPUTE RESOLUTION

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

DEPARTMENT OF ENVIRONMENTAL QUALITY

Location Summary

	County	Geocode	Polygon	Total
Total	**14**	**15**	**1**	**30**

Flood Summary

	no	unknown	yes	Total
Total	**10**	**17**	**3**	**30**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**9**	**1**	**10**
unknown	**14**	**3**	**0**	**17**
yes	**0**	**3**	**0**	**3**
Total	**14**	**15**	**1**	**30**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **1** Locations
	3	**0.23**	**$213**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.83**	**0.87**	**0.81**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0436**	**0.0004**	**0.2963**	**0.3066**	**0.2915**	**0.0975**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.88**	**0.65**	**0.29**	**0.49**	**0.36**	**0.69**

DEPARTMENT OF FIRE PROGRAMS

Location Summary

	County	Geocode	Total
Total	**3**	**6**	**9**

Flood Summary

	no	unknown	yes	Total
Total	**4**	**4**	**1**	**9**

Location vs. Flood

	County	Geocode	Total
no	**0**	**4**	**4**
unknown	**3**	**1**	**4**
yes	**0**	**1**	**1**
Total	**3**	**6**	**9**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.20**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.85**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0280**	**0.0002**	**0.3786**	**0.3159**	**0.3330**	**0.1846**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.74**	**0.51**	**0.81**	**0.52**	**0.50**	**0.84**

DEPARTMENT OF FORESTRY

Location Summary

	County	Geocode	Total
Total	**183**	**94**	**277**

Flood Summary

	no	unknown	yes	Total
Total	**47**	**192**	**38**	**277**

Location vs. Flood

	County	Geocode	Total
no	**6**	**41**	**47**
unknown	**144**	**48**	**192**
yes	**33**	**5**	**38**
Total	**183**	**94**	**277**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **38** Locations
	38	**0.45**	**$5,789**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.98**	**0.92**	**0.89**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0297**	**0.0001**	**0.2928**	**0.4336**	**0.3248**	**0.0930**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.76**	**0.30**	**0.27**	**0.74**	**0.49**	**0.68**

DEPARTMENT OF GAME AND INLAND FISHERIES

Location Summary

	County	Geocode	Total
Total	**166**	**17**	**183**

Flood Summary

	no	unknown	yes	Total
Total	**13**	**161**	**9**	**183**

Location vs. Flood

	County	Geocode	Total
no	**4**	**9**	**13**
unknown	**157**	**4**	**161**
yes	**5**	**4**	**9**
Total	**166**	**17**	**183**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **5** Locations
	9	**0.41**	**$10,391**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.91**	**0.91**	**0.91**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0270**	**0.0000**	**0.3345**	**0.4633**	**0.3618**	**0.1653**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.73**	**0.28**	**0.64**	**0.81**	**0.53**	**0.80**

DEPARTMENT OF GENERAL SERVICES

Location Summary

	County	Geocode	Polygon	Total
Total	**14**	**31**	**24**	**69**

Flood Summary

	no	unknown	yes	Total
Total	**51**	**16**	**2**	**69**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**27**	**24**	**51**
unknown	**13**	**3**	**0**	**16**
yes	**1**	**1**	**0**	**2**
Total	**14**	**31**	**24**	**69**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	2	**0.04**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.79**	**0.72**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0229**	**0.0006**	**0.2984**	**0.2327**	**0.3939**	**0.0151**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.69**	**0.97**	**0.58**	**0.37**	**0.60**	**0.61**

DEPARTMENT OF HEALTH

Location Summary

	County	Geocode	Polygon	Total
Total	**63**	**119**	**1**	**183**

Flood Summary

	no	unknown	yes	Total
Total	**80**	**94**	**9**	**183**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**1**	**78**	**1**	**80**
unknown	**59**	**35**	**0**	**94**
yes	**3**	**6**	**0**	**9**
Total	**63**	**119**	**1**	**183**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	9	**0.10**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.91**	**0.79**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0374**	**0.0006**	**0.2902**	**0.3617**	**0.3052**	**0.1147**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.84**	**0.71**	**0.26**	**0.59**	**0.40**	**0.71**

DEPARTMENT OF HISTORIC RESOURCES

Location Summary

	County	Geocode	Total
Total	**1**	**6**	**7**

Flood Summary

	no	unknown	Total
Total	**6**	**1**	**7**

Location vs. Flood

	County	Geocode	Total
no	**0**	**6**	**6**
unknown	**1**	**0**	**1**
Total	**1**	**6**	**7**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0302**	**0.0004**	**0.3228**	**0.2767**	**0.3084**	**0.1414**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.77**	**0.67**	**0.62**	**0.46**	**0.41**	**0.77**

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

Location Summary

	County	Geocode	Total
Total	**1**	**5**	**6**

Flood Summary

	no	unknown	Total
Total	**3**	**3**	**6**

Location vs. Flood

	County	Geocode	Total
no	**0**	**3**	**3**
unknown	**1**	**2**	**3**
Total	**1**	**5**	**6**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0359**	**0.0005**	**0.3704**	**0.3410**	**0.3313**	**0.2033**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.82**	**0.71**	**0.79**	**0.56**	**0.50**	**0.85**

DEPARTMENT OF HUMAN RESOURCE MANAGEMENT

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

DEPARTMENT OF JUVENILE JUSTICE

Location Summary

	County	Geocode	Polygon	Total
Total	**145**	**62**	**64**	**271**

Flood Summary

	no	unknown	yes	Total
Total	**117**	**152**	**2**	**271**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**53**	**64**	**117**
unknown	**145**	**7**	**0**	**152**
yes	**0**	**2**	**0**	**2**
Total	**145**	**62**	**64**	**271**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	2	**0.02**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.79**	**0.71**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0254**	**0.0002**	**0.2629**	**0.3696**	**0.2395**	**0.0744**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.71**	**0.54**	**0.22**	**0.60**	**0.26**	**0.64**

DEPARTMENT OF LABOR & INDUSTRY

Location Summary

	County	Geocode	Polygon	Total
Total	**2**	**6**	**1**	**9**

Flood Summary

	no	unknown	Total
Total	**7**	**2**	**9**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**6**	**1**	**7**
unknown	**2**	**0**	**0**	**2**
Total	**2**	**6**	**1**	**9**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0307**	**0.0004**	**0.4321**	**0.3143**	**0.4200**	**0.1542**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.78**	**0.68**	**0.85**	**0.51**	**0.85**	**0.80**

DEPARTMENT OF MEDICAL ASSISTANCE SERVICES

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

DEPARTMENT OF MILITARY AFFAIRS

Location Summary

	County	Geocode	Polygon	Total
Total	**55**	**41**	**107**	**203**

Flood Summary

	no	partial	unknown	yes	Total
Total	**23**	**107**	**71**	**2**	**203**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**23**	**0**	**23**
partial	**0**	**0**	**107**	**107**
unknown	**55**	**16**	**0**	**71**
yes	**0**	**2**	**0**	**2**
Total	**55**	**41**	**107**	**203**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **3** Locations
	22	**0.17**	**$431**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.95**	**0.83**	**0.82**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.1173**	**0.0003**	**0.2095**	**0.3150**	**0.2344**	**0.0515**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.97**	**0.60**	**0.20**	**0.51**	**0.24**	**0.63**

DEPARTMENT OF MINES MINERALS AND ENERGY

Location Summary

	County	Geocode	Polygon	Total
Total	**11**	**3**	**2**	**16**

Flood Summary

	no	unknown	yes	Total
Total	**4**	**9**	**3**	**16**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**2**	**2**	**4**
unknown	**9**	**0**	**0**	**9**
yes	**2**	**1**	**0**	**3**
Total	**11**	**3**	**2**	**16**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	3	**0.43**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.83**	**0.92**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0210**	**0.0001**	**0.4213**	**0.4793**	**0.5100**	**0.2188**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.67**	**0.47**	**0.84**	**0.83**	**0.93**	**0.87**

DEPARTMENT OF MOTOR VEHICLES

Location Summary

	County	Geocode	Total
Total	**44**	**79**	**123**

Flood Summary

	no	unknown	yes	Total
Total	**44**	**75**	**4**	**123**

Location vs. Flood

	County	Geocode	Total
no	**0**	**44**	**44**
unknown	**44**	**31**	**75**
yes	**0**	**4**	**4**
Total	**44**	**79**	**123**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **1** Locations
	4	**0.08**	**$5,002**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.86**	**0.76**	**0.88**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0351**	**0.0005**	**0.3839**	**0.3893**	**0.3746**	**0.1373**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.82**	**0.69**	**0.82**	**0.66**	**0.57**	**0.75**

DEPARTMENT OF PLANNING AND BUDGET

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL RELATI

Location Summary

	County	Total
Total	**1**	**1**

Flood Summary

	yes	Total
Total	**1**	**1**

Location vs. Flood

	County	Total
yes	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**1.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**1.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.3704**	**0.2437**	**0.4867**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.76**	**0.41**	**0.91**	**0.00**

DEPARTMENT OF RAIL & PUBLIC TRANSPORTATION

Location Summary

	County	Total
Total	**2**	**2**

Flood Summary

	yes	Total
Total	**2**	**2**

Location vs. Flood

	County	Total
yes	**2**	**2**
Total	**2**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	2	**1.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.79**	**1.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0003**	**0.3704**	**0.2079**	**0.2954**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.61**	**0.76**	**0.14**	**0.36**	**0.00**

DEPARTMENT OF SOCIAL SERVICES

Location Summary

	County	Geocode	Total
Total	**9**	**17**	**26**

Flood Summary

	no	unknown	yes	Total
Total	**11**	**14**	**1**	**26**

Location vs. Flood

	County	Geocode	Total
no	**0**	**11**	**11**
unknown	**9**	**5**	**14**
yes	**0**	**1**	**1**
Total	**9**	**17**	**26**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.08**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.76**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0575**	**0.0003**	**0.2906**	**0.3171**	**0.2843**	**0.0839**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.92**	**0.64**	**0.26**	**0.52**	**0.34**	**0.66**

DEPARTMENT OF STATE POLICE

Location Summary

	County	Geocode	Total
Total	**132**	**42**	**174**

Flood Summary

	no	unknown	yes	Total
Total	**31**	**140**	**3**	**174**

Location vs. Flood

	County	Geocode	Total
no	**0**	**31**	**31**
unknown	**131**	**9**	**140**
yes	**1**	**2**	**3**
Total	**132**	**42**	**174**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **1** Locations
	3	**0.09**	**$1,987**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.83**	**0.77**	**0.86**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0284**	**0.0001**	**0.3208**	**0.4140**	**0.3241**	**0.1268**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.75**	**0.36**	**0.61**	**0.70**	**0.48**	**0.72**

DEPARTMENT OF TAXATION

Location Summary

	County	Geocode	Total
Total	**4**	**3**	**7**

Flood Summary

	no	unknown	Total
Total	**2**	**5**	**7**

Location vs. Flood

	County	Geocode	Total
no	**0**	**2**	**2**
unknown	**4**	**1**	**5**
Total	**4**	**3**	**7**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0337**	**0.0007**	**0.3439**	**0.2683**	**0.3780**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.79**	**0.98**	**0.66**	**0.45**	**0.59**	**0.00**

DEPARTMENT OF THE TREASURY

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

DEPARTMENT OF TRANSPORTATION

Location Summary

	County	Geocode	Total
Total	**2,317**	**907**	**3,224**

Flood Summary

	no	unknown	yes	Total
Total	**585**	**1**	**2,638**	**3,224**

Location vs. Flood

	County	Geocode	Total
no	**68**	**517**	**585**
unknown	**1**	**0**	**1**
yes	**2,248**	**390**	**2,638**
Total	**2,317**	**907**	**3,224**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **2,627** Locations
	2638	**0.82**	**$484,778**	
Rank vs. All Agencies (1=highest, 0=lowest)	**1.00**	**0.97**	**1.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0303**	**0.0003**	**0.3760**	**0.4505**	**0.3752**	**0.1535**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.77**	**0.64**	**0.81**	**0.79**	**0.58**	**0.79**

DEPT OF CORRECTIONS - EMPLOYEE RELATION TRAINING UNIT

Location Summary

	Geocode	Polygon	Total
Total	**1**	**9**	**10**

Flood Summary

	no	Total
Total	**10**	**10**

Location vs. Flood

	Geocode	Polygon	Total
no	**1**	**9**	**10**
Total	**1**	**9**	**10**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.3037**	**0.3870**	**0.2153**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.34**	**0.59**	**0.65**	**0.14**	**0.00**

DEPT OF HEALTH PROFESSIONS

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.2963**	**0.1852**	**0.3110**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.44**	**0.29**	**0.01**	**0.44**	**0.00**

DEPT OF MINORITY BUSINESS ENTERPRISE

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

DEPT OF REHABILITATIVE SERVICE

Location Summary

	County	Geocode	Total
Total	**8**	**41**	**49**

Flood Summary

	no	unknown	yes	Total
Total	**42**	**2**	**5**	**49**

Location vs. Flood

	County	Geocode	Total
no	**6**	**36**	**42**
unknown	**1**	**1**	**2**
yes	**1**	**4**	**5**
Total	**8**	**41**	**49**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	5	**0.11**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.89**	**0.80**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0370**	**0.0002**	**0.3054**	**0.2943**	**0.2988**	**0.0981**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.84**	**0.56**	**0.59**	**0.47**	**0.39**	**0.69**

DEPT OF VETERANS SERVICES

Location Summary

	County	Geocode	Total
Total	**9**	**11**	**20**

Flood Summary

	no	unknown	yes	Total
Total	**7**	**12**	**1**	**20**

Location vs. Flood

	County	Geocode	Total
no	**0**	**7**	**7**
unknown	**9**	**3**	**12**
yes	**0**	**1**	**1**
Total	**9**	**11**	**20**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.13**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.81**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0382**	**0.0014**	**0.3444**	**0.3608**	**0.3430**	**0.1787**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.85**	**0.99**	**0.66**	**0.59**	**0.51**	**0.82**

DILLWYN CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**27**	**27**

Flood Summary

	no	Total
Total	**27**	**27**

Location vs. Flood

	Polygon	Total
no	**27**	**27**
Total	**27**	**27**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.3320**	**0.4277**	**0.4784**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.14**	**0.63**	**0.71**	**0.91**	**0.00**

DIVISION OF CAPITOL POLICE

Location Summary

	Geocode	Polygon	Total
Total	**1**	**3**	**4**

Flood Summary

	no	Total
Total	**4**	**4**

Location vs. Flood

	Geocode	Polygon	Total
no	**1**	**3**	**4**
Total	**1**	**3**	**4**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2130**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.18**	**0.60**	**0.00**

DIVISION OF COMMUNITY CORRECTIONS

Location Summary

	County	Geocode	Polygon	Total
Total	**146**	**121**	**4**	**271**

Flood Summary

	no	unknown	yes	Total
Total	**72**	**148**	**51**	**271**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**15**	**53**	**4**	**72**
unknown	**109**	**39**	**0**	**148**
yes	**22**	**29**	**0**	**51**
Total	**146**	**121**	**4**	**271**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **37** Locations
	51	**0.41**	**$14,176**	
Rank vs. All Agencies (1=highest, 0=lowest)	**1.00**	**0.91**	**0.93**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0353**	**0.0002**	**0.2855**	**0.3922**	**0.3085**	**0.1389**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.82**	**0.52**	**0.24**	**0.66**	**0.41**	**0.76**

DIVISION OF LEGISLATIVE AUTOMATED SYSTEMS

Location Summary

	Polygon	Total
Total	**2**	**2**

Flood Summary

	no	Total
Total	**2**	**2**

Location vs. Flood

	Polygon	Total
no	**2**	**2**
Total	**2**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2037**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.09**	**0.60**	**0.00**

DIVISION OF LEGISLATIVE SERVICES

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2037**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.09**	**0.60**	**0.00**

EASTERN REGION CORRECTIONAL FIELD UNITS

Location Summary

	County	Geocode	Total
Total	**100**	**23**	**123**

Flood Summary

	no	unknown	yes	Total
Total	**5**	**111**	**7**	**123**

Location vs. Flood

	County	Geocode	Total
no	**0**	**5**	**5**
unknown	**93**	**18**	**111**
yes	**7**	**0**	**7**
Total	**100**	**23**	**123**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **6** Locations
	7	**0.58**	**$201**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.90**	**0.96**	**0.80**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0420**	**0.0000**	**0.1506**	**0.4122**	**0.2112**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.87**	**0.20**	**0.05**	**0.69**	**0.11**	**0.00**

EASTERN SHORE COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**3**	**3**

Flood Summary

	no	Total
Total	**3**	**3**

Location vs. Flood

	Polygon	Total
no	**3**	**3**
Total	**3**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.2160**	**0.0000**	**0.1852**	**0.6667**	**0.2222**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**1.00**	**0.13**	**0.18**	**1.00**	**0.18**	**0.00**

EASTERN STATE HOSPITAL

Location Summary

	Polygon	Total
Total	**44**	**44**

Flood Summary

	no	Total
Total	**44**	**44**

Location vs. Flood

	Polygon	Total
no	**44**	**44**
Total	**44**	**44**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0414**	**0.0000**	**0.1852**	**0.3747**	**0.2294**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.86**	**0.27**	**0.15**	**0.61**	**0.22**	**0.00**

FLUVANNA WOMENS CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**27**	**27**

Flood Summary

	no	Total
Total	**27**	**27**

Location vs. Flood

	Polygon	Total
no	**27**	**27**
Total	**27**	**27**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0004**	**0.3690**	**0.5203**	**0.3055**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.67**	**0.75**	**0.89**	**0.40**	**0.00**

FRONTIER CULTURE MUSEUM OF VA

Location Summary

	Polygon	Total
Total	**21**	**21**

Flood Summary

	no	Total
Total	**21**	**21**

Location vs. Flood

	Polygon	Total
no	**21**	**21**
Total	**21**	**21**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4815**	**0.3783**	**0.1975**	**0.4556**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.91**	**0.62**	**0.07**	**0.98**

GENERAL DISTRICT COURTS

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

GEORGE MASON UNIVERSITY

Location Summary

	County	Geocode	Polygon	Total
Total	**6**	**4**	**133**	**143**

Flood Summary

	no	partial	unknown	yes	Total
Total	**6**	**133**	**2**	**2**	**143**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**2**	**4**	**0**	**6**
partial	**0**	**0**	**133**	**133**
unknown	**2**	**0**	**0**	**2**
yes	**2**	**0**	**0**	**2**
Total	**6**	**4**	**133**	**143**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **134** Locations
	2	**0.01**	**$61,491**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.81**	**0.70**	**0.97**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0215**	**0.0002**	**0.4766**	**0.2259**	**0.2584**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.68**	**0.55**	**0.91**	**0.34**	**0.30**	**0.00**

GERMANNA COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**8**	**8**

Flood Summary

	no	Total
Total	**8**	**8**

Location vs. Flood

	Polygon	Total
no	**8**	**8**
Total	**8**	**8**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4907**	**0.4884**	**0.3202**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.25**	**0.93**	**0.85**	**0.46**	**0.00**

GOVERNORS EMPLOYMENT AND TRAINING DEPARTMENT

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2037**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.09**	**0.60**	**0.00**

GREENSVILLE CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**49**	**49**

Flood Summary

	no	partial	Total
Total	**43**	**6**	**49**

Location vs. Flood

	Polygon	Total
no	**43**	**43**
partial	**6**	**6**
Total	**49**	**49**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **6** Locations
	4	**0.09**	**$4,266**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.88**	**0.78**	**0.87**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0203**	**0.0001**	**0.1807**	**0.2462**	**0.2193**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.64**	**0.33**	**0.13**	**0.42**	**0.15**	**0.00**

GUNSTON HALL

Location Summary

	Polygon	Total
Total	**22**	**22**

Flood Summary

	no	Total
Total	**22**	**22**

Location vs. Flood

	Polygon	Total
no	**22**	**22**
Total	**22**	**22**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.4444**	**0.4292**	**0.2494**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.58**	**0.90**	**0.72**	**0.29**	**0.00**

HAYNESVILLE CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**47**	**47**

Flood Summary

	partial	Total
Total	**47**	**47**

Location vs. Flood

	Polygon	Total
partial	**47**	**47**
Total	**47**	**47**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **44** Locations
	0	**0.01**	**$650**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.69**	**0.68**	**0.83**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0301**	**0.0000**	**0.2963**	**0.3442**	**0.2045**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.76**	**0.15**	**0.28**	**0.57**	**0.09**	**0.00**

HIRAM W. DAVIS MEDICAL CENTER

Location Summary

	Polygon	Total
Total	**2**	**2**

Flood Summary

	no	Total
Total	**2**	**2**

Location vs. Flood

	Polygon	Total
no	**2**	**2**
Total	**2**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.1481**	**0.5913**	**0.1852**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.39**	**0.00**	**0.93**	**0.02**	**0.00**

HOUSE OF DELEGATES

Location Summary

	Polygon	Total
Total	**2**	**2**

Flood Summary

	no	Total
Total	**2**	**2**

Location vs. Flood

	Polygon	Total
no	**2**	**2**
Total	**2**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2037**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.09**	**0.60**	**0.00**

INDIAN CREEK CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**37**	**37**

Flood Summary

	no	Total
Total	**37**	**37**

Location vs. Flood

	Polygon	Total
no	**37**	**37**
Total	**37**	**37**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.1335**	**0.0000**	**0.1632**	**0.2127**	**0.2002**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.99**	**0.24**	**0.09**	**0.18**	**0.08**	**0.00**

INNOVATIVE TECHNOLOGY AUTHORITY

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.4444**	**0.2037**	**0.2494**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.59**	**0.87**	**0.09**	**0.27**	**0.00**

J SARGEANT REYNOLDS COMM. COLL

Location Summary

	County	Geocode	Polygon	Total
Total	**1**	**1**	**34**	**36**

Flood Summary

	no	unknown	Total
Total	**34**	**2**	**36**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**0**	**34**	**34**
unknown	**1**	**1**	**0**	**2**
Total	**1**	**1**	**34**	**36**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.3621**	**0.3258**	**0.3072**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.43**	**0.72**	**0.54**	**0.40**	**0.00**

JAMES MADISON UNIVERSITY

Location Summary

	County	Polygon	Total
Total	**3**	**160**	**163**

Flood Summary

	partial	unknown	Total
Total	**160**	**3**	**163**

Location vs. Flood

	County	Polygon	Total
partial	**0**	**160**	**160**
unknown	**3**	**0**	**3**
Total	**3**	**160**	**163**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **121** Locations
	20	**0.13**	**$196,083**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.94**	**0.82**	**0.99**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.5181**	**0.2464**	**0.2795**	**0.5100**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.32**	**0.94**	**0.42**	**0.33**	**0.99**

JAMES RIVER CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**120**	**120**

Flood Summary

	partial	Total
Total	**120**	**120**

Location vs. Flood

	Polygon	Total
partial	**120**	**120**
Total	**120**	**120**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **111** Locations
	25	**0.20**	**$8,928**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.96**	**0.86**	**0.90**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.3062**	**0.4340**	**0.1901**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.17**	**0.60**	**0.74**	**0.05**	**0.00**

JAMESTOWN-YORKTOWN FOUNDATION

Location Summary

	County	Geocode	Polygon	Total
Total	**23**	**1**	**13**	**37**

Flood Summary

	no	partial	unknown	yes	Total
Total	**1**	**13**	**17**	**6**	**37**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**1**	**0**	**1**
partial	**0**	**0**	**13**	**13**
unknown	**17**	**0**	**0**	**17**
yes	**6**	**0**	**0**	**6**
Total	**23**	**1**	**13**	**37**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **19** Locations
	6	**0.31**	**$26,611**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.90**	**0.88**	**0.95**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0536**	**0.0001**	**0.1712**	**0.4728**	**0.2335**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.91**	**0.40**	**0.10**	**0.82**	**0.23**	**0.00**

JOHN TYLER COMMUNITY COLLEGE

Location Summary

	Geocode	Polygon	Total
Total	**2**	**9**	**11**

Flood Summary

	no	unknown	yes	Total
Total	**9**	**1**	**1**	**11**

Location vs. Flood

	Geocode	Polygon	Total
no	**0**	**9**	**9**
unknown	**1**	**0**	**1**
yes	**1**	**0**	**1**
Total	**2**	**9**	**11**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.10**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.78**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.1953**	**0.3266**	**0.2639**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.49**	**0.20**	**0.54**	**0.31**	**0.00**

JOINT LEGISLATIVE AUDIT & REVIEW COMMISSION

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2037**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.09**	**0.60**	**0.00**

JUDICIAL INQUIRY AND REVIEW COMMISSION

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

JUVENILE & DOMESTIC RELATIONS DISTRICT COURTS

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

KEEN MOUNTAIN CORRECTIONAL CENTER

Location Summary

	County	Polygon	Total
Total	**1**	**17**	**18**

Flood Summary

	no	unknown	Total
Total	**17**	**1**	**18**

Location vs. Flood

	County	Polygon	Total
no	**0**	**17**	**17**
unknown	**1**	**0**	**1**
Total	**1**	**17**	**18**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.3457**	**0.4946**	**0.6021**	**0.1781**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.11**	**0.68**	**0.87**	**0.98**	**0.82**

LIEUTENANT GOVERNOR

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

LONGWOOD UNIVERSITY

Location Summary

	County	Geocode	Polygon	Total
Total	**3**	**1**	**73**	**77**

Flood Summary

	no	unknown	Total
Total	**74**	**3**	**77**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**1**	**73**	**74**
unknown	**3**	**0**	**0**	**3**
Total	**3**	**1**	**73**	**77**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.2867**	**0.2241**	**0.1902**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.10**	**0.25**	**0.32**	**0.05**	**0.00**

LORD FAIRFAX COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**7**	**7**

Flood Summary

	no	Total
Total	**7**	**7**

Location vs. Flood

	Polygon	Total
no	**7**	**7**
Total	**7**	**7**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5556**	**0.4212**	**0.4891**	**0.3964**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.21**	**0.96**	**0.70**	**0.92**	**0.92**

LUNENBURG CORRECIONAL CENTER

Location Summary

	Polygon	Total
Total	**35**	**35**

Flood Summary

	no	Total
Total	**35**	**35**

Location vs. Flood

	Polygon	Total
no	**35**	**35**
Total	**35**	**35**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.1841**	**0.4543**	**0.2212**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.26**	**0.14**	**0.80**	**0.16**	**0.00**

MAGISTRATE SYSTEM

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

MARINE RESOURCES COMMISSION

Location Summary

	County	Geocode	Total
Total	**9**	**3**	**12**

Flood Summary

	no	unknown	yes	Total
Total	**2**	**8**	**2**	**12**

Location vs. Flood

	County	Geocode	Total
no	**0**	**2**	**2**
unknown	**8**	**0**	**8**
yes	**1**	**1**	**2**
Total	**9**	**3**	**12**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **2** Locations
	2	**0.50**	**$10,491**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.79**	**0.93**	**0.92**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.1040**	**0.0002**	**0.1605**	**0.3872**	**0.2151**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.96**	**0.56**	**0.08**	**0.65**	**0.13**	**0.00**

MARION CORRECTIONAL TREATMENT CENTER

Location Summary

	Polygon	Total
Total	**20**	**20**

Flood Summary

	no	Total
Total	**20**	**20**

Location vs. Flood

	Polygon	Total
no	**20**	**20**
Total	**20**	**20**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5556**	**0.7278**	**0.3461**	**0.4070**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.21**	**0.96**	**1.00**	**0.52**	**0.94**

MARY WASHINGTON COLLEGE

Location Summary

	County	Geocode	Polygon	Total
Total	**11**	**2**	**48**	**61**

Flood Summary

	no	unknown	yes	Total
Total	**49**	**11**	**1**	**61**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**1**	**48**	**49**
unknown	**11**	**0**	**0**	**11**
yes	**0**	**1**	**0**	**1**
Total	**11**	**2**	**48**	**61**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **1** Locations
	1	**0.02**	**$906**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.71**	**0.84**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0235**	**0.0002**	**0.3661**	**0.2966**	**0.2644**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.53**	**0.73**	**0.48**	**0.31**	**0.00**

MECKLENBURG CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**22**	**22**

Flood Summary

	no	Total
Total	**22**	**22**

Location vs. Flood

	Polygon	Total
no	**22**	**22**
Total	**22**	**22**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.1734**	**0.5782**	**0.2104**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.09**	**0.11**	**0.92**	**0.11**	**0.00**

MELCHERS-MONROE MEMORIALS - MARY WASHINGTON COLLEGE

Location Summary

	County	Geocode	Polygon	Total
Total	**10**	**1**	**1**	**12**

Flood Summary

	no	unknown	yes	Total
Total	**1**	**10**	**1**	**12**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**0**	**1**	**1**
unknown	**10**	**0**	**0**	**10**
yes	**0**	**1**	**0**	**1**
Total	**10**	**1**	**1**	**12**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **1** Locations
	1	**0.50**	**$26**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.93**	**0.79**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0364**	**0.0000**	**0.3488**	**0.5677**	**0.3270**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.83**	**0.29**	**0.69**	**0.92**	**0.49**	**0.00**

MILK COMMISSION

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

MOTOR VEHICLE DEALER BOARD

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

MOUNTAIN EMPIRE COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**6**	**6**

Flood Summary

	no	Total
Total	**6**	**6**

Location vs. Flood

	Polygon	Total
no	**6**	**6**
Total	**6**	**6**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4444**	**0.5833**	**0.5212**	**0.1481**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.89**	**0.93**	**0.93**	**0.77**

NATURAL BRIDGE LEARNING CENTER

Location Summary

	County	Total
Total	**1**	**1**

Flood Summary

	unknown	Total
Total	**1**	**1**

Location vs. Flood

	County	Total
unknown	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.2963**	**0.4348**	**0.3143**	**0.3845**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.29**	**0.75**	**0.46**	**0.92**

NEW RIVER COMMUNITY COLLEGE

Location Summary

	Geocode	Polygon	Total
Total	**1**	**9**	**10**

Flood Summary

	no	Total
Total	**10**	**10**

Location vs. Flood

	Geocode	Polygon	Total
no	**1**	**9**	**10**
Total	**1**	**9**	**10**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.3593**	**0.4241**	**0.2406**	**0.4500**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.08**	**0.71**	**0.71**	**0.26**	**0.97**

NORFOLK STATE UNIVERSITY

Location Summary

	County	Geocode	Polygon	Total
Total	**1**	**1**	**31**	**33**

Flood Summary

	no	partial	unknown	Total
Total	**1**	**31**	**1**	**33**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**1**	**0**	**1**
partial	**0**	**0**	**31**	**31**
unknown	**1**	**0**	**0**	**1**
Total	**1**	**1**	**31**	**33**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **29** Locations
	0	**0.01**	**$6,466**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.68**	**0.69**	**0.90**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.1162**	**0.0021**	**0.1852**	**0.2236**	**0.2222**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.97**	**1.00**	**0.15**	**0.32**	**0.19**	**0.00**

NORTHERN REGION CORRECTIONAL FIELD UNITS

Location Summary

	County	Geocode	Total
Total	**101**	**49**	**150**

Flood Summary

	no	unknown	Total
Total	**27**	**123**	**150**

Location vs. Flood

	County	Geocode	Total
no	**2**	**25**	**27**
unknown	**99**	**24**	**123**
Total	**101**	**49**	**150**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0229**	**0.0001**	**0.3674**	**0.4421**	**0.2552**	**0.0864**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.41**	**0.74**	**0.78**	**0.30**	**0.66**

NORTHERN VA COMMUNITY COLLEGE

Location Summary

	County	Geocode	Polygon	Total
Total	**2**	**4**	**71**	**77**

Flood Summary

	no	unknown	Total
Total	**75**	**2**	**77**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**4**	**71**	**75**
unknown	**2**	**0**	**0**	**2**
Total	**2**	**4**	**71**	**77**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.4425**	**0.2499**	**0.3220**	**0.0269**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.48**	**0.86**	**0.43**	**0.48**	**0.62**

NORTHERN VIRGINIA MENTAL HEALTH INSTITUTE

Location Summary

	Polygon	Total
Total	**10**	**10**

Flood Summary

	no	Total
Total	**10**	**10**

Location vs. Flood

	Polygon	Total
no	**10**	**10**
Total	**10**	**10**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.4444**	**0.2000**	**0.2494**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.59**	**0.89**	**0.08**	**0.28**	**0.00**

NORTHERN VIRGINIA TRAINING CENTER

Location Summary

	Polygon	Total
Total	**13**	**13**

Flood Summary

	no	Total
Total	**13**	**13**

Location vs. Flood

	Polygon	Total
no	**13**	**13**
Total	**13**	**13**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.4444**	**0.2685**	**0.2494**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.58**	**0.90**	**0.45**	**0.27**	**0.00**

NOTTOWAY CORRECTIONAL CENTER

Location Summary

	County	Polygon	Total
Total	**1**	**69**	**70**

Flood Summary

	no	unknown	Total
Total	**69**	**1**	**70**

Location vs. Flood

	County	Polygon	Total
no	**0**	**69**	**69**
unknown	**1**	**0**	**1**
Total	**1**	**69**	**70**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.1481**	**0.6512**	**0.1852**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.42**	**0.00**	**0.98**	**0.00**	**0.00**

OFFICE OF THE ATTORNEY GENERAL

Location Summary

	County	Geocode	Total
Total	**1**	**3**	**4**

Flood Summary

	no	unknown	Total
Total	**3**	**1**	**4**

Location vs. Flood

	County	Geocode	Total
no	**0**	**3**	**3**
unknown	**1**	**0**	**1**
Total	**1**	**3**	**4**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0593**	**0.0004**	**0.3333**	**0.2356**	**0.2966**	**0.0990**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.93**	**0.66**	**0.63**	**0.39**	**0.39**	**0.70**

OFFICE OF THE GOVERNOR

Location Summary

	Polygon	Total
Total	**3**	**3**

Flood Summary

	no	Total
Total	**3**	**3**

Location vs. Flood

	Polygon	Total
no	**3**	**3**
Total	**3**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2099**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.15**	**0.60**	**0.00**

OLD DOMINION UNIVERSITY

Location Summary

	County	Geocode	Polygon	Total
Total	**5**	**2**	**115**	**122**

Flood Summary

	no	partial	unknown	yes	Total
Total	**2**	**115**	**2**	**3**	**122**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**2**	**0**	**2**
partial	**0**	**0**	**115**	**115**
unknown	**2**	**0**	**0**	**2**
yes	**3**	**0**	**0**	**3**
Total	**5**	**2**	**115**	**122**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **104** Locations
	23	**0.19**	**$234,551**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.95**	**0.84**	**0.99**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.1144**	**0.0021**	**0.1506**	**0.2109**	**0.1884**	**0.0012**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.96**	**1.00**	**0.06**	**0.17**	**0.04**	**0.59**

OTHER OR NON-AGENCY

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	yes	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
yes	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**1.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**1.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.2963**	**0.6111**	**0.2904**	**0.3298**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.12**	**0.29**	**0.94**	**0.35**	**0.90**

PATRICK HENRY COMMUNITY COLLEGE

Location Summary

	Geocode	Polygon	Total
Total	**6**	**14**	**20**

Flood Summary

	no	partial	yes	Total
Total	**3**	**14**	**3**	**20**

Location vs. Flood

	Geocode	Polygon	Total
no	**3**	**0**	**3**
partial	**0**	**14**	**14**
yes	**3**	**0**	**3**
Total	**6**	**14**	**20**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **13** Locations
	4	**0.19**	**$5,849**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.86**	**0.84**	**0.89**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.1981**	**0.4111**	**0.5875**	**0.0291**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.33**	**0.20**	**0.69**	**0.97**	**0.62**

PAUL D. CAMP COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**10**	**10**

Flood Summary

	no	Total
Total	**10**	**10**

Location vs. Flood

	Polygon	Total
no	**10**	**10**
Total	**10**	**10**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0547**	**0.0001**	**0.1889**	**0.3423**	**0.2543**	**0.0185**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.91**	**0.37**	**0.19**	**0.57**	**0.29**	**0.61**

PIEDMONT GERIATRIC HOSPITAL

Location Summary

	Polygon	Total
Total	**36**	**36**

Flood Summary

	no	Total
Total	**36**	**36**

Location vs. Flood

	Polygon	Total
no	**36**	**36**
Total	**36**	**36**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.1553**	**0.6343**	**0.1924**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.42**	**0.06**	**0.97**	**0.06**	**0.00**

PIEDMONT VA COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**6**	**6**

Flood Summary

	no	Total
Total	**6**	**6**

Location vs. Flood

	Polygon	Total
no	**6**	**6**
Total	**6**	**6**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.3333**	**0.6667**	**0.5758**	**0.1667**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.18**	**0.63**	**0.99**	**0.97**	**0.81**

POWHATAN CORRECTIONAL CENTER

Location Summary

	County	Geocode	Polygon	Total
Total	**1**	**1**	**98**	**100**

Flood Summary

	no	unknown	Total
Total	**99**	**1**	**100**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**1**	**98**	**99**
unknown	**1**	**0**	**0**	**1**
Total	**1**	**1**	**98**	**100**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0206**	**0.0000**	**0.3148**	**0.3349**	**0.2286**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.66**	**0.19**	**0.60**	**0.55**	**0.21**	**0.00**

PUBLIC DEFENDER COMMISSION

Location Summary

	County	Geocode	Total
Total	**2**	**23**	**25**

Flood Summary

	no	unknown	yes	Total
Total	**17**	**6**	**2**	**25**

Location vs. Flood

	County	Geocode	Total
no	**0**	**17**	**17**
unknown	**2**	**4**	**6**
yes	**0**	**2**	**2**
Total	**2**	**23**	**25**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	2	**0.11**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.79**	**0.80**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0433**	**0.0003**	**0.2785**	**0.2468**	**0.3205**	**0.0898**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.88**	**0.60**	**0.23**	**0.43**	**0.47**	**0.67**

RADFORD UNIVERSITY

Location Summary

	Polygon	Total
Total	**77**	**77**

Flood Summary

	partial	Total
Total	**77**	**77**

Location vs. Flood

	Polygon	Total
partial	**77**	**77**
Total	**77**	**77**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **59** Locations
	6	**0.08**	**$53,732**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.90**	**0.76**	**0.96**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5267**	**0.2244**	**0.2137**	**0.4421**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.07**	**0.95**	**0.33**	**0.12**	**0.97**

RAPPAHANNOCK COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**9**	**9**

Flood Summary

	no	Total
Total	**9**	**9**

Location vs. Flood

	Polygon	Total
no	**9**	**9**
Total	**9**	**9**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0469**	**0.0000**	**0.2510**	**0.5430**	**0.2352**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.90**	**0.27**	**0.21**	**0.90**	**0.25**	**0.00**

RED ONION STATE PRISON

Location Summary

	County	Polygon	Total
Total	**2**	**16**	**18**

Flood Summary

	no	unknown	Total
Total	**16**	**2**	**18**

Location vs. Flood

	County	Polygon	Total
no	**0**	**16**	**16**
unknown	**2**	**0**	**2**
Total	**2**	**16**	**18**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5556**	**0.4794**	**0.6277**	**0.1852**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.08**	**0.96**	**0.83**	**0.99**	**0.84**

RICHARD BLAND COLLEGE

Location Summary

	Polygon	Total
Total	**21**	**21**

Flood Summary

	no	Total
Total	**21**	**21**

Location vs. Flood

	Polygon	Total
no	**21**	**21**
Total	**21**	**21**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.1481**	**0.4472**	**0.2252**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.60**	**0.00**	**0.78**	**0.20**	**0.00**

SECRETARY OF ADMINISTRATION

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

SECRETARY OF COMMERCE AND TRADE

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

SECRETARY OF EDUCATION

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

SECRETARY OF FINANCE

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

SECRETARY OF HEALTH & HUMAN RESOURCES

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

SECRETARY OF NATURAL RESOURCES

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

SECRETARY OF PUBLIC SAFETY

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

SECRETARY OF THE COMMONWEALTH

Location Summary

	Geocode	Polygon	Total
Total	**1**	**2**	**3**

Flood Summary

	no	Total
Total	**3**	**3**

Location vs. Flood

	Geocode	Polygon	Total
no	**1**	**2**	**3**
Total	**1**	**2**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2099**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.15**	**0.60**	**0.00**

SECRETARY OF TRANSPORTATION

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

SENATE

Location Summary

	Polygon	Total
Total	**2**	**2**

Flood Summary

	no	Total
Total	**2**	**2**

Location vs. Flood

	Polygon	Total
no	**2**	**2**
Total	**2**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2037**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.09**	**0.60**	**0.00**

SOUTHAMPTON CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**123**	**123**

Flood Summary

	no	partial	Total
Total	**114**	**9**	**123**

Location vs. Flood

	Polygon	Total
no	**114**	**114**
partial	**9**	**9**
Total	**123**	**123**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **9** Locations
	2	**0.01**	**$1,341**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.78**	**0.70**	**0.85**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0340**	**0.0000**	**0.1852**	**0.4296**	**0.2222**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.81**	**0.16**	**0.19**	**0.72**	**0.17**	**0.00**

SOUTHAMPTON RECEPTION AND CLASSIFICATION CENTER

Location Summary

	Polygon	Total
Total	**3**	**3**

Flood Summary

	no	Total
Total	**3**	**3**

Location vs. Flood

	Polygon	Total
no	**3**	**3**
Total	**3**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0340**	**0.0000**	**0.1852**	**0.2429**	**0.2222**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.81**	**0.15**	**0.18**	**0.40**	**0.18**	**0.00**

SOUTHEASTERN VIRGINIA TRAINING CENTER

Location Summary

	Polygon	Total
Total	**41**	**41**

Flood Summary

	no	Total
Total	**41**	**41**

Location vs. Flood

	Polygon	Total
no	**41**	**41**
Total	**41**	**41**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.1335**	**0.0000**	**0.1752**	**0.2060**	**0.2123**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.99**	**0.24**	**0.11**	**0.14**	**0.12**	**0.00**

SOUTHERN VIRGINIA MENTAL HEALTH INSTITUTE

Location Summary

	Polygon	Total
Total	**3**	**3**

Flood Summary

	partial	Total
Total	**3**	**3**

Location vs. Flood

	Polygon	Total
partial	**3**	**3**
Total	**3**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **3** Locations
	0	**0.06**	**$3,080**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.67**	**0.74**	**0.87**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.1605**	**0.6481**	**0.3767**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.08**	**0.98**	**0.59**	**0.00**

SOUTHSIDE VA COMMUNITY COLLEGE

Location Summary

	County	Geocode	Polygon	Total
Total	**2**	**3**	**8**	**13**

Flood Summary

	no	unknown	Total
Total	**12**	**1**	**13**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**1**	**3**	**8**	**12**
unknown	**1**	**0**	**0**	**1**
Total	**2**	**3**	**8**	**13**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.1852**	**0.4797**	**0.2292**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.50**	**0.15**	**0.84**	**0.22**	**0.00**

SOUTHSIDE VIRGINIA TRAINING CENTER

Location Summary

	County	Polygon	Total
Total	**2**	**68**	**70**

Flood Summary

	no	unknown	Total
Total	**68**	**2**	**70**

Location vs. Flood

	County	Polygon	Total
no	**0**	**68**	**68**
unknown	**2**	**0**	**2**
Total	**2**	**68**	**70**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.1481**	**0.4237**	**0.1852**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.39**	**0.00**	**0.70**	**0.00**	**0.00**

SOUTHWEST VA HIGHER EDUCATION CENTER

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4444**	**0.4074**	**0.3661**	**0.3502**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.22**	**0.87**	**0.67**	**0.54**	**0.90**

SOUTHWEST VIRGINIA COMMUNITY COLLEGE

Location Summary

	County	Polygon	Total
Total	**3**	**19**	**22**

Flood Summary

	no	unknown	Total
Total	**19**	**3**	**22**

Location vs. Flood

	County	Polygon	Total
no	**0**	**19**	**19**
unknown	**3**	**0**	**3**
Total	**3**	**19**	**22**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4242**	**0.5357**	**0.2956**	**0.3103**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.09**	**0.84**	**0.90**	**0.38**	**0.89**

SOUTHWESTERN VIRGINIA MENTAL HEALTH INSTITUTE

Location Summary

	Polygon	Total
Total	**35**	**35**

Flood Summary

	no	Total
Total	**35**	**35**

Location vs. Flood

	Polygon	Total
no	**35**	**35**
Total	**35**	**35**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4889**	**0.4876**	**0.3115**	**0.3582**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.22**	**0.92**	**0.85**	**0.45**	**0.91**

SOUTHWESTERN VIRGINIA TRAINING CENTER

Location Summary

	Polygon	Total
Total	**23**	**23**

Flood Summary

	no	Total
Total	**23**	**23**

Location vs. Flood

	Polygon	Total
no	**23**	**23**
Total	**23**	**23**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.3671**	**0.6159**	**0.6618**	**0.1836**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.13**	**0.73**	**0.95**	**1.00**	**0.83**

ST. BRIDES CORRECTIONAL CENTER

Location Summary

	Geocode	Polygon	Total
Total	**3**	**40**	**43**

Flood Summary

	no	unknown	Total
Total	**40**	**3**	**43**

Location vs. Flood

	Geocode	Polygon	Total
no	**0**	**40**	**40**
unknown	**3**	**0**	**3**
Total	**3**	**40**	**43**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.1335**	**0.0000**	**0.1843**	**0.2231**	**0.2214**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.99**	**0.23**	**0.14**	**0.31**	**0.16**	**0.00**

STATE BOARD OF ELECTIONS

Location Summary

	County	Polygon	Total
Total	**1**	**1**	**2**

Flood Summary

	no	unknown	Total
Total	**1**	**1**	**2**

Location vs. Flood

	County	Polygon	Total
no	**0**	**1**	**1**
unknown	**1**	**0**	**1**
Total	**1**	**1**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2330**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.38**	**0.60**	**0.00**

STATE CORPORATION COMMISSION

Location Summary

	Geocode	Total
Total	**3**	**3**

Flood Summary

	no	Total
Total	**3**	**3**

Location vs. Flood

	Geocode	Total
no	**3**	**3**
Total	**3**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0005**	**0.3704**	**0.1975**	**0.4129**	**0.1320**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.70**	**0.79**	**0.08**	**0.84**	**0.73**

STATE COUNCIL OF HIGHER EDUCATION FOR VA

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

STATE LOTTERY DEPARTMENT

Location Summary

	County	Geocode	Total
Total	**4**	**6**	**10**

Flood Summary

	no	unknown	Total
Total	**4**	**6**	**10**

Location vs. Flood

	County	Geocode	Total
no	**0**	**4**	**4**
unknown	**4**	**2**	**6**
Total	**4**	**6**	**10**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0272**	**0.0002**	**0.3407**	**0.2960**	**0.3114**	**0.1191**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.73**	**0.57**	**0.65**	**0.48**	**0.45**	**0.72**

STAUNTON CORRECTIONAL CENTER

Location Summary

	Polygon	Total
Total	**51**	**51**

Flood Summary

	partial	Total
Total	**51**	**51**

Location vs. Flood

	Polygon	Total
partial	**51**	**51**
Total	**51**	**51**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **34** Locations
	3	**0.06**	**$1,090**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.84**	**0.74**	**0.84**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4444**	**0.2598**	**0.1852**	**0.4205**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.86**	**0.44**	**0.00**	**0.96**

SUBSTANCE ABUSE & PREVENTION OFFICE

Location Summary

	Polygon	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Polygon	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

SUPREME COURT

Location Summary

	County	Geocode	Total
Total	**1**	**8**	**9**

Flood Summary

	no	unknown	yes	Total
Total	**6**	**2**	**1**	**9**

Location vs. Flood

	County	Geocode	Total
no	**0**	**6**	**6**
unknown	**1**	**1**	**2**
yes	**0**	**1**	**1**
Total	**1**	**8**	**9**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.14**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.82**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0375**	**0.0002**	**0.3457**	**0.3143**	**0.3547**	**0.2184**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.85**	**0.52**	**0.69**	**0.50**	**0.53**	**0.86**

SUSSEX I STATE PRISON

Location Summary

	Polygon	Total
Total	**16**	**16**

Flood Summary

	no	Total
Total	**16**	**16**

Location vs. Flood

	Polygon	Total
no	**16**	**16**
Total	**16**	**16**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0224**	**0.0001**	**0.1852**	**0.6253**	**0.2376**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.68**	**0.41**	**0.15**	**0.96**	**0.25**	**0.00**

SUSSEX II STATE PRISON

Location Summary

	Polygon	Total
Total	**15**	**15**

Flood Summary

	no	Total
Total	**15**	**15**

Location vs. Flood

	Polygon	Total
no	**15**	**15**
Total	**15**	**15**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0255**	**0.0001**	**0.1580**	**0.5631**	**0.2044**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.72**	**0.35**	**0.07**	**0.91**	**0.08**	**0.00**

THE COLLEGE OF WILLIAM AND MARY IN VIRGINIA

Location Summary

	County	Geocode	Polygon	Total
Total	**15**	**3**	**175**	**193**

Flood Summary

	no	unknown	yes	Total
Total	**180**	**12**	**1**	**193**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**2**	**3**	**175**	**180**
unknown	**12**	**0**	**0**	**12**
yes	**1**	**0**	**0**	**1**
Total	**15**	**3**	**175**	**193**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.01**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.68**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0332**	**0.0000**	**0.1589**	**0.2908**	**0.2055**	**0.0103**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.79**	**0.10**	**0.07**	**0.47**	**0.09**	**0.60**

THE LIBRARY OF VIRGINIA

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	unknown	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
unknown	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.3704**	**0.4074**	**0.3732**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.44**	**0.76**	**0.67**	**0.57**	**0.00**

THE SCIENCE MUSEUM OF VIRGINIA

Location Summary

	Geocode	Total
Total	**3**	**3**

Flood Summary

	no	unknown	Total
Total	**2**	**1**	**3**

Location vs. Flood

	Geocode	Total
no	**2**	**2**
unknown	**1**	**1**
Total	**3**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.3086**	**0.2222**	**0.4279**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.57**	**0.60**	**0.21**	**0.88**	**0.00**

THOMAS NELSON COMMUNITY COLLEGE

Location Summary

	County	Geocode	Polygon	Total
Total	**1**	**3**	**7**	**11**

Flood Summary

	no	unknown	Total
Total	**10**	**1**	**11**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**3**	**7**	**10**
unknown	**1**	**0**	**0**	**1**
Total	**1**	**3**	**7**	**11**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0859**	**0.0001**	**0.1852**	**0.3078**	**0.2690**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.95**	**0.34**	**0.15**	**0.49**	**0.32**	**0.00**

TIDEWATER COMMUNITY COLLEGE

Location Summary

	County	Geocode	Polygon	Total
Total	**1**	**3**	**37**	**41**

Flood Summary

	no	partial	unknown	Total
Total	**17**	**22**	**2**	**41**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**2**	**15**	**17**
partial	**0**	**0**	**22**	**22**
unknown	**1**	**1**	**0**	**2**
Total	**1**	**3**	**37**	**41**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **14** Locations
	9	**0.24**	**$71,878**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.92**	**0.88**	**0.98**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.1258**	**0.0004**	**0.1807**	**0.2222**	**0.2184**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.98**	**0.69**	**0.13**	**0.20**	**0.14**	**0.00**

UNIVERSITY OF VIRGINIA MEDICAL CENTER

Location Summary

	County	Total
Total	**1**	**1**

Flood Summary

	unknown	Total
Total	**1**	**1**

Location vs. Flood

	County	Total
unknown	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.2963**	**0.5178**	**0.5235**	**0.1481**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.18**	**0.29**	**0.88**	**0.94**	**0.77**

UNIVERSITY OF VIRGINIA-ACADEMIC DIVISION

Location Summary

	County	Geocode	Polygon	Total
Total	**71**	**2**	**588**	**661**

Flood Summary

	no	unknown	yes	Total
Total	**589**	**67**	**5**	**661**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**1**	**588**	**589**
unknown	**67**	**0**	**0**	**67**
yes	**4**	**1**	**0**	**5**
Total	**71**	**2**	**588**	**661**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **1** Locations
	5	**0.01**	**$12,718**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.89**	**0.69**	**0.92**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0206**	**0.0001**	**0.3540**	**0.3130**	**0.5594**	**0.1865**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.66**	**0.47**	**0.70**	**0.50**	**0.96**	**0.85**

UVA AT WISE

Location Summary

	Polygon	Total
Total	**43**	**43**

Flood Summary

	no	Total
Total	**43**	**43**

Location vs. Flood

	Polygon	Total
no	**43**	**43**
Total	**43**	**43**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5245**	**0.6111**	**0.5963**	**0.1748**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.94**	**0.95**	**0.98**	**0.81**

VA CTR FOR BEHAVIORAL REHABILITATION

Location Summary

	County	Total
Total	**2**	**2**

Flood Summary

	unknown	Total
Total	**2**	**2**

Location vs. Flood

	County	Total
unknown	**2**	**2**
Total	**2**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0001**	**0.1481**	**0.3525**	**0.1852**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.39**	**0.00**	**0.58**	**0.02**	**0.00**

VA INFORMATION TECHNOLOGIES AGENCY

Location Summary

	County	Geocode	Total
Total	**1**	**2**	**3**

Flood Summary

	no	unknown	Total
Total	**2**	**1**	**3**

Location vs. Flood

	County	Geocode	Total
no	**0**	**2**	**2**
unknown	**1**	**0**	**1**
Total	**1**	**2**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0005**	**0.3704**	**0.2318**	**0.4129**	**0.1320**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.70**	**0.79**	**0.36**	**0.84**	**0.73**

VA INSTITUTE OF MARINE SCIENCE

Location Summary

	County	Polygon	Total
Total	**17**	**90**	**107**

Flood Summary

	partial	yes	Total
Total	**90**	**17**	**107**

Location vs. Flood

	County	Polygon	Total
partial	**0**	**90**	**90**
yes	**17**	**0**	**17**
Total	**17**	**90**	**107**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **106** Locations
	35	**0.33**	**$62,500**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.97**	**0.89**	**0.97**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0846**	**0.0000**	**0.1502**	**0.4370**	**0.2083**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.94**	**0.30**	**0.05**	**0.76**	**0.10**	**0.00**

VA REHABILITATION FOR THE BLIND

Location Summary

	Geocode	Polygon	Total
Total	**5**	**1**	**6**

Flood Summary

	no	Total
Total	**6**	**6**

Location vs. Flood

	Geocode	Polygon	Total
no	**5**	**1**	**6**
Total	**5**	**1**	**6**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0002**	**0.3457**	**0.2284**	**0.3682**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.55**	**0.68**	**0.36**	**0.55**	**0.00**

VA SCHOOL F/T DEAF & THE BLIND - STAUNTON

Location Summary

	Polygon	Total
Total	**27**	**27**

Flood Summary

	partial	Total
Total	**27**	**27**

Location vs. Flood

	Polygon	Total
partial	**27**	**27**
Total	**27**	**27**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **19** Locations
	3	**0.10**	**$7,287**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.82**	**0.80**	**0.90**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5556**	**0.3194**	**0.2222**	**0.5257**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.96**	**0.53**	**0.19**	**1.00**

VA SCHOOL F/T DEAF BLIND & MULTI-DISABLED HAMPTON

Location Summary

	Polygon	Total
Total	**15**	**15**

Flood Summary

	no	Total
Total	**15**	**15**

Location vs. Flood

	Polygon	Total
no	**15**	**15**
Total	**15**	**15**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0910**	**0.0001**	**0.1481**	**0.2086**	**0.2281**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.95**	**0.36**	**0.00**	**0.15**	**0.20**	**0.00**

VCC UTILITY

Location Summary

	Geocode	Polygon	Total
Total	**2**	**3**	**5**

Flood Summary

	no	yes	Total
Total	**4**	**1**	**5**

Location vs. Flood

	Geocode	Polygon	Total
no	**1**	**3**	**4**
yes	**1**	**0**	**1**
Total	**2**	**3**	**5**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.20**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.85**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0004**	**0.3926**	**0.2379**	**0.3699**	**0.0990**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.66**	**0.83**	**0.39**	**0.55**	**0.70**

VIRGINIA BOARD FOR PEOPLE WITH DISABILITIES

Location Summary

	County	Total
Total	**1**	**1**

Flood Summary

	yes	Total
Total	**1**	**1**

Location vs. Flood

	County	Total
yes	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**1.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**1.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2216**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.20**	**0.60**	**0.00**

VIRGINIA COLLEGE SAVING PLAN

Location Summary

	County	Geocode	Total
Total	**1**	**1**	**2**

Flood Summary

	no	yes	Total
Total	**1**	**1**	**2**

Location vs. Flood

	County	Geocode	Total
no	**0**	**1**	**1**
yes	**1**	**0**	**1**
Total	**1**	**1**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	1	**0.50**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.70**	**0.93**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0003**	**0.3704**	**0.0926**	**0.2954**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.61**	**0.76**	**0.00**	**0.36**	**0.00**

VIRGINIA COMMISSION FOR THE ARTS

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2407**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.40**	**0.60**	**0.00**

VIRGINIA COMMONWEALTH UNI - ACADEMIC DIVISION

Location Summary

	County	Geocode	Polygon	Total
Total	**8**	**1**	**159**	**168**

Flood Summary

	no	unknown	Total
Total	**159**	**9**	**168**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**0**	**159**	**159**
unknown	**8**	**1**	**0**	**9**
Total	**8**	**1**	**159**	**168**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0005**	**0.3448**	**0.2261**	**0.4498**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.70**	**0.67**	**0.34**	**0.89**	**0.00**

VIRGINIA COMMUNITY COLLEGE SYSTEM

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.1852**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.01**	**0.60**	**0.00**

VIRGINIA CORRECTIONAL CENTER FOR WOMEN

Location Summary

	County	Polygon	Total
Total	**1**	**41**	**42**

Flood Summary

	partial	unknown	Total
Total	**41**	**1**	**42**

Location vs. Flood

	County	Polygon	Total
partial	**0**	**41**	**41**
unknown	**1**	**0**	**1**
Total	**1**	**41**	**42**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **33** Locations
	9	**0.21**	**$12,747**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.91**	**0.86**	**0.93**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.2928**	**0.6182**	**0.1870**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.17**	**0.27**	**0.96**	**0.04**	**0.00**

VIRGINIA CORRECTIONAL ENTERPRISES

Location Summary

	County	Geocode	Polygon	Total
Total	**9**	**4**	**4**	**17**

Flood Summary

	no	partial	unknown	yes	Total
Total	**5**	**1**	**8**	**3**	**17**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**2**	**3**	**5**
partial	**0**	**0**	**1**	**1**
unknown	**7**	**1**	**0**	**8**
yes	**2**	**1**	**0**	**3**
Total	**9**	**4**	**4**	**17**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **3** Locations
	3	**0.34**	**$433**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.85**	**0.90**	**0.82**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0383**	**0.0002**	**0.2963**	**0.3820**	**0.3292**	**0.0355**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.86**	**0.50**	**0.29**	**0.64**	**0.50**	**0.63**

VIRGINIA CRIMINAL SENTENCING COMMISSION

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2222**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.21**	**0.60**	**0.00**

VIRGINIA EMPLOYMENT COMMISSION

Location Summary

	County	Geocode	Total
Total	**15**	**30**	**45**

Flood Summary

	no	unknown	yes	Total
Total	**19**	**22**	**4**	**45**

Location vs. Flood

	County	Geocode	Total
no	**0**	**19**	**19**
unknown	**13**	**9**	**22**
yes	**2**	**2**	**4**
Total	**15**	**30**	**45**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	4	**0.17**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.86**	**0.83**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0370**	**0.0011**	**0.3580**	**0.3744**	**0.3712**	**0.1381**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.83**	**0.98**	**0.71**	**0.61**	**0.56**	**0.75**

VIRGINIA HIGHLANDS COMMUNITY COLLEGE

Location Summary

	Polygon	Total
Total	**7**	**7**

Flood Summary

	no	Total
Total	**7**	**7**

Location vs. Flood

	Polygon	Total
no	**7**	**7**
Total	**7**	**7**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5397**	**0.4542**	**0.4288**	**0.4252**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.23**	**0.95**	**0.80**	**0.88**	**0.96**

VIRGINIA LIAISON OFFICE

Location Summary

	County	Total
Total	**1**	**1**

Flood Summary

	unknown	Total
Total	**1**	**1**

Location vs. Flood

	County	Total
unknown	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4444**	**0.0000**	**0.1852**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.87**	**0.00**	**0.02**	**0.00**

VIRGINIA MILITARY INSTITUTE

Location Summary

	County	Polygon	Total
Total	**9**	**97**	**106**

Flood Summary

	partial	unknown	yes	Total
Total	**97**	**8**	**1**	**106**

Location vs. Flood

	County	Polygon	Total
partial	**0**	**97**	**97**
unknown	**8**	**0**	**8**
yes	**1**	**0**	**1**
Total	**9**	**97**	**106**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **50** Locations
	11	**0.12**	**$25,097**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.93**	**0.81**	**0.94**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.3246**	**0.2413**	**0.2344**	**0.4055**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.10**	**0.62**	**0.40**	**0.24**	**0.93**

VIRGINIA MUSEUM OF FINE ARTS

Location Summary

	County	Geocode	Total
Total	**2**	**5**	**7**

Flood Summary

	no	unknown	Total
Total	**6**	**1**	**7**

Location vs. Flood

	County	Geocode	Total
no	**1**	**5**	**6**
unknown	**1**	**0**	**1**
Total	**2**	**5**	**7**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.3492**	**0.2257**	**0.4635**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.70**	**0.33**	**0.90**	**0.00**

VIRGINIA MUSEUM OF NATURAL HISTORY

Location Summary

	Geocode	Total
Total	**3**	**3**

Flood Summary

	unknown	Total
Total	**3**	**3**

Location vs. Flood

	Geocode	Total
unknown	**3**	**3**
Total	**3**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.1728**	**0.2099**	**0.6296**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.10**	**0.15**	**1.00**	**0.00**

VIRGINIA OFFICE FOR PROTECTION AND ADVOCACY

Location Summary

	County	Geocode	Polygon	Total
Total	**1**	**1**	**1**	**3**

Flood Summary

	no	unknown	Total
Total	**2**	**1**	**3**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**1**	**1**	**2**
unknown	**1**	**0**	**0**	**1**
Total	**1**	**1**	**1**	**3**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0724**	**0.0003**	**0.2963**	**0.2558**	**0.2586**	**0.1402**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.94**	**0.63**	**0.29**	**0.44**	**0.30**	**0.76**

VIRGINIA PAROLE BOARD

Location Summary

	Geocode	Total
Total	**1**	**1**

Flood Summary

	no	Total
Total	**1**	**1**

Location vs. Flood

	Geocode	Total
no	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.3704**	**0.2037**	**0.4867**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.76**	**0.09**	**0.91**	**0.00**

VIRGINIA POLYTECHNIC INST. AND STATE UNIVERSITY

Location Summary

	County	Geocode	Polygon	Total
Total	**378**	**77**	**489**	**944**

Flood Summary

	no	partial	unknown	yes	Total
Total	**50**	**489**	**401**	**4**	**944**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**6**	**44**	**0**	**50**
partial	**0**	**0**	**489**	**489**
unknown	**371**	**30**	**0**	**401**
yes	**1**	**3**	**0**	**4**
Total	**378**	**77**	**489**	**944**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **173** Locations
	29	**0.05**	**$332,721**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.96**	**0.73**	**1.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0276**	**0.0000**	**0.3891**	**0.3778**	**0.2958**	**0.2737**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.74**	**0.26**	**0.82**	**0.62**	**0.38**	**0.88**

VIRGINIA PUBLIC BROADCASTING BOARD

Location Summary

	County	Total
Total	**1**	**1**

Flood Summary

	unknown	Total
Total	**1**	**1**

Location vs. Flood

	County	Total
unknown	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.2963**	**0.5178**	**0.5235**	**0.1481**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.18**	**0.29**	**0.88**	**0.94**	**0.77**

VIRGINIA RACING COMMISSION

Location Summary

	County	Total
Total	**1**	**1**

Flood Summary

	unknown	Total
Total	**1**	**1**

Location vs. Flood

	County	Total
unknown	**1**	**1**
Total	**1**	**1**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
		0.00		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0250**	**0.0001**	**0.1481**	**0.4910**	**0.2148**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.71**	**0.32**	**0.00**	**0.86**	**0.13**	**0.00**

VIRGINIA RETIREMENT SYSTEM

Location Summary

	Geocode	Total
Total	**2**	**2**

Flood Summary

	no	Total
Total	**2**	**2**

Location vs. Flood

	Geocode	Total
no	**2**	**2**
Total	**2**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0006**	**0.2963**	**0.2130**	**0.4056**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.72**	**0.29**	**0.18**	**0.60**	**0.00**

VIRGINIA STATE BAR

Location Summary

	Geocode	Total
Total	**2**	**2**

Flood Summary

	no	Total
Total	**2**	**2**

Location vs. Flood

	Geocode	Total
no	**2**	**2**
Total	**2**	**2**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0003**	**0.3704**	**0.2037**	**0.4746**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.65**	**0.76**	**0.09**	**0.90**	**0.00**

VIRGINIA STATE UNIVERSITY

Location Summary

	County	Polygon	Total
Total	**2**	**122**	**124**

Flood Summary

	partial	unknown	Total
Total	**122**	**2**	**124**

Location vs. Flood

	County	Polygon	Total
partial	**0**	**122**	**122**
unknown	**2**	**0**	**2**
Total	**2**	**122**	**124**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **94** Locations
	0	**0.00**	**$1,487**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.68**	**0.67**	**0.85**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0205**	**0.0001**	**0.1481**	**0.2332**	**0.2081**	**0.0000**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.65**	**0.46**	**0.00**	**0.38**	**0.10**	**0.00**

VIRGINIA WESTERN COMMUNIUTY COLLEGE

Location Summary

	County	Geocode	Polygon	Total
Total	**10**	**2**	**25**	**37**

Flood Summary

	no	yes	Total
Total	**35**	**2**	**37**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**8**	**2**	**25**	**35**
yes	**2**	**0**	**0**	**2**
Total	**10**	**2**	**25**	**37**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **2** Locations
	2	**0.05**	**$95**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.79**	**0.73**	**0.80**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0003**	**0.4845**	**0.4565**	**0.4608**	**0.3985**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.61**	**0.92**	**0.80**	**0.89**	**0.93**

VIRGINIA WORKERS COMPENSATION COMMISSION

Location Summary

	County	Geocode	Total
Total	**2**	**5**	**7**

Flood Summary

	no	unknown	Total
Total	**4**	**3**	**7**

Location vs. Flood

	County	Geocode	Total
no	**0**	**4**	**4**
unknown	**2**	**1**	**3**
Total	**2**	**5**	**7**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0425**	**0.0002**	**0.3175**	**0.2452**	**0.3204**	**0.1602**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.87**	**0.51**	**0.61**	**0.41**	**0.47**	**0.80**

WALLENS RIDGE STATE PRISON

Location Summary

	Geocode	Polygon	Total
Total	**1**	**14**	**15**

Flood Summary

	no	Total
Total	**15**	**15**

Location vs. Flood

	Geocode	Polygon	Total
no	**1**	**14**	**15**
Total	**1**	**14**	**15**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5407**	**0.6333**	**0.6115**	**0.1802**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.00**	**0.96**	**0.97**	**0.99**	**0.83**

WESTERN REGION CORRECTIONAL FIELD UNITS

Location Summary

	County	Geocode	Total
Total	**165**	**4**	**169**

Flood Summary

	no	unknown	yes	Total
Total	**11**	**139**	**19**	**169**

Location vs. Flood

	County	Geocode	Total
no	**8**	**3**	**11**
unknown	**138**	**1**	**139**
yes	**19**	**0**	**19**
Total	**165**	**4**	**169**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **19** Locations
	19	**0.63**	**$5,661**	
Rank vs. All Agencies (1=highest, 0=lowest)	**0.93**	**0.96**	**0.88**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.3688**	**0.5026**	**0.4248**	**0.2366**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.20**	**0.74**	**0.88**	**0.87**	**0.87**

WESTERN STATE HOSPITAL

Location Summary

	Polygon	Total
Total	**22**	**22**

Flood Summary

	no	Total
Total	**22**	**22**

Location vs. Flood

	Polygon	Total
no	**22**	**22**
Total	**22**	**22**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.5556**	**0.4411**	**0.2314**	**0.5224**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.11**	**0.96**	**0.77**	**0.23**	**1.00**

WOODROW WILSON REHABILITATION CENTER

Location Summary

	Geocode	Polygon	Total
Total	**1**	**35**	**36**

Flood Summary

	no	Total
Total	**36**	**36**

Location vs. Flood

	Geocode	Polygon	Total
no	**1**	**35**	**36**
Total	**1**	**35**	**36**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0227**	**0.0001**	**0.4609**	**0.3285**	**0.3647**	**0.3742**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.69**	**0.46**	**0.90**	**0.55**	**0.54**	**0.91**

WYTHEVILLE COMMUNITY COLLEGE

Location Summary

	County	Geocode	Polygon	Total
Total	**1**	**1**	**8**	**10**

Flood Summary

	no	unknown	Total
Total	**8**	**2**	**10**

Location vs. Flood

	County	Geocode	Polygon	Total
no	**0**	**0**	**8**	**8**
unknown	**1**	**1**	**0**	**2**
Total	**1**	**1**	**8**	**10**

	Estimated Flood Locations	Percent Locations Flooded	Estimated Annual Flood Losses	Loss based on **0** Locations
	0	**0.00**		
Rank vs. All Agencies (1=highest, 0=lowest)	**0.00**	**0.00**	**0.00**	

	Hurr. 90mph Prob.	Torn. Ann. Prob.	Winter Storm Relat. Risk	Wildfire Relat. Risk	Landslide Relat. Risk	Karst Relat. Risk
Average Prob./Risk	**0.0201**	**0.0000**	**0.4074**	**0.4972**	**0.3097**	**0.4115**
Rank vs. All Agencies (1=highest, 0=lowest)	**0.32**	**0.12**	**0.83**	**0.87**	**0.43**	**0.95**

Appendix G
Commonwealth of Virginia Localities/Regions Developing Hazard Mitigation Plans

The following list represents the current status of local hazard mitigation planning across the Commonwealth. It is intended as an update for these localities/regions to see where other localities across the Commonwealth are in this process, and to provide contact information for these planning efforts in case one locality wishes to ask questions of another about their methods used in this process. The localities highlighted in yellow are those that recently asked to be included on the list provided to consulting groups to solicit marketing contacts. The localities not highlighted were not shown on the list provided to the consultants.

**** Please join VDEM in congratulating the City of Chesapeake for having the first hazard mitigation plan from the Commonwealth approved by FEMA. Currently, the New River Valley PDC is near completion.**

Any questions regarding the information provided in this table or about VDEM guidance on the local mitigation planning process should be directed to Deborah Mills, Hazard Mitigation Program Manager, VDEM, by phone at 804-897-6500, ext. 6563, or by email at dmills@vdem.state.va.us.

Locality/Region	Current plan status	Using Consultant or Self-planning?	Current Planning Contact
LENOWISCO PDC (1)	In progress – developing mitigation strategies	Consultant (Dewberry)	Frank Kibler, (276) 431-2206; fkibler@lenowisco.org
Cumberland Plateau PDC (2)	In progress – developing mitigation strategies	Consultant (Dewberry)	Jim Baldwin, (276) 889-1778; jbcppdc@cablenet-va.com
Mount Rogers PDC (3)	In progress – completing HIRA	Self-planning	Kim Hummel, (276) 783-5103; khummel@mrpdc.org
New River Valley PDC (4)	State Review of final draft	Self-planning	Lydeana Martin, (540) 639-9313; lmartin@nrvdc.org
Roanoke Valley-Allegheny PDC (5)	In progress – finishing draft	Self-planning	Eddie Wells, (540) 343-4417; ewells@rvarc.org
Central Shenandoah PDC (6)	In progress – developing mitigation strategies	Self-planning	Bonnie Riedesel, (540) 885-5174; bonnie@cspdc.org Rebecca Joyce, (540) 885-5174; rebecca@cspdc.org
Northern Shenandoah Valley PDC (7)	In progress – grant recently approved	Seeking Consultant	Steve Kerr, (540) 636-8800; skerr@shentel.net
Northern Virginia RC (8)	In progress – data collection	Consultant (To be	Jim Van Zee, (703) 642-4630;

Locality/Region	Current plan status	Using Consultant or Self-planning?	Current Planning Contact
		determined)	jvanzee@novaregion.org Linda Tenney, (703) 642-4678; lindat@novaregion.org
Rappahannock-Rapidan RC (9)	State Review of final draft	Consultant (PBS&J and URS)	Jeff Walker, (540) 829-7450; jpwalker@rrregion.org
Thomas Jefferson PDC (10)	In progress – grant recently approved	Self-planning	Shae Garwood, (434) 979-7310 , ext. 360; sgarwood@tjpdc.org
Region 2000 RC (11)	In progress – grant recently approved	Consultant (VT CGIT)	Bob White, (434) 845-3491; bob.white@regcomm.org
West Piedmont PDC (12)	In progress – grant recently approved	Seeking Consultant	Joan Hullett; (276) 638-3987 jhullett@wppdc.org
Southside PDC (13)	In progress – grant recently approved	Self-planning	Bob Davis, (434) 447-7101; projectman@spdc.state.va.us
Piedmont PDC (14)	In progress – data collection	Consultant (PBS&J)	Todd Fortune, (434) 392-6104; ppdc14@hovac.com
Richmond Regional PDC (15)	In progress – grant recently approved	Seeking Consultant	Jackie Stewart, (804) 367-6001; jstewart@richmondregional.org
RADCO (16)	In progress – grant recently approved	Seeking Consultant	Patricia Quann, (540) 373-2890; pquann@fampo.state.va.us
Northern Neck PDC (17)	In progress – grant recently approved	Seeking Consultant	Jerry Davis; jdavis@nnpdc17.state.va.us
Middle Peninsula PDC (18)	In progress – data collection	Self-planning	Janet Nestlerode, (804) 758-2311; janetn@mppdc.com
Crater PDC (19)	In progress – grant recently approved	Seeking Consultant	Martha A. Burton; (804) 861-1666 mburton@cpd.state.va.us
Accomack-Northampton PDC (22)	HIRA in progress/Mitigation Strategies funding application under review	Self-planning	Elaine Meil, (757) 787-2936; emeil@a-npdc.org
Peninsula HMP Group	In progress – grant recently approved	Seeking Consultant	Theresa Lazar; tlazar@nngov.com
South Hampton Roads	In progress – grant recently	Seeking Consultant	Mark Marchbank; (757) 427-8466

Locality/Region	Current plan status	Using Consultant or Self-planning?	Current Planning Contact
HMP Group	approved		mmarchba@vbgov.com
Amelia County	In progress – grant recently approved	Self-planning	Kent Emerson, kemerson@landam.com
Bluefield, Town of	In progress	Consultant (Anderson & Assoc)	Todd Day, (276) 322-4626; day@4seasonswireless.net
Chesapeake, City of	**Completed/Approved**	Consultant (Dewberry)	Hui-Shan Walker, (757) 382-6193; hwalker@fire.city.chesapeake.va.us Sam Gulisano, (757) 382-8316; sgulisan@fire.city.chesapeake.va.us
Franklin, City of	In progress – grant recently approved	Seeking Consultant	Chief Vince Holt, (757) 562-8581; vholt@franklinva.com
Poquoson, City of	In progress	Consultant (AMEC)	Judy Wiggins, (757) 868-3002; jwiggins@ci.poquoson.va.us

APPENDIX H: MITIGATION PROJECTS – COMPLETE LIST

GOAL 1: STRUCTURAL MITIGATION PROJECTS
Identify and implement physical projects that will directly reduce impacts from hazards

#	PROJECT NAME/ STRATEGY	ACTION	AGENCIES INVOLVED	PROJECT COST	TIME SPAN	RANK
Objective 1: Continue implementation of warning and detection systems to notify the Commonwealth of impending hazards						
1.1.1	Evacuation Interstate Ramp Barrier Gates	Installation of fixed barriers at interstate ramps that can be manually operated to improve evacuations for needed hazards with limited preparation for mobilization and limited state resources	VDOT	$580,000	ASAP	Critical
1.1.2	HVAC Systems Protection of Capitol Complex Buildings	Study the feasibility and options to protect HVAC system on critical buildings on the Capitol Square Complies. Develop the design for system modifications at four of the highest risk buildings including Supreme Court, General Assembly and other select facilities	Department of General Services	$500,000	1 Year	Critical
1.1.3	Real time flood warning system	Construct and instrument stream gages to provide real time flood stage and discharge information to at least 10 underserved priority flood prone communities.	US Geological Survey			High
1.1.4	Reduce Impact of Flooding on Virginia Tech Campus	Coordinate with adjacent locality to evaluate and improve upstream storm water management practices. Evaluate and expand size of underground stream diversion piping system to improve storm water capacity and reduce surface flows. Project would reduce flooding risks for 5 repetitive loss buildings located on a 100-year floodplain and 2 additional structures located on a 500-year floodplain.	Virginia Tech		As funding becomes avail.	Low
Objective 2: Elevate, retrofit and relocate existing structures and facilities in vulnerable locations						
1.2.1	Evaluation of DEQ Buildings for Flooding	Evaluation of DEQ locations to determine if offices and monitoring stations are within 100 year flood zone.	Department of Environmental Quality	$1,000	1 Year	High
1.2.2	Window and Door Glass Protection	Install 8 mil film with wet glaze attachment on glass windows and doors at 36 State owned National Guard armories throughout the Commonwealth.	Department of Military Affairs	$356,250	As funding avail.	High
1.2.3	Install fire alarm and sprinkler systems at WSH	Install automatic fire sprinkler and fire alarm systems throughout these buildings	DMHMRSAS	$21,879,000		Medium
1.2.4	Relocation of VDOF – Big Stone Gap office facility to mitigate recurring flood losses	Relocate the VDOF county office facility in Big Stone Gap, VA. To avoid the problems of recurring flood damage.	Virginia Department of Forestry	$590,000	As funding avail.	Medium
1.2.5	Replace cottages SEVTC	Replace existing cottages and program center with new buildings that meet code.	DMHMRSAS			Low
Objective 3: Construct hazard resistant buildings and infrastructure						
1.3.1	Improve security of Virginia Tech Power plant and related utility systems	Implement security measures to protect Virginia Tech's Power plant and Chiller Plant. Install security systems within the 5 miles of steam tunnels to monitor/control access.	Virginia Tech		As funding becomes avail.	Medium
1.3.2	Provide emergency power for vulnerable Virginia Tech properties	Evaluate and install emergency power generators sufficient to maintain critical business and research functions within 38 vulnerable buildings.	Virginia Tech		As funding becomes avail.	Medium

1.3.3	Evaluate/retrofit ventilation systems on Virginia Tech campus to minimize vulnerability to terrorism	Evaluate vulnerability of ground-level air intakes, and design and retrofit systems to reduce vulnerability.	Virginia Tech		As funding becomes avail.	Low
1.3.4	Improve fire safety in certain Virginia Tech multi-story buildings	Evaluate 14 existing buildings with unenclosed multi-story stairwells to determine if enclosure of the stairwells and/or sprinkling would assure an adequate level of fire safety; once study is completed, implement retrofits on prioritized basis.	Virginia Tech		As funding becomes avail.	Low
1.3.5	Install fire sprinkler and alarm system at NVTC	These buildings are sited on wooded property in Northern Virginia. This project will install fire sprinkler and fire alarm systems in these buildings.	DMHMRSAS	$5,522,000		Low
1.3.6	Install fire sprinkler and alarm systems at CVTC	Install fire sprinkler and alarm systems.	DMHMRSAS			Low
1.3.7	Install smoke detection and fire alarms systems in Virginia Tech buildings	Install or expand existing fire detection and alarm systems in 22 Virginia Tech properties.	Virginia Tech	$3,500,000	As funding becomes avail.	Low
1.3.8	Sprinkler vulnerable buildings on the Virginia Tech campus	Evaluate and install fire suppression systems on a prioritized basis in 10 vulnerable Virginia Tech buildings.	Virginia Tech		As funding becomes avail.	Low
Objective 4: Modify the geographic setting near structures to reduce exposure to hazards						
1.4.1	Install Security Barriers	Install security barriers with automated access control/monitoring systems to protect the Capitol Square accesses and the facilities in Capitol Square.	Department of General Services & VDOT	$1,000,000	As funding avail.	High
1.4.2	UVA-Wise Utility Replacement	Replace overhead power lines with underground.	UVA-Wise	$1,000,000	Funding avail.	Low
Objective 5: Require emergency utility systems and redundant communication systems for functionally critical facilities						
1.5.1	Electrical wiring for future emergency generator hook-up	Provide necessary electrical hook-up, wiring, and switches to allow readily accessible connections to emergency generators at 34 State owned National Guard armories throughout the Commonwealth.	Department of Military Affairs	$204,000	As funding avail.	Critical
1.5.2	Emergency Power Systems for 9 Regional Agency Cooler Facilities	Provide emergency back-up power at 9 of the agencies largest cooler facilities that can be utilized for refrigeration functions associated with the emergency response needs of the Commonwealth. The cooler facilities are already in place and include drive in type facilities for the storage and distribution of tree seedlings during early spring. These sites are generally available for most of the summer and fall seasons, and would allow for multiple tractor-trailer sized cold storage facilities for critical food, health, and ice needs.	Virginia Department of Forestry	$225,000	As funding avail.	Critical
1.5.3	Supplemental Power for Government Data Centers	Establish a real-time off-site data center for DGS survey of mission critical applications and communications. The center would house a 3 terabyte mass storage device, 2 database servers, 2 email servers, 5 application servers, 2 domain servers, 5 Citrix servers, software and telecommunications circuits required to support real-time fail over capabilities for DGS applications	Department of General Services	$500,000	1 Year	Critical
1.5.4	Emergency hardware and software procurement	Procurement of hardware and software as needed to conduct business in the event of an emergency or disaster.	DMHMRSAS & VITA	$500,000	As funding avail.	High
1.5.5	Provide uninterruptible power source (UPS) for DCLS	Install an UPS system in the Archive Room located at the Div of Consolidated Laboratory Services and re-feed busway A from the new UPS system.	Department of General Services	$435,000	As funding avail.	High

1.5.6	Installation of Emergency Power System	Install generator to provide electrical power to regional laboratory facility.	VA Dept of Agriculture and Consumer Services	$50,000	As funding avail.	Medium
1.5.7	Installation of Emergency Power System	Install generator to provide electrical power to regional laboratory facility.	VA Dept of Agriculture and Consumer Services	$40,000	As funding avail.	Medium
1.5.8	Installation of Emergency Power System	Install generator to provide electrical power to regional laboratory facility.	VA Dept of Agriculture and Consumer Services	$50,000	As funding avail.	Medium
1.5.9	Installation of Emergency Power System	Install generator to provide power to regional laboratory facility.	VA Dept of Agriculture and Consumer Services	$50,000	As funding avail.	Medium
1.5.10	Installation of Emergency Power System	Install generator to provide electrical power to regional laboratory facility.	VA Dept of Agriculture and Consumer Services	$50,000	As funding avail.	Low
Objective 6: Implement "in place" contracts to provide mitigative measures for functionally critical facilities *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						
Objective 7: Maintain Continuity of Operation of critical facilities through reduction of hazard impacts on communication networks and information infrastructure *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						
Objective 8: Gather information on mitigation effectiveness *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						
GOAL 2: POLICY, PLANNING & FUNDING **Incorporate mitigation concepts and objectives into existing and future policies, plans, regulations and laws in the Commonwealth**						
#	PROJECT NAME/ STRATEGY	ACTION	AGENCIES INVOLVED	PROJECT COST	TIME SPAN	RANK
Objective 1: Identify current policies, plans, regulations and laws that require or should require mitigation intervention						
2.1.1	Development of Statewide Hosting Program	Developing a statewide hosting plan by identifying a number of specific facilities that can be designated as "all hazard" reception shelter centers throughout the Commonwealth near major traveled routes where citizens can seek shelter and/or get information on the nearest shelter facility. These facilities can be clearly identified in statewide plans and established as a uniform basis for sale evacuation locations depending upon the hazard at hand.	Virginia Department of Emergency Management			Critical
2.1.2	Sensitive Data protection	Identify source data (hazard or community/state facility data) that may need FOIA protection and establish standards, criteria and regulatory protections for use of and access to these data.	VDEM		3 Years	Critical
2.1.3	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that establishes procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.1.4	Hazard Mitigation Planning	Perform a hazard/vulnerability assessment of buildings and infrastructure on the Radford University campus.	Radford University	$100,000	As funding avail.	High
2.1.5	Hazard Mitigation Planning	Perform a hazard/vulnerability assessment of buildings and infrastructure on the Virginia State University campus.	Virginia State University	$100,000	As funding	High

					avail.	
2.1.6	Jamestown Settlement Electrical Surge Protection	Provide electrical surge protection to computers, sensitive audio/visual equipment and to interactive exhibits. Protection would be extended to the Education, Visitor Services and Theater/Special Exhibitions Wings.	Jamestown-Yorktown Foundation	$172,500	As funding avail.	High
2.1.7	Jamestown Settlement Emergency Generators	Upgrade generators for the following buildings: Education Wing from 20KW to 300KW Natural Gas; Visitor Services Wing from 50KW to 300 KW Natural Gas; and relocate existing 50KW generator from Visitor Services Wing to the Maintenance Building.	Jamestown-Yorktown Foundation	$562,500	As funding avail.	High
2.1.8	Development of a Plant Pest Emergency Action Plan	Development of a Plant Pest Emergency Action Plan by the Office of Plant and Pest Services (OPPS). OPPS cooperates with state, federal and local agencies and industries to protect Virginia's agricultural and horticultural interests from plant pests and diseases. This plan would enhance emergency action coordination, communication, survey and sample analysis, regulatory/quarantine response.	VA Dept of Agriculture & Consumer Services & VDACS		2005	Medium
2.1.9	Yorktown Victory Center Surge Protection	Provide electrical surge protection to building electrical system to protect sensitive, expensive computer and audio/visual equipment.	Jamestown-Yorktown Foundation	$57,500	As funding avail.	Medium
2.1.10	Yorktown Victory Center Emergency Generator	Upgrade existing 20 KW diesel generator to a 480 KW natural gas generator.	Jamestown-Yorktown Foundation	$290,000	As funding avail.	Medium
2.1.11	Jamestown Settlement Tree Trimming and Removal	Selectively trim healthy trees and remove damaged limbs and/or trees from site.	Jamestown-Yorktown Foundation	$20,000	As funding avail.	Low
2.1.12	Yorktown Victory Center Tree Trimming	Selectively trim healthy trees and remove damaged limbs and/or trees from site.	Jamestown-Yorktown Foundation	$20,000	As funding avail.	Low
2.1.13	Hazard Mitigation Planning (Pre-Disaster Mitigation Grant Program, Disaster Resistant University Grant)	Perform a hazard/vulnerability assessment (e.g., fire, flooding, power/heat/cooling production and distribution, emergency power, protection of critical/irreplaceable stocks/materials, terrorism, etc.) of buildings and infrastructure on the local Virginia Tech Campus.	Virginia Tech, CGIT & VDEM	$100,000	Ongoing	
Objective 2: Add hazard assessment to new, remodeled and relocated facilities *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						
Objective 3: Incorporate mitigation planning concepts into COOP and recovery plans for state agencies						
2.3.1	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	VA Dept of Agriculture & Consumer Services	$2,000	< 1 Year	Critical
2.3.2	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	VA Dept of Agriculture & Consumer Services	$8,000	< 1 Year	Critical
2.3.3	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.4	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.5	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical	Agriculture & Consumer	$2,000	< 1 Year	High

		functions after occurrence of a disaster or disruptive event.	Services			
2.3.6	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.7	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.8	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.9	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.10	Continuity of Operations Planning	Develop a Continuity of Operations Plan (COOP) that established procedures and responsibility for resumption of Agency mission critical functions after occurrence of a disaster or disruptive event.	Agriculture & Consumer Services	$2,000	< 1 Year	High
2.3.11	Incorporation of Continuity of Operations Planning	Incorporation of relevant state agency Continuity of Operations Plans (COOP) information into the 2007 Hazards Mitigation Plan.	VDEM & PPF subcommittee		2007	High
2.3.12	State Agency COOP Planning	As per Governor's Executive Order, all state agencies are required to develop a Continuity of Operations Plan (COOP)	All State Agencies		Ongoing	
Objective 4: Standardize the critical facility definition across the Commonwealth *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						
Objective 5: Incorporate mitigation planning concepts into state legislation and zoning						
2.5.1	Encourage use of Hazard Assessment data from this EOP to update other state plans	Work with Governor's office and various state Secretary's to incorporate the results of this State Hazard Mitigation Plan into state agency COOPs, other EOP assessments, etc., as needed.	VDEM		5 Years	Critical
Objective 6: Promote coordination between federal, state and local organizations						
2.6.1	Develop a Family of Public Health Emergency Preparedness and Response Plans	Develop a family of All Hazard, Public Health Emergency Preparedness and Response Plans	Virginia Department of Health	$57,000,000	Annually updated based on grant cycles	Critical
2.6.2	Legislative support to incorporate hazard mitigation planning into local comprehensive planning process	Work with Governor's office, state Secretary's and General Assembly to incorporate the hazard mitigation planning process into the local comprehensive planning process, thus working to solidify these principles and methods into planning at the local level.	VDEM, Governor's Office and General Assembly		5 Years	Critical
Objective 7: Perform a hazard mitigation analysis on all current and potential Commonwealth leased properties *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						
Objective 8: Identify appropriate funding sources						
2.8.1	Comprehensive State Agency Grants Database Development	Identify the basic information about all state agency grant and funding programs. Place this information into a comprehensive, online, keyword-searchable database for use by localities and other state agencies to identify other funding sources for mitigation projects.	VDEM		Ongoing	
GOAL 3: INFORMATION AND DATA DEVELOPMENT **Build capacity with information and data development to refine hazard identification and assessment, mitigation targeting and funding identification**						
#	PROJECT NAME/ STRATEGY	ACTION	AGENCIES INVOLVED	PROJECT COST	TIME SPAN	RANK

Objective 1: Identify data needs and sources						
3.1.1	Climate and Natural Hazard Information Collection	Assist VDEM, in conjunction with Virginia State Criminologist's office, in obtaining comprehensive, high quality and most appropriate data for natural hazards that impact Virginia. Sources will include the NCDC, regional climate centers and NWS offices serving Virginia.	NOAA & National Weather Service			Critical
3.1.2	Establish and Maintain the Virginia Hazard Mitigation Database	Establish, develop and maintain a system by which Virginia-specific hazards data can be consolidated and made available to all localities and agencies for use. ID, compile, and map the general Virginia "inventory" data needed to better assess the Commonwealth's general vulnerability to all hazards. This would include demographic, business/industry, agricultural and natural environment data. Discrete weather data would include data on Winter Storms, Hail, Extreme Temperature, Drought, Hurricanes, Tornadoes, Lightning, Land Subsidence, Karst regions, Flooding and Earthquakes. Database will also be used to consolidate local data and results into state plan once available. Local entities information and data would be incorporated into the database.	VDEM, NOAA, NWS, CGIT, VGIN & VITA		3 Years	Critical
3.1.3	Mitigation: Security of Data & Assets	Critical Organizational exposures include protection of data (financial documents) and of data (financial documents) and protection of other assets (personal and fixed assets).	Virginia Housing Development Authority	$300,000	By 4th quarter 2004	Critical
3.1.4	Real time flood inundation mapping program	Develop high resolution flood plain maps and hydraulic models to produce real time flood inundation maps for high priority locations within Virginia.	US Geological Survey			Critical
3.1.5	Comprehensive Dam Information Database Development	Identify and convene committee to identify, coordinate and collect relevant data for use in a single comprehensive database of ALL dams located in or affecting the Commonwealth of Virginia.	VDEM & DCR		2 Years	High
3.1.6	Dam Inundation Areas Mapping and Risk Assessment	Identify and implement a method to map and assess the hazards of dam inundation areas in the Commonwealth of Virginia. Will require protection of sensitive data as completed.	VDEM & VDCR		3 Years	Medium
3.1.7	Produce an Accurate and Highly Detailed Map of Virginia's Karst	If provided with sufficient additional resources, the VA DCR karst program could produce a detailed map of Virginia's karst, perhaps on conjunction with the VA Dept of Mines Minerals and Energy Division of Mineral Resources and the United Statesd Geological Survey.	Virginia Department of Conservation & Recreation	$200,000		Medium
3.1.8	Delineation of Watersheds & Recharge Areas for Karst Aquifers in VA and Compilation of GIS-based Comprehensive Karst Hydrology for Virginia	The VA DCR Karst Program is engaged in a project to delineate watersheds and define recharge areas for karst aquifers in VA. A GIS-based VA Karst Hydrology Atlas is being completed detailing karst groundwater dye tracing investigations. The current Karst Program dye tracing work is to produce data to provide a hydrologic basis for defining conservation site boundaries for VA's significant caves. Given significant resources, it would be desirable to perform hydrologic investigations including extensive groundwater dye tracing throughout VA's karst areas. If it was available, knowledge of underground flow paths would be invaluable information for planning and for emergency services personnel in the event of a hazardous material event in VA's karstlands.	Virginia Dept of Conservation & Recreation	$150,000		Low
3.1.9	Hazard Mitigation	Virginia Department of Fire Programs (VDFP) is responsible for the delivery fire of fire and emergency services training to Virginia's Fire Service. VDFP is an Accredited training Agency under the National Board Fire Service Professional Qualifications (NBFSPQ). VDFP is the only accredited entity for Virginia's Fire Service. VDFP provides augmentation to VDEM in the event of an emergency and staffs an aspect	Virginia Department of Fire Programs & Virginia Department of Fire Programs	$5,000,000	Ongoing	

		of the Virginia Emergency Operations Center @ VDEM. Emergencies may include fires, natural disasters, hazardous materials spills, floods, hurricanes and other emergency related events.	Incident Management Systems			

Objective 2: Identify data analysis methods						
3.2.1	Human-caused hazards assessment methods development	Identify and implement at the state and local levels validated assessment methods for human-caused hazards.	VDEM		3 Years	Critical
3.2.2	Update 100 and 500 year flood frequency statistics	Update 100 and 500 year flood frequency statistics using most current information to estimate the magnitude and frequency of peak flood discharges.	US Geological Survey			High
3.2.3	Camera Security Systems	Provide and maintain a camera security system with digital recording capability and internet based monitoring system for critical Capitol Service facilities. Provide training for Capitol Police and staff to monitor the camera captured activity.	Department of General Services	$250,000		Low
3.2.4	Community Inventory Assessment Methods	Work with localities to develop a semi-standardized database for identifying and tracking community assets, including critical and non-critical facilities. This data would be identified first and then a phased implementation program initiated to support collection of this data at the local level.	VDEM, VITA, VGIN & Commonwealth localities		10 Years	Low
Objective 3: Develop strategies to convert data to information for decision-making						
3.3.1	State Hazard Mitigation Website Maintenance	Maintain and develop a website or sub-site from VDEM to provide current information and data about the state and local hazard mitigation process. This site should include information related to local efforts, state efforts, links to hazard assessment data and methods and state and FEMA guidance on the mitigation planning process generally.	VDEM & CGIT		6 Months	Critical
3.3.2	Provide field level GIS capabilities to support emergency incident response and mitigation	Expand agency GIS capabilities to 18 county office locations to support emergency response assessment and informational needs. The agency has already developed an internet based mapping utility (ForestRIM) that relies on agency GIS data layers. This utility has proved invaluable during emergency incidents to provide location and resource information, as well as for the production of planning related maps and documents. Currently this utility is only available at 6 Regional office locations. This project will allow expansion of the program to include an additional 18 sites across the Commonwealth, which will facilitate increased local use of the product for all cooperating agencies.	Virginia Depart of Forestry & VDEM	$178,000	As funding avail.	Medium
3.3.3	Floodplain Management Plan	Develop a comprehensive plan/approach to update local flood maps into digital format using recent data and methods.	VDEM, VDCR & Commonwealth localities		Ongoing	
3.3.4	Update Repetitive Loss Property lists As Needed	Work with FEMA NFIP to update Repetitive Loss Property lists annually.	VDEM & DCR		1 Year Ongoing	
Objective 4: Identify mitigation analysis strategies *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						
Objective 5: Develop a common system for information storage						
3.5.1	Incorporation of Handheld GIS-based Data Collection into Emergency Response	Acquire and utilize handheld field data recorders to facilitate emergency response information collection & distribution. This project will expand existing agency GIS capabilities to provide a much more efficient method for recording incident information in support of assessment and planning roles. This project will provide county level VDOF personnel with handheld data collectors and the training will allow for real-time data collection in a digital format to expedite local damage assessments and to provide GIS based information that is critical for incident response. This expands DOF's existing state of the art GIS capabilities making it more available to support the Commonwealth's emergency response needs.	Virginia Department of Forestry	$395,000	As funding avail.	Critical

3.5.2	Comprehensive State Facility Inventory Database	Enhance and consolidate the existing state facility databases into a single database. Issues to address would be types of facilities to include and the data to collect on each to meet the needs of the respective parties to this effort. Develop and implement the database, including implementation of strategies to have state agencies be responsible for maintaining their own data.	VDEM, CGIT & DGS		3 Years	High
Objective 6: Develop data distribution standards for the mitigation database to address, sharing and FOIA issues *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						
GOAL 4: EDUCATION & OUTREACH ACTIVITIES **Through education and training, increase awareness of hazards and potential mitigation strategies**						
#	PROJECT NAME/ STRATEGY	ACTION	AGENCIES INVOLVED	PROJECT COST	TIME SPAN	RANK
Objective 1: Evaluate impact of ongoing educational efforts to determine unmet needs *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						
Objective 2 : Identify target audiences in the general public and state agencies for hazards awareness education and training						
4.2.1	Enhanced Statewide Hurricane Public Education Program	Increase the general public's knowledge of disaster preparedness with emphasis on hurricane through an enhanced public education program.	Virginia Department of Emergency Management			Critical
4.2.2	Development of a Business Disaster Guide	Development of a business disaster guide to help business mitigate and prepare for disasters.	VDEM, Citizens Corps & Chamber of Commerce	$25,000		High
4.2.3	Local training on Hazard Mitigation Planning Process	Establish a consistent program for localities to learn the hazard mitigation planning process using both FEMA and VDEM standards.	VDEM, FEMA III & Commonwealth Localities		1 Year	High
4.2.4	Mitigation Success Stories Development	Develop a simple method to identify and record the ongoing mitigation success stories from across the Commonwealth. Identify the critical information/data needed to show the full benefits of these actions over time.	VDEM		2 Years	High
4.2.5	Web-Based Foreign Animal Disease Training	In cooperation with faculty from the Virginia-Maryland Regional College of Veterinary Medicine, develop a web-based foreign animal disease-training course for veterinary practitioners and others. Training is designed to refresh practitioners on the clinical features of foreign animal disease. The training will also introduce veterinarians to important aspects of the Commonwealth's emergency response plan. Practitioners would receive continuing education credits for successfully completing the training course.	VA Dept of Agriculture & Consumer Services	$10,000		Medium
4.2.6	Local training on Updated Hazard Assessment methods	Identify updated and effective hazard assessment methods and develop a method to train localities in their use, either through creation of new training programs or pass-through advertising of existing programs.	VDEM, FEMA III & Commonwealth Localities		Ongoing	
Objective 3: Identify and develop resources to provide training and education to targeted audiences						
4.3.1	Virginia Mitigation Strategies Encyclopedia	Develop a comprehensive and evolving toolkit of potential mitigation strategies that the State and localities may use to address the various hazards that affect them. Include with this toolkit a current assessment of which strategies are currently allowed under Virginia Law.	VDEM, VCU & UVA	$20,000		Critical
4.3.2	Encourage NFIP participation	Develop and implement an education program for localities and citizens regarding the NFIP program and flood insurance generally.	VDEM & VDCR		3-5 Years	High

4.3.3	Preplanned and Developed Informational Campaigns for Natural Disaster Response	To develop and implement several ready to roll public information campaigns for the common natural disasters that can occur in the Commonwealth. Pre-planned messages and pre-approval PSA's will allow for a faster response to public needs and will help to provide important public information before during and after the event. Information is planned for hurricanes, tornados, flooding, winter storms and wildfire events.	Virginia Department of Forestry	$145,000	As funding avail.	Medium
4.3.4	Bioterrorism Training for Microbiologists	Increasing awareness and readiness of microbiologists in the VDACS Regional Animal Health Laboratories to recognize and deal with bacterial agents that can be utilized in bioterrorism attacks. This training has come in a variety of modalities, including attendance by one microbiologist from each laboratory at an Association of Veterinary Microbiologists meeting in Charleston, WV, that dealt specifically with bioterrorism agents, attendance by the Program Supervisor at a national food safety conference and training materials for recognition of bioterrofism.	VA Dept of Agriculture & Consumer Services	$3,035	Ongoing	
4.3.5	Building Emergency Evacuation Program	Develop and distribute internet and compact disk based evacuation plans for all facilities managed by the Department of General Services serving approximately 4.5 million sq. ft. Based on the general structure, the procedures for each building would be customized to meet actual requirements using video and digital picture technology. Evacuation plans would be web-based and each agency in a facility would receive a CD/DVD version for group training sessions.	Department of General Services	$150,000	Ongoing	
4.3.6	Monitoring Food Security in Meat and Poultry Slaughter and Processing Plants	Virginia Dept of Agriculture Inspectors assigned to meat and poultry slaughter and processing plants throughout the state are notified with the national alert level reaches orange. The inspectors then perform ma security check of the facilities to which they are assigned.	VA Dept of Agriculture & Consumer Services		Ongoing	
4.3.7	Newsletter to Virginia Food Industry on Food Security	The Food Safety and Security Program, Office of Dairy and Foods, preparedness distributes a quarterly newsletter to Virginia's food industry. The newsletter addresses issues that should be helpful for the food industry to develop protocols for providing protection of out food supply against terrorists.	VA Dept of Agriculture & Consumer Services	$20,000	Ongoing	
4.3.8	Train VDEM Divisions in Mitigation Project Development	Train and work with other VDEM programs/divisions to identify and describe potential mitigation projects related to their particular programs, but particularly for human-caused hazard assessments and plans.	VDEM		Ongoing	
4.3.9	Vulnerability Assessments within Food Establishments	The Food and Safety and Security Program, Office of Dairy and Foods, performs vulnerability assessments of food establishments during routine inspections. Vulnerability information is not recorded in writing, but is reported to food establishment operators verbally.	VA Dept of Agriculture & Consumer Services	$40,000	Ongoing	
Objective 4: Provide hazard awareness, preparedness and mitigation information through various communication channels						
4.4.1	Educate Insurance Industry re: NFIP	Develop, require and implement better training and/or continuing education programs for insurance agents involved in writing and administering NFIP policies.	DCR & State Corporation Commission (SCC)		3 Years	Critical
Objective 5: Create connection between "secure VA" effort with existing agency functions *NO PROJECTS ENTERED FOR THIS OBJECTIVE*						

Appendix I – Steering Committee Members

Agency Name	Department/Division Name	Contact Name	
Agriculture & Consumer Services		Louis	Garey
American Red Cross	Greater Richmond Chapter	Darcy	Howarth
American Red Cross	Greater Richmond Chapter	Ted	Pockman
Chesapeake Bay Commission		Melanie	Davenport
Chesapeake Bay Foundation		Roy	Hoagland
Chesapeake Bay Local Assistance Department		Martha	Little
Chesapeake Bay Program			
College of William and Mary		Larry	Richards
Compensation Board		Richard	Lampman
Compensation Board		Anne	Wilmoth
Department for the Aging		Tim	Catherman
Department of Agriculture and Consumer Services			Cardin
Department of Agriculture and Consumer Services		Ryan	Davis
Department of Agriculture and Consumer Services			Fulgham
Department of Agriculture and Consumer Services		Joseph	Garvin
Department of Agriculture and Consumer Services		Richard	Hackenbracht
Department of Agriculture and Consumer Services		Doug	Saunders
Department of Business Assistance		Elizabeth	Moran
Department of Business Assistance		Wayne	Waldrop
Department of Conservation and Recreation	Division of Dam Safety	Bill	Browning
Department of Conservation and Recreation	Division of Dam Safety	Robert	Cooper
Department of Conservation and Recreation	Division of Floodplain Management	Corey	Garyotis
Department of Conservation and Recreation	Division of Floodplain Management	Deborah	Mills
Department of Conservation and Recreation	Division of Natural Heritage	Joey	Fagan
Department of Conservation and Recreation	Karst Program	Wil	Orndorff
Department of Conservation and Recreation	Virginia State Parks		
Department of Conservation and Recreation	Virginia State Parks	Warren	Wahl
Department of Corrections		Wade	McGinley
Department of Education	Facilities-Support Services, M.I.S.	A.K. (Vijay)	Ramnarain

Appendix I – Steering Committee Members

Agency Name	Department/Division Name	Contact Name	
Department of Environmental Quality		Jay	Gutshall
Department of Environmental Quality	Office of Spill Response and Remediation	Fred	Cunningham
Department of Fire Programs		Russ	Chandler
Department of Fire Programs		Aubrey "Buddy"	Hyde
Department of Fire Programs		Christy	King
Department of Fire Programs		Willie	Shelton
Department of Forestry		John	Miller
Department of Forestry		Richard	Thomas
Department of Game and Inland Fisheries		Terry	Bradberry
Department of General Services		Joseph	Damico
Department of General Services		Jan	Fatouros
Department of General Services		Grier	Mills
Department of General Services		James	Pearson
Department of General Services		Margaret	Ward
Department of General Services	Bureau of Facilities Management	Bruce	Brooks
Department of General Services	Bureau of Supply & Asset Management	Marquis	Bolton
Department of General Services	Division of Engineering and Buildings	Elzy	Williams
Department of Health		Monte Jack	Waugh
Department of Health	Office of Drinking Water	Mark	Anderson
Department of Health	Office of Drinking Water	Robert	Taylor
Department of Health	Office of Emergency Preparedness and Response	Bob	Mauskapf
Department of Health Professions		Mark	Monson
Department of Historical Resources		Mark	Holma
Department of Homeland Security		Robert	Linck
Department of Housing and Community Development		Glenn	Dean
Department of Housing and Community Development		Rick	Farthing
Department of Housing and Community Development	Commission on Local Government		
Department of Housing and Community Development	Commission on Local Government	Ted	McCormack
Department of Juvenile Justice		Jerrauld	Jones
Department of Labor and Industry		Stephen	Crump
Department of Labor and Industry		Edward	Hegamyer
Department of Mental Health, Mental Retardation & Substance Abuse Services		Bill	Armistead

Appendix I – Steering Committee Members

Agency Name	Department/Division Name	Contact Name	
Department of Mental Health, Mental Retardation & Substance Abuse Services		Margaret	Jones
Department of Mental Health, Mental Retardation & Substance Abuse Services		Karen	Mann
Department of Mental Health, Mental Retardation & Substance Abuse Services		Anne	Windfield
Department of Military Affairs		Michael	Corbett
Department of Military Affairs		W. Jon	Page
Department of Mines, Minerals and Energy		Stephen	Walz
Department of Planning and Budget		Rick	Brown
Department of Planning and Budget		John	Crooks
Department of Planning and Budget		Dick	Hall-Sizemore
Department of Professional & Occupational Regulation		Dawn	Waters
Department of Rail and Public Transportation		Thomas	Stewart
Department of Taxation		Gerald	Gwaltney
Department of the Blind and Vision Impaired		William	Pega
Department of Transportation		Perry	Cogburn
Department of Transportation		Sue	Maddox-Toth
Department of Transportation	Security & Emergency Management Division	Mike	McAllister
Department of Transportation	Security & Emergency Management Division	Woody	Quinn
Department of Treasury	Division of Risk Management	Don	LeMond
Department of Treasury	Division of Risk Management	Jody	Wagner
Dispute Resolution Center		Anthony	Scott
Emergency MAnagement Office Norfolk District, Corps of Engineers		Lois	Wilkins
Facilities Services & Planning Administration	Department of Motor Vehicles	Michael	Baxter
Federal Emergency Management Agency	Region III, Community Mitigation Division	Alainna	Brooks
Federal Emergency Management Agency	Region III, Community Mitigation Division	Dave	Thomas
Frontier Culture Museum of Virginia		Mark	Gatewood
James Madison University		Michael	Davis
James Madison University		Win	Hunt

Appendix I – Steering Committee Members

Agency Name	Department/Division Name	Contact Name	
James Madison University		Mack	Moore
James Madison University		Gary	Shears
Jamestown-Yorktown Foundation		Jeff	Lunsford
Jamestown-Yorktown Foundation		Richard	White
Motor Vehicle Dealer Board		Bruce	Gould
National Park Service	Office of the Director	Fran	Mainella
National Weather Service	Blacksburg Office	Dave	Wert
National Weather Service	Morristown Office (TN)	Jerry	McDuffie
National Weather Service	Sterling Office	David	Manning
National Weather Service	Sterling Office	James	Travers
National Weather Service	Wakefield Office		NWS Blacksburg
National Weather Service	Wakefield Office	William	Sammler
Norfolk State University		David	Fetty
Office of Commonwealth Preparedness		Constance	McGeorge
Office of the Attorney General		Marla	Decker
Office of the Attorney General		Cathie	Hutchins
Office of the Governor		Bernie	Henderson
Richard Bland College		Ralph	Ketchum
Salvation Army	National Capitol and Virginia Division	Molly	Lew
Salvation Army	National Capitol and Virginia Division		Salvation Army
Southwest Virginia Higher Education Center		Eddie	Sproles
State Coorporation Commission		Theodore	Morrison
State Corporation Commission	Bureau of Insurance	Mary	Bannister
State Corporation Commission	Bureau of Insurance	George	Lyle
Transportation Research Council		Gary	Allen
United States Army Corps of Engineers	Baltimore District	Randy	Campbell
United States Army Corps of Engineers	Baltimore District	Charles	Fiala
United States Army Corps of Engineers	Baltimore District	Steve	Gay
United States Army Corps of Engineers	Baltimore District	David	Hansen
United States Army Corps of Engineers	Baltimore District	Ron	Stirrat
United States Army Corps of Engineers	Norfolk District	Paul	Moye
United States Army Corps of Engineers	Norfolk District	Jan	Van Houten
United States Army Corps of Engineers	Norfolk District	Joe	Wyte
United States Department of Agriculture	National Resources Conservation Service	Wade	Biddix

Appendix I – Steering Committee Members

Agency Name	Department/Division Name	Contact Name	
United States Department of Agriculture	National Resources Conservation Service	Denise	Doetzer
United States Department of Agriculture	National Resources Conservation Service	Brian	Ganoe
United States Department of the Interior	Bureau of Land Management	Rebecca	Watson
United States Geological Survey		Mark	Bennett
United States Geological Survey		Ward	Staubitz
University of Virginia	Associate Dean for Academics	Bruce	Dotson
University of Virginia	Associate Dean for Academics	Franklin	Dukes
University of Virginia	School of Architecture	Tim	Beatley
University of Virginia	School of Architecture	Christine	Gyovai
University of Virginia at Wise		Sim	Ewing
URS Corporation		Stuart	Wallace
Virginia Association of Counties		James	Campbell
Virginia Association of Planning Distrist Commissions		Bill	Strider
Virginia Association of Planning Distrist Commissions		Kristen	Umstattd
Virginia Association of Soil and Water Conservation Districts		Stephanie	Martin
Virginia Association of Zoning Officials		Carroll	Seaborn
Virginia Biotechnology Research Park		Bill	Dennis
Virginia Capitol Police		Larry	Dollings
Virginia Capitol Police		Donna	Pletch
Virginia Center for School Safety		Donna	Bowman
Virginia Code Commission		William	Howell
Virginia College Savings Plan		Suzanne	Rohler
Virginia Commonwealth University		Paul	Timmreck
Virginia Commonwealth University	Facilities Management Division	Larry	Mullendore
Virginia Community College System		Gary	Hobson
Virginia Community Policing Institute		Lynda	O'Connell
Virginia Cooperative Extension		Jim	Riddell
Virginia Department of Emergency Management		Stuart	Baker
Virginia Department of Emergency Management		Janet	Clements
Virginia Department of Emergency Management		Michael	Cline
Virginia Department of Emergency Management		Dawn	Eischen

Appendix I – Steering Committee Members

Agency Name	Department/Division Name	Contact Name	
Virginia Department of Emergency Management		Bob	Gregory
Virginia Department of Emergency Management		Teresa	Pendleton
Virginia Department of Emergency Management		George	Roarty
Virginia Department of Emergency Management	Local Support Services Program	Gordon	Barwell
Virginia Department of Emergency Management	Preparedness and Mitigation Division	Mary	Camp
Virginia Department of Emergency Management	Preparedness and Mitigation Division	David	Corzilius
Virginia Department of Emergency Management	Preparedness and Mitigation Division	Michelle	Pope
Virginia Department of Emergency Management	Radiological Program	Chris	Elliott
Virginia Department of Emergency Management	Radiological Program	Amy	Ettinger
Virginia Department of Emergency Management	Radiological Program	Art	Warren
Virginia Department of Emergency Management	State Planning Program	Frank	Williamson
Virginia Department of Emergency Management	Technical Hazards Program	Brett	Burdick
Virginia Department of Emergency Management	Technical Hazards Program	George	Roarty
Virginia Department of Emergency Management	Virginia CORPS - Citizens Corps	Suzanne	Simmons
Virginia Drought Monitoring Task Force		Terry	Wagner
Virginia Economic Development Partnership		Dick	Myers
Virginia Employment Commission		Paul	Sweet
Virginia Ground Water Protection Steering Committee		Mary Ann	Massie
Virginia Housing Development Authority		J.C.	Corbett
Virginia Housing Development Authority		George	Peterson
Virginia Housing Development Authority		Robert	Shearer
Virginia Information Technology Agency	Virginia Geographic Information Network (VGIN)	Bill	Shinar
Virginia Information Technology Agency	Virginia Geographic Information Network (VGIN)	James	Wilson
Virginia Marine Resources Commission		Robert	Grabb

Appendix I – Steering Committee Members

Agency Name	Department/Division Name	Contact Name	
Virginia Marine Resources Commission		Lewis	Jones
Virginia Municipal League		Greg	Dickie
Virginia Museum of Fine Arts		Brian	HAggard
Virginia NAtional Guard		Jon	Page
Virginia Port Authority		Robert	Merhige
Virginia Port Authority		Heather	Wood
Virginia Resources Authority		Ceci	Harrison
Virginia Save Our Streams		Stacey	Brown
Virginia Save Our Streams		Jay	Gilliam
Virginia State Climatology Office		Pat	Michaels
Virginia State Climatology Office		Philip	Stenger
Virginia State Police		Ronald	Rice
Virginia State University		Cedryc	Logan
Virginia State University		Larry	Todd
Virginia State University	Police and Public Safety	Jimmy	Wilson
Virginia Tecch Environmental Health & Safety Services		Zachary	Adams
Virginia Tech		Kurt	Krause
Virginia Tech	Center for Geospatial Information Technology	Rachael	Herman
Virginia Tech	Center for Geospatial Information Technology	Patrick	Jarvis
Virginia Tech	Center for Geospatial Information Technology	Craig	Moore
Virginia Tech	Center for Geospatial Information Technology	Shane	Parson
Virginia Tech	Center for Geospatial Information Technology	Christopher	Stahl
Virginia Tourism Authority			VA Tourism Authority
Virginia Volunteer Organizations Active in Disaster (VOAD)		Frank	Jennings
Virginia Water Monitoring Council		Chuck	Frederickson
Workers' Compensation Commission		Bruce	Harris
Workers' Compensation Commission		Salvatore	Lupica

Standard State Hazard Mitigation Plan Review and Approval Status

State Point of Contact: Deborah Mills	**Address:** Preparedness & Mitigation Division Department of Emergency Management Commonwealth of Virginia 10501 Trade Court Richmond, VA 23236
Title: State Hazard Mitigation Officer	
Agency: Commonwealth of Virginia Department of Emergency Management	
Phone Number: 804.897.6500 x6563	**E-Mail:** dmills@vdem.state.va.us

FEMA Reviewer:	**Title:**	**Date:**
Date Received in FEMA Region [Insert #]		
Plan Not Approved		
Plan Approved		
Date Approved		

STANDARD STATE HAZARD MITIGATION PLAN SUMMARY CROSSWALK

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	**NOT MET**	**MET**
Adoption by the State: §201.4(c)(6) and §201.4(c)(7)		

Planning Process	**N**	**S**
Documentation of the Planning Process: §201.4(c)(1)		
Coordination Among Agencies: §201.4(b)		
Program Integration: §201.4(b)		

Risk Assessment	**N**	**S**
Identifying Hazards: §201.4(c)(2)(i)		
Profiling Hazards: §201.4(c)(2)(i)		
Assessing Vulnerability by Jurisdiction: §201.4(c)(2)(ii)		
Assessing Vulnerability of State Facilities: §201.4(c)(2)(ii)		
Estimating Potential Losses by Jurisdiction: §201.4(c)(2)(iii)		
Estimating Potential Losses of State Facilities: §201.4(c)(2)(iii)		

Mitigation Strategy	**N**	**S**
Hazard Mitigation Goals: §201.4(c)(3)(i)		
State Capability Assessment: §201.4(c)(3)(ii)		
Local Capability Assessment: §201.4(c)(3)(ii)		
Mitigation Actions: §201.4(c)(3)(iii)		
Funding Sources: §201.4(c)(3)(iv)		

Coordination of Local Mitigation Planning	**N**	**S**
Local Funding and Technical Assistance: §201.4(c)(4)(i)		
Local Plan Integration: §201.4(c)(4)(ii)		
Prioritizing Local Assistance: §201.4(c)(4)(iii)		

Plan Maintenance Process	**N**	**S**
Monitoring, Evaluating, and Updating the Plan: §201.4(c)(5)(i)		
Monitoring Progress of Mitigation Activities: §201.4(c)(5)(ii) and (iii)		

STANDARD STATE HAZARD MITIGATION PLAN APPROVAL STATUS

PLAN NOT APPROVED	
PLAN APPROVED	

See Reviewer's Comments

PREREQUISITE

Adoption by the State

Requirement §201.4(c)(6): *The plan **must** be formally adopted by the State prior to submittal to [FEMA] for final review and approval.*

Requirement §201.4(c)(7): *The plan **must** include assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Has the State formally adopted the plan?	Chapter 1, p. 4-5			
B. Does the plan provide assurances that the State will comply with all applicable Federal statutes and regulations during the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c), and will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d)?	Chapter 1, p. 1-5			
		SUMMARY SCORE		

PLANNING PROCESS: *§201.4(b): An effective planning process is essential in developing and maintaining a good plan.*

Documentation of the Planning Process

Requirement §201.4(c)(1): *[The State plan **must** include a] description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan provide a narrative description of how the plan was prepared?	Chapter 1, pp.9-12, Chapter 2, pp. 2-7 Appendix E			
B. Does the plan indicate who was involved in the planning process?	Chapter 1, pp. 11-12, Appendix I			
C. Does the plan indicate how other agencies participated in the planning process?	Chapter 1, pp. 9-12, Chapter 2, pp. 2-7 Appendix E & I			
		SUMMARY SCORE		

Coordination Among Agencies

Requirement §201.4(b): *The [State] mitigation planning process **should** include coordination with other State agencies, appropriate Federal agencies, interested groups, and … .*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan describe how Federal and State agencies were involved in the planning process?	Chapter 2, pp.3-7	*Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.*		
B. Does the plan describe how interested groups (e.g., businesses, non-profit organizations, and other interested parties) were involved in the planning process?	Chapter 1, p. 10 Chapter 2, pp. 3-4 Chapter 6, p. 4 Appendix E & I	*Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.*		
		SUMMARY SCORE		

Program Integration

Requirement §201.4(b): *[The State mitigation planning process* ***should****] be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan describe how the State mitigation planning process is integrated with other ongoing State planning efforts?	Chapter 2, pp. 7-14 Chapter 6, p. 2	*Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.*		
B. Does the plan describe how the State mitigation planning process is integrated with FEMA mitigation programs and initiatives?	Chapter 2, pp.14-19 Appendix K	*Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.*		
		SUMMARY SCORE		

RISK ASSESSMENT: *§201.4(c)(2): [The State plan must include a risk assessment] that provides the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide risk assessments must characterize and analyze natural hazards and risks to provide a statewide overview. This overview will allow the State to compare potential losses throughout the State and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessments.*

Identifying Hazards

Requirement §201.4(c)(2)(i): *[The State risk assessment **shall** include an] overview of the type … of all natural hazards that can affect the State … .*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan provide a description of the type of **all natural hazards** that can affect the State? If the hazard identification omits (without explanation) any hazards commonly recognized as threats to the State, this part of the plan cannot receive a Satisfactory score.	Chapter 3, pp. 3-8			
		SUMMARY SCORE		

Profiling Hazards

Requirement §201.4(c)(2)(i): *[The State risk assessment **shall** include an overview of the] location of all natural hazards that can affect the State, including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate … .*

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 hazards addressed in the plan?	Chapter 3, pp. 9-36 Appendix F (Maps)			
B. Does the plan provide information on **previous occurrences** of each hazard addressed in the plan?	Chapter 3, pp. 9-36 Appendix F (Maps)			
C. Does the plan include the **probability of future events** (i.e., chance of occurrence) for each hazard addressed in the plan?	Chapter 3, pp. 9-36 Appendix F (Maps)			
		SUMMARY SCORE		

Assessing Vulnerability

Requirement §201.4(c)(2)(ii): *[The State risk assessment **shall** include an] overview and analysis of the State's vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State risk assessment. The State **shall** describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State owned critical or operated facilities located in the identified hazard areas shall also be addressed … .*

Assessing Vulnerability by Jurisdiction

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan describe the State's vulnerability based on estimates provided in local risk assessments as well as the State risk assessment?	Chapter 3, p. 37			
B. Does the plan describe the State's vulnerability in terms of the jurisdictions most threatened and most vulnerable to damage and loss associated with hazard event(s)?	Chapter 3, pp. 37 – 49 Appendix F (Maps)			
		SUMMARY SCORE		

Assessing Vulnerability of State Facilities

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan describe the types of State owned or operated critical facilities located in the identified hazard areas?	Chapter 3, pp.50 – 55 Appendix F (Tables)			
		SUMMARY SCORE		

Estimating Potential Losses

Requirement §201.4(c)(2)(iii): *[The State risk assessment **shall** include an] overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in local risk assessments as well as the State risk assessment. The State **shall** estimate the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.*

Estimating Potential Losses by Jurisdiction

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan present an overview and analysis of the potential losses to the identified vulnerable structures?	Chapter 3, pp. 56-57			
B. Are the potential losses based on estimates provided in local risk assessments as well as the State risk assessment?	Chapter 3, pp. 56-57			
		SUMMARY SCORE		

Estimating Potential Losses of State Facilities

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan present an estimate of the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities in the identified hazard areas?	Chapter 3, pp. 56-57 Appendix F (Tables)			
		SUMMARY SCORE		

MITIGATION STRATEGY: *§201.4(c)(3) [To be effective the plan must include a] Mitigation Strategy that provides the State's blueprint for reducing the losses identified in the risk assessment.*

Hazard Mitigation Goals

Requirement §201.4(c)(3)(i): *[The State mitigation strategy **shall** include a] description of State goals to guide the selection of activities to mitigate and reduce potential losses.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan provide a description of State mitigation **goals** that guide the selection of mitigation activities? (**GOALS** are long-term; represent what the state wants to achieve, such as "eliminate flood damage"; and are based on the risk assessment findings.)	Chapter 4, pp. 1-2			
		SUMMARY SCORE		

State Capability Assessment

Requirement §201.4(c)(3)(ii): *[The State mitigation strategy **shall** include a] discussion of the State's pre-and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of State laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas [and] a discussion of State funding capabilities for hazard mitigation projects … .*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan include an evaluation of the State's **pre-disaster** hazard management policies, programs, and capabilities?	Chapter 4, pp.4-8 Appendix D			
B. Does the plan include an evaluation of the State's **post-disaster** hazard management policies, programs, and capabilities?	Chapter 4, pp. 4-5, 8-18 Appendix D			
C. Does the plan include an evaluation of the State's policies related to **development in hazard prone areas**?	Chapter 2, pp. 10-12 Appendix D			
D. Does the plan include a discussion of State **funding capabilities** for hazard mitigation projects?	Chapter 2, p. 14-19 (federal programs) Chapter 4, pp. 4-18 (noted on tables), 27-29 Appendix D			
		SUMMARY SCORE		

Local Capability Assessment

Requirement §201.4(c)(3)(ii): *[The State mitigation strategy **shall** include] a general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan present a general description of the local mitigation policies, programs, and capabilities?	Chapter 2, pp. 7-8			
B. Does the plan provide a general analysis of the effectiveness of local mitigation policies, programs, and capabilities?	Chapter 2, pp. 7-8			
		SUMMARY SCORE		

Mitigation Actions

Requirement §201.4(c)(3)(iii): *[State plans **shall** include an] identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section **should** be linked to local plans, where specific local actions and projects are identified.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan identify cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering?	Chapter 4, pp. 3-4, 19-26 Appendix H			
B. Does the plan evaluate these actions and activities?	Chapter 4, pp. 3-4, 19-26 Appendix H			
C. Does the plan prioritize these actions and activities?	Chapter 4, pp. 3-4, 19-26 Appendix H			
D. Does the plan explain how each activity contributes to the overall State mitigation strategy?	Chapter 4, pp. 3-4, 19-26 Appendix H			
E. Does the mitigation strategy section reflect actions and projects identified in local plans?	Chapter 4, p. 19 Chapter 5, p. 10	*Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.*		
		SUMMARY SCORE		

Funding Sources

Requirement §201.4(c)(3)(iv): *[The State mitigation strategy **shall** include an] identification of current and potential sources of Federal, State, local, or private funding to implement mitigation activities.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan identify **current** sources of Federal, State, local, or private funding to implement mitigation activities?	Chapter 2, p. 14-19 (federal programs) Chapter 4, pp. 4-18 (noted on tables), 27-29 Appendix D			
B. Does the plan identify **potential** sources of Federal, State, local, or private funding to implement mitigation activities?	Chapter 2, p. 14-19 (federal programs) Chapter 4, pp. 4-18 (noted on tables), 27-29 Appendix D			
		SUMMARY SCORE		

COORDINATION OF LOCAL MITIGATION PLANNING

Local Funding and Technical Assistance

Requirement §201.4(c)(4)(i): *[The section on the Coordination of Local Mitigation Planning* ***must*** *include a] description of the State process to support, through funding and technical assistance, the development of local mitigation plans.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan provide a description of the State process to support, through funding and technical assistance, the development of local mitigation plans?	Chapter 5, pp. 1-10 Appendix G			
		SUMMARY SCORE		

Local Plan Integration

Requirement §201.4(c)(4)(ii): *[The section on the Coordination of Local Mitigation Planning* ***must*** *include a] description of the State process and timeframe by which the local plans will be reviewed, coordinated, and linked to the State Mitigation Plan.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan provide a description of the **process and timeframe** the State established to **review** local plans?	Chapter 5, pp. 5-10			
B. Does the plan provide a description of the **process and timeframe** the State established to **coordinate and link** local plans to the State Mitigation Plan?	Chapter 5, pp. 9-10			
		SUMMARY SCORE		

Prioritizing Local Assistance

Requirement §201.4(c)(4)(iii): *[The section on the Coordination of Local Mitigation Planning **must** include] criteria for prioritizing communities and local jurisdictions that would receive planning and project grants under available funding programs, which **should** include consideration for communities with the highest risks, repetitive loss properties, and most intense development pressures.*

*Further, that for non-planning grants, a principal criterion for prioritizing grants **shall** be the extent to which benefits are maximized according to a cost benefit review of 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 plan provide a description of the criteria for prioritizing those communities and local jurisdictions that would receive planning and project grants under available mitigation funding programs?	Chapter 5, p. 1-10			
B. Did the prioritization criteria include, for non-planning grants, the consideration of the extent to which benefits are maximized according to a cost benefit review of proposed projects and their associated cost?	Chapter 5, p. 9-10 Appendix K			
C. Do the criteria include considerations for communities with the highest risk?	Chapter 5, p. 1-10 (p. 3 criteria A, E)	*Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.*		
D. Do the criteria include considerations for repetitive loss properties?	Chapter 5, p. 1-10 (p. 3 criterion F)	*Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.*		
E. Do the criteria include considerations for communities with the most intense development pressures?	Chapter 5, p. 1-10 (p. 3 criterion D)	*Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.*		
		SUMMARY SCORE		

PLAN MAINTENANCE PROCESS

Monitoring, Evaluating, and Updating the Plan

Requirement §201.4(c)(5)(i): *[The Standard State Plan Maintenance Process **must** include an] established method and schedule for monitoring, evaluating, and updating the plan.*

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? (e.g., identifies the party responsible for **monitoring**, includes schedule for reports, site visits, phone calls, and/or meetings)	Chapter 6, pp. 1-6			
B. Does the plan describe the method and schedule for **evaluating** the plan? (e.g., identifies the party responsible for evaluating the plan, includes the criteria used to evaluate the plan)	Chapter 6, pp. 2-4			
C. Does the plan describe the method and schedule for **updating** the plan?	Chapter 6, pp. 2-6			
		SUMMARY SCORE		

Monitoring Progress of Mitigation Activities

Requirement §201.4(c)(5)(ii): *[The Standard State Plan Maintenance Process **must** include a] system for monitoring implementation of mitigation measures and project closeouts.*

*Requirement **§201.4(c)(5)(iii):*** *[The Standard State Plan Maintenance Process **must** include a] system for reviewing progress on achieving goals as well as activities and projects in the Mitigation Strategy.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE N	SCORE S
A. Does the plan describe how mitigation measures and project closeouts will be monitored?	Chapter 6, pp.6-7			
B. Does the plan identify a system for reviewing progress on achieving goals in the Mitigation Strategy?	Chapter 6, pp.2-4			
C. Does the plan identify a system for reviewing progress on implementing activities and projects of the Mitigation Strategy?	Chapter 6, pp.2-7			
		SUMMARY SCORE		

Matrix A: Profiling Hazards

This matrix can assist FEMA in scoring each hazard. States may find the matrix useful to ensure that their plan addresses each natural hazard that can affect the State. **Completing the matrix is not required.**

Note: First, check which hazards are identified in requirement §201.4(c)(2)(i). Then, place a checkmark in either the N or S box for each ***applicable*** *hazard. An "N" for any element of any identified hazard will result in a "Needs Improvement" score for this requirement. List the hazard and its related shortcoming in the comments section of the Plan Review Crosswalk.*

Hazard Type	Hazards Identified Per Requirement §201.4(c)(2)(i)	A. Location		B. Previous Occurrences		C. Probability of Future Events	
	Yes	N	S	N	S	N	S
Avalanche	☐	☐	☐	☐	☐	☐	☐
Coastal Erosion (In Flooding Section)	☒	☐	☐	☐	☐	☐	☐
Coastal Storm (In Flooding Section)	☒	☐	☐	☐	☐	☐	☐
Dam Failure	☒	☐	☐	☐	☐	☐	☐
Drought	☒	☐	☐	☐	☐	☐	☐
Earthquake	☒	☐	☐	☐	☐	☐	☐
Expansive Soils	☐	☐	☐	☐	☐	☐	☐
Extreme Heat (in Drought Section)	☒	☐	☐	☐	☐	☐	☐
Flood	☒	☐	☐	☐	☐	☐	☐
Hailstorm (in Tornado Section)	☒	☐	☐	☐	☐	☐	☐
Hurricane	☒	☐	☐	☐	☐	☐	☐
Land Subsidence	☒	☐	☐	☐	☐	☐	☐
Landslide	☒	☐	☐	☐	☐	☐	☐
Severe Winter Storm (in Blizzard Section)	☒	☐	☐	☐	☐	☐	☐
Tornado	☒	☐	☐	☐	☐	☐	☐
Tsunami	☐	☐	☐	☐	☐	☐	☐
Volcano	☐	☐	☐	☐	☐	☐	☐
Wildfire	☒	☐	☐	☐	☐	☐	☐
Windstorm	☒	☐	☐	☐	☐	☐	☐
Other _____	☐	☐	☐	☐	☐	☐	☐
Other _____	☐	☐	☐	☐	☐	☐	☐
Other _____	☐	☐	☐	☐	☐	☐	☐

To check boxes, double click on the box and change the default value to "checked."

Legend:
§201.4(c)(2)(i) Profiling Hazards
A. Does the risk assessment identify the location (i.e., geographic area affected) of each natural hazard addressed in the plan?
B. Does the plan provide information on previous occurrences of each hazard addressed in the plan?
C. Does the plan include the probability of future events (i.e., chance of occurrence) for each hazard addressed in the plan?

Matrix B: Assessing Vulnerability

This matrix can assist FEMA in scoring each hazard. States may find the matrix useful to ensure that their plan addresses each requirement. Note that this matrix only includes items for Requirements §201.4(c)(2)(ii) and §201.4(c)(2)(iii) that are related to specific natural hazards that can affect the State. **Completing the matrix is not required**.

Note: First, check which hazards are identified in requirement §201.4(c)(2)(i). Then, place a checkmark in either the N or S box for each ***applicable*** *hazard. An "N" for any element of any identified hazard will result in a "Needs Improvement" score for this requirement. List the hazard and its related shortcoming in the comments section of the Plan Review Crosswalk.*

Hazard Type	Hazards Identified Per Requirement §201.4(c)(2)(i)	§201.4(c)(2)(ii) Assessing Vulnerability					§201.4(c)(2)(iii) Estimating Potential Losses				
		1. Vulnerability by Jurisdiction		2. Vulnerability to State Facilities			3. Loss Estimate by Jurisdiction		4. Loss Estimate of State Facilities		
	Yes	N	S	N	S		N	S	N	S	
Avalanche	☐	☐	☐	☐	☐		☐	☐	☐	☐	
Coastal Erosion	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Coastal Storm	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Dam Failure	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Drought	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Earthquake	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Expansive Soils	☐	☐	☐	☐	☐		☐	☐	☐	☐	
Extreme Heat	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Flood	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Hailstorm	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Hurricane	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Land Subsidence	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Landslide	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Severe Winter Storm	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Tornado	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Tsunami	☐	☐	☐	☐	☐		☐	☐	☐	☐	
Volcano	☐	☐	☐	☐	☐		☐	☐	☐	☐	
Wildfire	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Windstorm	☒	☐	☐	☐	☐		☐	☐	☐	☐	
Other _____	☐	☐	☐	☐	☐		☐	☐	☐	☐	
Other _____	☐	☐	☐	☐	☐		☐	☐	☐	☐	
Other _____	☐	☐	☐	☐	☐		☐	☐	☐	☐	

To check boxes, double click on the box and change the default value to "checked."

Legend

§201.4(c)(2)(ii) Assessing Vulnerability by Jurisdiction (see element B)
1. Does the plan describe the State's vulnerability in terms of the jurisdictions most threatened and most vulnerable to damage and loss associated with hazard event(s)?

§201.4(c)(2)(ii) Assessing Vulnerability to State Facilities (see element A)
2. Does the plan describe the types of State owned or operated critical facilities located in the identified hazard areas?

§201.4(c)(2)(iii) Estimating Potential Losses by Jurisdiction (see element A)
3. Does the plan present an overview and analysis of the potential losses to the identified vulnerable structures?

§201.4(c)(2)(iii) Estimating Potential Losses of State Facilities (see element A)
4. Does the plan present an estimate of the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities in the identified hazard areas?

Appendix K

HAZARD MITIGATION GRANT PROGRAM

Contact: State Hazard Mitigation Officer, VDEM, (804) 897-6500, ext. 6525

PURPOSE

This appendix establishes the procedures for administration of the Hazard Mitigation Grant Program (HMGP) and for project management of the mitigation measures to be funded under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (the Act) as amended. It also establishes an independent grant program for hazard mitigation and is closely tied to the post-disaster hazard mitigation plan required by Section 409 of the Act as a condition of assistance. The Section 409 Plan is a critical component in the identification of mitigation measures and recommendations that could benefit from the grant program.

ORGANIZATION

A. The Governor appoints a Governor's Authorized Representative who then employs a State Hazard Mitigation Officer (SHMO). The SHMO coordinates with the State Hazard Mitigation Committee to manage the Hazard Mitigation Grant Program (HMGP).

B. The following state agencies will designate representatives on the State Hazard Mitigation Committee and participate in the State Hazard Mitigation Program. Other state agencies may be requested to provide a representative to the State Hazard Mitigation Committee should the risk assessment or a disaster impact on their area of responsibility.

1. Department of Environmental Quality.
2. Department of Agriculture and Consumer Services.
3. Department of Transportation.
4. Department of Health.
5. Department of Conservation and Recreation (Floodplain Management Program).
6. Department of Conservation and Recreation (State Parks Division).
7. Department of Forestry.
8. Department of Mines, Minerals and Energy.
9. Department of Housing and Community Development.
10. Department of Historic Resources.
11. State Corporation Commission (Bureau of Insurance).

C. In addition to the above agencies, the Attorney General's Office will provide a representative to the State Hazard Mitigation Committee to provide legal opinions

and guidance when mitigation recommendations involve the development of local land use ordinances or requires the passage of state legislation.

A. CONCEPT OF OPERATIONS

A. Prior to a disaster declaration, the State Hazard Mitigation Officer (SHMO) will participate in the disaster declaration process by coordinating the state hazard mitigation part of the federal/state Preliminary Damage Assessment (PDA) process. Other state agency and Virginia Department of Emergency Management (VDEM) reservist personnel will be trained to perform in-the-field PDA duties by the SHMO. (See Appendix 1.)

B. Following a major disaster declaration by the President authorizing hazard mitigation assistance, a FEMA/State Agreement will outline the 75/25 cost-share provision of the Hazard Mitigation Grant Program. The agreement will further state that the nonfederal share may exceed the federal share and may be a combination of state, local, and private funding.

C. The State Coordinating Officer (SCO) will submit a Letter of Intent to the Regional Director (RD) indicating that the state intends to access funds under section 404 of the Stafford Act (HMGP). The letter of intent shall be transmitted within 60 days of the declaration. The Letter of Intent may not be required if the disaster declaration request to the President from the Governor includes a request for Hazard Mitigation.

D. The SHMO, in consultation with the SCO, representatives of other state agencies (see above) and the Deputy Federal Coordinating Officer - Mitigation (DFCOM), will develop a written mitigation strategy that identifies mitigation opportunities and establishes priorities for funding. The strategy document will receive the endorsement of the SCO and the Federal Coordinating Officer (FCO). This document, once endorsed, will be added as an update to the State Hazard Mitigation Plan.

E. The SHMO will continue administration of the Hazard Mitigation Grant Program after the Disaster Field Office closes. The number and size of projects under development will determine the staffing. Under certain circumstances such that a disaster event exceeds the capabilities of the State to implement any mitigation function, the State may, through FEMA, contract assistance.

F. Identification and Notification of Potential Applicants

1. Identification

a. Eligible applicants anywhere in the State may apply for HMGP grants following a declaration of disaster. Applications are not limited to declared localities, although priority may be given to the declared localities depending on the nature and extent of the disaster.

b. Upon declaration of the disaster, the SHMO, in consultation with the DFCOM, will participate in the PDA process for early indications of possible hazard mitigation opportunities. The state/federal Hazard Mitigation staff may conduct hazard mitigation surveys immediately after a disaster is declared. The SHMO and DFCOM will coordinate

with the state and FEMA Infrastructure Officers and the Human Services Officers in the initial assessments. They will also try to obtain a preliminary estimate of available program funds.

c. Based on the damage surveys and the goals and objectives set forth in the State Hazard Mitigation Plan, the SHMO will create an initial mitigation strategy report. The report will be written within 30 days of the declaration and will outline a strategy to identify and implement mitigation opportunities for the disaster-stricken areas. This initial strategy will aid in determining the final disaster strategy in cases where the disaster requires more time to determine impact and needs.

d. The SHMO will review and revise, if necessary, the existing State Hazard Mitigation (409) Plan for potential applications of Section 404 funding.

e. The principle mechanism in identifying potential applications will be multi-agency hazard mitigation survey teams. The mechanism for establishing funding priorities will be the mitigation strategy.

f. Potential applicants will continue to expand as recovery efforts progress and the Mitigation Strategy for the current disaster is developed.

2. Notification

a. Based on the particulars of the disaster, a joint FEMA/VDEM press release describing the program may be developed and issued. It will include a point of contact for obtaining additional program details; and may include an announcement of Section 404 briefings to be held in the areas.

b. The SHMO may also participate in briefings for applicants for the infrastructure program (406) and in training sessions for the inspectors in both the infrastructure (406) and human services program (408) programs. The purpose of these activities is to alert all disaster assistance personnel and potential assistance applicants to be aware of possible mitigation opportunities. This briefing is only to generate awareness of the program, not give a detailed overview.

3. Specific Mitigation Briefing

a. The SHMO may also conduct specific mitigation briefings for potential applicants (local officials, citizens, or communities). The briefing will include:

1. General overview of mitigation programs including mitigation opportunities under federal Disaster Assistance Sections 406 and 408.

2. Specific information about 404 HMGP including:

a) Eligibility.

b) State mitigation priorities.

c) The application process.

d) The selection process.

e) Project management.

f) Technical assistance.

g) Nature of funding.

h) Key deadlines.

3. During the briefing, potential applicants will be given a "Pre-Application Package" consisting of the following:

a) HMGP regulations and guidelines, including eligibility criteria, types of projects, key deadlines, and a contract for additional information.

b) Pre-application form (HMGP).

c) State identified priorities.

d) Copy of the Post-Disaster Hazard Mitigation Planning Guidance for State and Local Governments.

e) Property Acquisition Handbook for Local Communities (as necessary)

b. The SHMO, or Community Relations staff at the direction of the SHMO, will notify potential applicants about the mitigation briefing(s) via direct contact and through the public media.

G. Pre-application Procedures

1. Potential applicants will have at least 15 days following the date of the HMGP specific briefing to notify the SHMO of their interest in applying for a grant and designate an individual as the "Subgrantee's Authorized Representative" to administer the grant program at the local level. The deadline for notification of interest will be set by the SHMO and published at the briefing. The applicants shall submit a completed HMGP Pre-application form as notification. The time limitation may be extended by the SHMO when justified and requested in writing by the applicant.

2. Upon receipt of the above-mentioned forms, the SHMO, in coordination with the State Hazard Mitigation Committee, will perform an eligibility review and notify potential applicants via written correspondence of their eligibility status.

    a. Those applicants whose pre-applications were deemed eligible will receive a letter of eligibility with the Application Form and other pertinent information enclosed.

    b. Those applicants whose pre-applications were determined ineligible will be offered technical assistance/advice regarding how to achieve program eligibility.

        1. Technical assistance to potential applicants will be based on need and availability of personnel. If required technical assistance is not resident at the State level, such assistance will be requested from FEMA.

3. Submission dates and response times will be included in all applicant notices, briefings and requests for additional information.

H. Application Procedures

1. The SHMO will have the primary responsibility for ensuring that all applications are properly completed. Each application must contain the following information.

    a. Name of Subgrantee.

    b. State or local contact for the project.

    c. Location of the project.

    d. Description of the project.

    e. Estimated cost of the project.

    f. Analysis of the projects cost effectiveness and substantive risk reduction, consistent with Section 206.434 of Federal 404 Regulations.

    g. Work schedule and maintenance agreement.

    h. Justification for selection.

    i. Alternatives considered.

    j. Environmental information consistent with SFR 9, Flood Management and Protection of Wetlands, and CFR 10, Environmental Considerations, and comply with Executive Order 12898, Environmental Justice.

    k. Historic information consistent with local, state, and federal historic preservation guidelines.

    l. Prioritization plan if necessary.

    m. Disk including the electronic version of the completed HMGP application form.

    n. All applicable maps of project locations.

    o. Assurance of project maintenance.

    p. Other pertinent information if necessary.

2. The date for submission of the above information shall be established by the SHMO. Applicants will in most cases have 60 days following receipt of the SHMO letter stating their eligibility. The SHMO may give extensions upon written request.

3. Upon receipt of a project application, the SHMO will assign a Project Identification Number (PIN) to each application. The PIN will consist of the FEMA disaster number, the Federal Identification Processing System (FIPS) Code, and a project number. The project numbers will be assigned sequentially as project applicants are received. An example of PIN is: VA 1293-700-041.
4. The SHMO will consult with appropriate state agency representatives on the State Hazard Mitigation Committee to review each application for eligibility in accordance with applicable regulations of the HMGP. The SHMO is responsible for obtaining any additional information necessary to make the determination and for notifying applicants of ineligible projects or proposed project status.

5. In the event that several eligible projects are competing for limited funding, applications submitted to FEMA will be made in accordance with priorities established in the Mitigation Strategy.

6. The SHMO is responsible for preparing a complete application, signed by the GAR, which must include a Standard Form (SF) 424, Applications for Federal Assistance, and SF 424D, Assurances for Construction Programs if appropriate, and a narrative statement to support the package being transmitted to FEMA.

7. The application may be amended by the state to include measures identified subsequent to the initial application. All supplements identifying new mitigation measures to the application must be made within 90 days of FEMA approval of the Section 409 Mitigation Plan and must contain information as noted in H.1. above.

8. The SHMO will establish contact with all the Subgrantee's Authorized Representatives and provide technical assistance and project management overview to the Subgrantee's for the duration of the project. Technical expertise and guidance can be obtained through the SHMO, State Hazard Mitigation Committee, state staff, or the DFCOM.

9. Time limitations on applications may be extended by the RD when justified and requested in writing by the GAR.

10. The SHMO will notify the applicants and the DFCOM of funding requests.

I. Determining Eligibility

1. The following are eligible to apply for the Hazard Mitigation Program Grant:

    a. A state or local government.

    b. A private nonprofit organization that provides essential government services.

    c. An Indian tribe or authorized tribal organization.

2. The SHMO will determine eligibility of the applicant and that minimum program requirements are met by ensuring that each application contains:

a. A reference to the specific section of the state Hazard Mitigation (Section 409) Plan to which the proposed project relates.

b. A narrative describing how the project benefits the designated disaster area.

c. A completed environmental and historic review as required by FEMA.

d. Information sufficient to determine the extent to which the project will solve the problem it is intended to address and the status of any associated dependent or supporting projects.

1. A brief history of previous occurrences of the problem the project addresses, including dates and impact of each occurrence, or an analysis of projected potential damages if the hazard is not addressed.

2. Documentation comparing the proposed project and a listing of influencing factors.

3. An estimate of the effective life of the project and a listing of influencing factors.

4. An analysis of any pertinent demographic and physical changes to the area or facility to be protected by the project and description of any future maintenance or modifications the project may involve.

5. A cost analysis to determine whether the benefits to be gained are at least equal, if not greater then, the cost of the project.

J. Project Selection

1. If it is necessary to select from a range of projects due to funding or other constraints, the SHMO, in consultation with the State Hazard Mitigation Committee using the State Hazard Mitigation Plan, will evaluate and prioritize all eligible applications. This ranking will be in accordance with the mitigation strategy established for the disaster and criteria in 44 CFR Sections 206.434(b) and 206.435(b) and (c) as follows:

a. Measures that best fit within an overall plan for development and/or hazard mitigation in the community, disaster area, or state.

b. Measures that, if not taken, will have a detrimental impact on the applicant, such as potential loss of life, loss of essential services, damage to critical facilities, or economic hardship on the community.

c. Measures that have the greatest potential impact on reducing future disaster losses.

d. Measures that are designed to accomplish multiple objectives, including damage reduction, environmental enhancement, and economic recovery.

2. The SHMO and State Hazard Mitigation Committee will take into consideration optimizing the total amount of funding available, including overmatching of federal funds with nonfederal funds, when developing this ranking.

3. The SHMO and State Hazard Mitigation Committee will also consider the level of interest and demonstrated degree of commitment of each applicant.

K. Project Management

1. The State, as the grantee, has primary responsibility for project management and accountability of funds as indicated in 44 CFR Part 13 and 206 and for ensuring that all program and administrative requirements are met.

2. The Subgrantee, under the guidance of the State as Grantee, is responsible for the management of the individual project grants in accordance with applicable federal, state, and local regulations.

a. The Subgrantee will designate an individual to serve as the "Subgrantee's Authorized Representative." This individual will be responsible for administering the individual project grants.

b. Procurement of contractors and other goods and services by the Subgrantee for the completion of approved projects will be in accordance with their own standard procurement procedures, provided they are in compliance with applicable federal law and the standards found in the "Common Rule."

c. The Grantee and Subgrantee will retain all "Project" records and documents for a period of three years after the completion of the project.

d. Uniform audit requirements as set forth in 44 CFR Part 14 apply to all projects under the Hazard Mitigation Grant program. FEMA may elect to conduct a federal audit on projects funded under this program.

e. FEMA, the Comptroller General of the United States, and the Commonwealth of Virginia, or their authorized representatives shall have the right of access to any records relevant to the grant or subgrant for as long as the records are retained.

f. Subgrantees will submit progress reports to the SHMO on the status and completion date of their projects in sufficient time to allow the GAR to compile a quarterly progress report for FEMA. These reports will identify any problem areas that may result in noncompliance with

the approved grant conditions to include known or anticipated cost overruns.

3. The GAR will submit a request, with recommendation, to the FEMA Regional Director (RD) for cost overruns exceeding 15 percent of the approved project cost. The RD will approve cost overruns under 15 percent as long as there are offsetting cost underruns on other projects within the same disaster. The RD will notify the GAR in writing the final determination and process a supplement, if necessary. In no case will the total amount obligated to the state in Section 404 Grants exceed the limits of 7.5 percent of the total Federal Grant Assistance (excluding any associated administrative costs) provided under Sections 403, 406, 407, 408, 410, 411, 416, and 701 of the Stafford Act.

4. The GAR shall submit certification to the RD of expenditures for each approved project upon its completion. With this submission, the GAR certifies that the reported costs were incurred in performance of eligible work, that the approved work was completed and that the project was completed in compliance with the provisions of the FEMA-State Agreement.
    a. The Subgrantee will provide the GAR, through the SHMO, certification of the project completion in accordance with the specifications contained in the approved project application or project supplements.

    b. The SHMO will perform a final inspection of the individual projects to be performed to insure the completion of the project is in accordance with the specifications contained in the approved project application.

L. Allowable Costs

1. General policies and guidelines for determining allowable costs are established in 44 CFR 13.22 and detailed in OMB Circulars A-21, A-87, and A-122. Cost guidelines not covered in these referenced OMB Circulars are set forth in 44 CFR Part 206, Subpart N, Section 206.439.

2. Allowable administrative expenses for Subgrantee and Grantee costs are covered by an allowance based on a percentage of total net eligible costs under Sections 403, 404, 406, 407, 502, and 503 of the Act. The application percentages may be found under Allowable Costs (Subpart N), Section 206.439(b)(1)(i) and (ii).

3. State management costs for personnel assigned to administer the Hazard Mitigation Grant program in the Disaster Field Office (DFO) may be eligible when approved by the RD. The staffing for the DFO and for the continuing management of the Hazard Mitigation grants must be submitted within five days of the opening of the DFO.

4. The salaries for continuing management of the Hazard Mitigation grants must be approved in advance by the RD. The state must submit a staffing plan in advance of the requirement.

M. Appeals

1. The grantee may appeal any determination made related to federal assistance. Appeals will be filed in accordance with 44 CFR 206, Subpart N – Hazard Mitigation Grant Program.

2. An applicant or subgrantee may file, with the grantee, an appeal of any determination previously made related to federal assistance for an applicant or subgrantee.

3. Appeals filed by applicants or subgrantees must be in writing and supported by sufficient documentation (new and compelling information) justification to allow the GAR to make a determination of validity and make a decision on the first appeal

4. After review by the SHMO and GAR, if the appeal appears valid, the letter will be processed and forwarded to FEMA for review and determination.

5. If the SHMO, GAR, or FEMA deny the appeal, the actions outlined above in paragraphs 2 and 3 above will apply to any second appeal. The second appeal should include new or expanded information to support the need for a second appeal. The second appeal must be made within 60 days of the decision. The decision on the second appeal, whether made by the SHMO, GAR, or FEMA is final.

AUTHORITIES AND REFERENCES

A. Federal

1. Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended, Sections 404 and 409).

2. Public Law 93-234, as amended, Flood Disaster Protection Act of 1983.

3. Single Audit Act Amendment of 1996.

4. FEMA Regulations, 44 CFR, Part 206, Subparts M and N.

5. FEMA Regulations, 44 CFR, Part 13, Uniform Administration Requirements for Grants and Cooperative Agreements to State and Local Governments.

6. FEMA Regulations, 44 CFR, Part 14, Administration of Grants: Audits of State and Local Governments.

7. Executive Order 11988, Floodplain Management.

8. Executive Order 11990, Protection of Wetlands.

9. Executive Order 12612, Federalism.

10. Executive Order 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction.

11. Executive Order 12898, Environmental Justice.

12. Office of Management and Budget Memorandum, Nonstructural Flood Protection Measures and Flood Disaster Recovery, July 10, 1980.

13. Interagency Agreement for Non-Structural Damage Reduction, December 15, 1980.

B. State

1. Commonwealth of Virginia Emergency Services and Disaster Law of 2000, as amended.

2. Code of Virginia, Title 10.1, Chapter 6, Article 1.1, Section 10.1-603.1 through 10.1-603.8: Flood Prevention and Protection Assistance Fund.

3. Code of Virginia, Title 10.1, Chapter 6, Article 6, Sections 10.1-658 and 10.1-659.

4. Commonwealth of Virginia Emergency Operations Plan, Basic Plan, as amended.

5. State Coordinating Officer Toolkit, FEMA, December 1996.

DEFINITIONS

Applicant – A state agency, local government, or eligible private nonprofit organization, Indian tribes, or authorized tribal organizations submitting an application to the GAR for assistance under the Hazard Mitigation Grant Program. An applicant becomes a subgrantee upon receipt of financial assistance.

Application – Refers to the initial request for Section 404 funding, as outlined in Section 206.436 of Federal 404 Regulations.

CFR – Code of Federal Regulations.

Declaration – An announcement of a Presidential determination that a natural catastrophe or other occasion or instance has occurred which requires federal assistance to supplement the Commonwealth and local efforts and resources to alleviate the damage, loss, hardship, or suffering caused thereby.

FEMA – Federal Emergency Management Agency.

FEMA-State Agreement – A formal legal document stating the understandings, commitments, and binding conditions for assistance applicable as the result of the major disaster or emergency declared by the President.

Governor's Authorized Representative (GAR) – The individual empowered by the Governor to represent him/her in activities related to the implementation of Public Law 93-288 and in ongoing state disaster/emergency preparedness, response, and hazard mitigation activities.

Grant – An award of financial assistance. The total amount eligible for the grant shall be based on 15 percent of the estimated total federal assistance provided under Sections 403, 406, 408, 410, 416, and 601 of the Stafford Act.

Grantee – The government to which a grant is awarded and which is accountable for use of the funds provided. The grantee is the entire legal entity even if only a particular component of the entity is designed in the grant award document. For purposes of this plan, the Commonwealth of Virginia is the grantee.

Hazard Mitigation - Any action taken to reduce or eliminate the long-term risk to life and property from natural or technological hazards.

Hazard Mitigation Grant Program (HMGP) – The program authorized under Section 404 of the Act which may provide funding for certain mitigation measures identified through the evaluation of hazards conducted under Section 409 of the Act.

Hazard Mitigation Plan – The results of a systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards present in society including the actions needed to minimize future vulnerability to hazards, as required under Section 409 of the Act.

Hazard Mitigation Plan Update – An update to the existing hazard mitigation plan, which may be accomplished either by updating the status of mitigation actions with the existing plan, or by expanding the existing plan to address additional hazards or mitigation issues.

Hazard Mitigation Survey Team (HMST) – A joint FEMA/state survey team activated following a disaster to quickly identify opportunities and issues to be addressed in the Section 409 Hazard Mitigation Plan.

Interagency Hazard Mitigation Team (IHMT) – A team of representatives of federal agencies, state agencies, and local government that is activated following disasters to exchange information and coordinate government mitigation activities.

Letter of Intent – A form letter indicating applicant's interest in participating in the Hazard Mitigation Grant Program. The form is distributed by VDEM at the mitigation specific applicants' briefing.

Local Government – Any county, city, township, or other political subdivision of the Commonwealth of Virginia.

Local Hazard Mitigation Officer (LHMO) – The local government employee assigned to coordinate activities of the local hazard mitigation team relative to a Presidential disaster declaration or state/local emergencies.

Local Hazard Mitigation Team (LHMT) – A team of individuals selected by local governments impacted by the disaster to assist state Hazard Mitigation Team with hazard mitigation activities in their areas.

Measure – A term used interchangeably with the term "project" to identify any mitigation action taken or proposed to reduce risk of future damage, hardship, loss, or suffering resulting from disasters.

Major Disaster – Any natural catastrophe (including any hurricane, tornado, storm high water, wind driven water, tidal wave tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought) or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under the Act to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss hardship, or suffering caused thereby.

Mitigation Strategy – A document developed immediately after the disaster declaration by the State Hazard Mitigation Officer, in consultation with the State Coordinating Officer that identifies mitigation priorities for the 404 Hazard Mitigation Grant Program and for other hazard mitigation activities implemented in the declared area(s).

National Flood Insurance Program - The NFIP is a Federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for State and community floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the Federal Government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the Federal Government will make flood insurance available within the community as a financial protection against flood losses. This insurance is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods.

Natural Disaster – Any natural catastrophe, including any hurricane, tornado, storm high water, wind driven, tidal wave, tsunami, seiche, earthquake, volcanic eruption, landslide, mudslide, snowstorm, fire, or drought.
Pre-application Form – A standard form which provides basic details about the applicant, description of the project and estimated cost. The form is used to initially screen the potential projects for eligibility for the Hazard Mitigation Grant Program.

Private, Nonprofit Organization – Any nongovernmental agency or entity that currently has

a. An effective ruling letter from the U.S. Internal Revenue Service granting tax exemption under Section 501(c), (d), or (e) of the Internal Revenue Code of 1954 or
b. Satisfactory evidence from the state that the organization or entity is a nonprofit one organized or doing business under state law.

Project – Used interchangeably with the term "measure."

Regional Director (RD) – A director of the regional office (Region III) of FEMA, or his/her designated representative.

Section 409 Hazard Mitigation Plan – The State Hazard Mitigation Plan that is required as a condition of receiving federal disaster assistance under Section 409 of Public Law 93-288, as amended. The Section 409 Plan is the basis for the identification of measures to be funded under Section 404. The State Hazard Mitigation Plan is also an annex of the State Emergency Operations Plan and is promulgated to all state agencies and local governments.

Section 409 Projects – Projects proposed by eligible applicants through the State Hazard Mitigation Officer and Team to FEMA for implementation following a Presidential Disaster Declaration.

Standards – Codes, specifications, or standards for the construction of facilities, to include legal requirements for additional features. Such standards may be different for new construction and repair.

State Administrative Plan for the Hazard Mitigation Grant Program – This plan, developed by the state, which describes the procedures for administration of the Hazard Mitigation Grant Program.

State Hazard Mitigation Officer (SHMO) – The individual designated by the GAR as the responsible individual on all matters related to the Section 404 Hazard Mitigation Grant Program, the Section 409 Hazard Mitigation Planning Program, and the coordinated State Hazard Mitigation Planning Program.

State Hazard Mitigation Plan – As an annex to the State Emergency Operations Plan, the hazard mitigation plan is used as a means of identifying natural and assessing risks across the state. It is also the means of identifying and assessing hazard mitigation opportunities that will reduce the threat to people and property. Following Presidentially-declared disasters, this plan will coincide with the Section 409 Plan and fall under its authorities and responsibilities.

State Hazard Mitigation Program - An ongoing program involving a coordinated effort of most state agencies to reduce the risks to people and property from natural hazards. During and following periods of Presidentially-declared disasters, this program will coincide with

activities required under Sections 404 and 409 of Public Law 93-288 and the associated FEMA federal regulations.

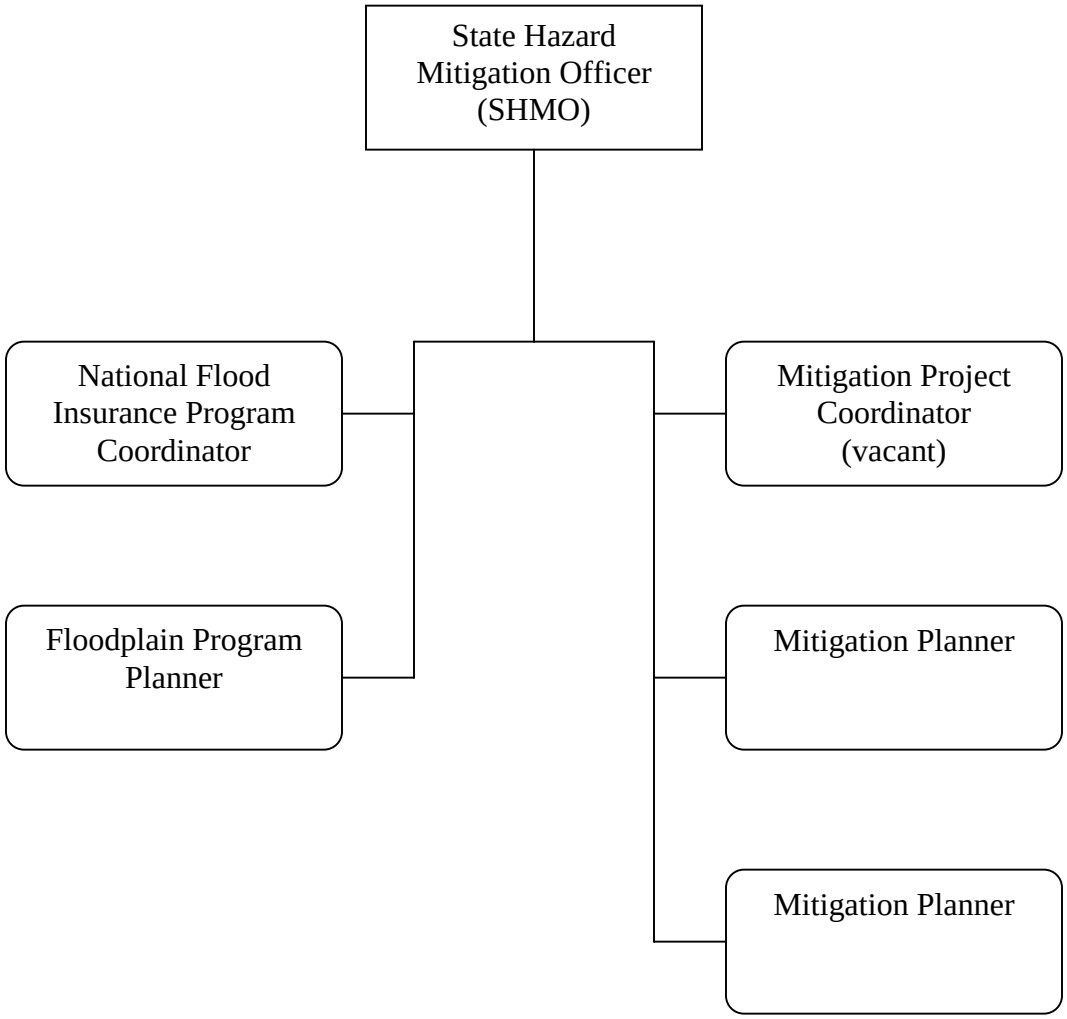
State Hazard Mitigation Committee – A group of individuals appointed by the directors of state agencies with hazard mitigation responsibilities or programs who will assist with hazard mitigation activities related to Sections 404 and 409 of Public Law 93-288 and to other ongoing activities of the state Hazard Mitigation Program.

Subgrant - An award of financial assistance under a grant by the Grantee to an eligible Subgrantee. The Subgrant is a cost-share award providing 75 percent of the estimated costs of a hazard mitigation project from federal sources. The 25 percent nonfederal share may be provided by the state, the local government, the Subgrantee, or other source.

Subgrantee – The government or other legal entity to which a Subgrant is awarded and which is accountable to the Grantee for the use of the funds provided. Subgrantees can be a state agency, a local unit of government, a private nonprofit organization that provides essential government services, or Indian tribe as outlined in Section 206.433 of Section 404 Federal Regulations.

Supplement – The request that the state submits to FEMA to add or modify measure(s) for which Section 404 funding is requested, as outlined in Section 206.436. The application plus all supplements identify the total number of measures for which funding is requested.

VDEM – Virginia Department of Emergency Management.

Virginia Uniform Statewide Building Code - The Virginia Uniform Statewide Building Code (USBC) contains the building regulations that must be complied with when constructing a new building or structure or an addition to an existing building, maintaining or repairing an existing building, or renovating or changing the use of a building or structure.

HAZARD MITIGATION FLOW CHART FOR DISASTER FIELD OFFICES