VIRGINIA FLOOD RISK GUIDE

FOR LOCAL OFFICIALS

August 2019

United States Department of Agriculture NRCS Natural Resources Conservation Service

DCR Virginia Department of Conservation & Recreation

USGS science for a changing world

US Army Corps of Engineers Norfolk District

U.S. Department of Homeland Security FEMA

Virginia Department of Emergency Management

National Oceanic and Atmospheric Administration NOAA U.S. Department of Commerce

FLOOD RISK GUIDE FOR LOCAL OFFICIALS SUMMARY

The Virginia Silver Jackets Team brings together federal, state, and local agencies to collaborate on flood risk issues. The program supports sharing of knowledge, resources, and experiences amongst agencies to achieve effective, long-lasting solutions.

The Silver Jackets (SJ) Program was formed by the U.S. Army Corps of Engineers (USACE) through its National Flood Risk Management Program. All states, except Hawaii, have Silver Jackets teams. Teams are typically led by a USACE District and one State agency. The Virginia SJ team was established in 2010 and is currently led by the USACE Norfolk District and the Virginia Department of Conservation and Recreation (DCR).

Through the SJ Program, the Virginia team identified the need for a complete resource on programs available to communities during all stages of flood events. Other state Silver Jackets teams have successfully created similar documents. Local, state, and federal agencies offer programs to assist in the event of a disaster, but it may be difficult to navigate with all of the programs available. This guide simplifies what programs are available, when they can be used, and how to get involved.

The Virginia Flood Risk Guide will be distributed to local floodplain administrators and emergency management personnel, and will be available online for government officials, communities, and individuals across Virginia. Officials can leverage the resources outlined in this document to help their communities prepare for a flood event, gather data as events occur, manage the recovery, and implement mitigation strategies to minimize impacts from future events. The guide will be reviewed and updated annually to ensure it provides current information.

Multiple agencies partnered to create the Flood Risk Guide for the Commonwealth of Virginia. Agencies who contributed to this guide include: the U.S. Army Corps of Engineers, Virginia Department of Conservation and Recreation, Virginia Department of Emergency Management, Natural Resources Conservation Service, Federal Emergency Management Agency, National Weather Service, and U.S. Geological Survey.

FLOOD RISK GUIDE FOR LOCAL OFFICIALS SUMMARY

CHAPTER 1 FLOOD RISK MANAGEMENT LIFE CYCLE 6
CHAPTER 2 CROSSWALK OF PROGRAMS 7
CHAPTER 3 MITIGATION MEASURES 15
HAZARD MITIGATION PLANNING 17
3.1.1 FEDERAL PROGRAMS 17
3.1.2 STATE PROGRAMS 23
3.1.3 REGIONAL PROGRAMS 26
3.1.4 BEST PRACTICES—HAZARD MITIGATION 27
RECOVERY PLANNING 30
3.2.1 FEDERAL PROGRAMS 31
3.2.2 STATE PROGRAMS 31
3.2.3 NON-GOVERNMENTAL ORGANIZATIONS/VOLUNTEERS 32
3.3 EFFECTIVE ALERT/WARNING SYSTEM 33
3.3.1 NATIONAL WEATHER SYSTEM 33
3.3.2 EMERGENCY ALTER SYSTEM (EAS) 34
3.3.3 VIRGINIA EMERGENCY ALERT SYSTEM 34
3.3.4 LOCAL ALERT SYSTEMS 34
3.4 SHELTERING 34
3.4.1 SHELTER-IN-PLACE 34
3.4.2 PUBLIC SHELTERS 35
3.5 VOLUNTEER PREPARATION 35
3.5.1 PRE-EVENT VOLUNTEER TRAINING 35
3.5.2 HOW TO VOLUNTEER 36
3.5.3 COMMUNITY EMERGENCY RESPONSE TEAM 36
3.5.4 NON-GOVERNMENTAL ORGANIZATIONS/VOLUNTEERS TRAINING 36
CHAPTER 4 PRIOR TO AND DURING A FLOOD EVENT 36
4.1 STATUS INFORMATION 36
4.1.1 STATE PROGRAMS 36
4.1.2 FEDERAL PROGRAMS 36

4.1.3 NON-GOVERNMENTAL ORGANIZATIONS 39
4.2 EVACUATION 40
4.2.1 STATE PROGRAMS 40
4.3 DISASTER DECLARATIONS 40
4.3.1 AUTHORITY TO DECLARE DECLARATIONS 40
4.3.2 STATE EMERGENCY DECLARATION PROCESS 40
4.3.3 STATE OF VIRGINIA THREAT LEVELS 40
4.4 FEDERAL DECLARATION PROCESS 41
4.4.1 MAJOR DECLARATION PROCESS 41
4.4.2 EMERGENCY DECLARATION 41
4.5 LOCAL DECLARATIONS 41
CHAPTER 5 IMMEDIATE NEEDS POST-EVENT 42
5.1 SAFETY INFORMATION 42
5.2 VOLUNTEER/NON-GOVERNMENTAL ORGANIZATIONS 42
5.2.1 VIRGINIA VOLUNTARY ORGANIZATIONS IN DISASTER (VAVOAD) 42
5.3 REGIONAL ASSISTANCE 44
5.4 STATE ASSISTANCE 44
5.4.1 VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT 44
5.4.1 VIRGINIA NATIONAL GUARD 45
5.4.2 VIRGINIA 2-1-1 45
5.5 FEDERAL ASSISTANCE 45
5.5.1 UNITED STATES ARMY CORPS OF ENGINEERS (USACE) 45
5.5.2 UNITED STATES GEOLOGICAL SURVEY (USGS) 45
5.5.3 U.S. DEPARTMENT OF TRANSPORTATION 46
5.5.4 DAMAGE ASSESSMENTS 46
5.6 DEBRIS REMOVAL 47
5.6.1 TEMPORARY DEBRIS STAGING AREAS 47
5.6.2 DEBRIS MANAGEMENT PLANNING 48
5.6.3 INDIVIDUALS' DEBRIS 48
5.6.4 FLOODPLAIN MANAGEMENT REQUIREMENTS 48
CHAPTER 6 LONG-TERM NEEDS 49

6.1 FEDERAL ASSISTANCE PROGRAMS 51
6.1.1 FEDERAL EMERGENCY MANAGEMENT AGENCY 51
6.1.2 DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT 52
6.1.3 UNITED STATES ARMY CORPS OF ENGINEERS 52
6.1.4 U.S. DEPARTMENT OF AGRICULTURE 54
6.1.5 SMALL BUSINESS ASSOCIATION (SBA) 57
6.1.6 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION 57
6.1.7 NATIONAL SCIENCE FOUNDATION 58
6.1.8 U.S. ENVIRONMENTAL PROTECTION AGENCY 58
6.1.9 U.S. DEPARTMENT OF TRANSPORTATION 59
6.1.10 INTERNAL REVENUE SERVICE (IRS) 60
6.1.11 U.S. DEPARTMENT OF LABOR 60
6.2.1 DCR 61
REGIONAL ASSISTANCE PROGRAMS 62
6.3.1 PLANNING DISTRICT COMMISSIONS (PDC) 62
6.4.1 VIRGINIA ENVIRONMENTAL ENDOWMENT 62
CHAPTER 7 DOCUMENTING THE DISASTER 63
STORING DATA 63
HIGH WATER MARKS 63
NOAA/NWS STORM DATA 64
BEST PRACTICES—DOCUMENTATION AND DATA MANAGEMENT 64
CHAPTER 8 CONTACT LIST 65
CHAPTER 9 COMMUNITY SECTION 67
APPENDIX A: COMMONLY USED ABBREVIATIONS 68

1 FLOOD RISK MANAGEMENT LIFE CYCLE

The flood risk management life cycle includes four stages, identified below. Each stage includes a variety of federal, state, and local programs that can be leveraged.

Event

The flood event involves response, recovery, mitigation, and preparation and training. The event may result in loss of life and damage to property, infrastructure, and the environment - prompting communities to take steps to minimize effects in the future.

1. Response

Just prior to and during the flood event, an immediate response comes from emergency personnel, non-profits, volunteer organizations, state government, local government, and possibly federal government. Response programs help minimize physical and economic damages to a community.

2. Recovery

Flood events can have drastic physical and economic effects on communities. Recovery programs help communities, individuals, and businesses get back to functioning normally.

3. Mitigation

Communities can implement strategies to minimize impacts of future flood events. A variety of programs help improve infrastructure, policies, and awareness to make communities more resilient.

4. Preparation and Training

As floods may occur at almost at any time of the year, preparation and training must be continuous activities. By preparing and training, local officials and potential volunteers are able to increase the efficiency and productivity of a response to an event.

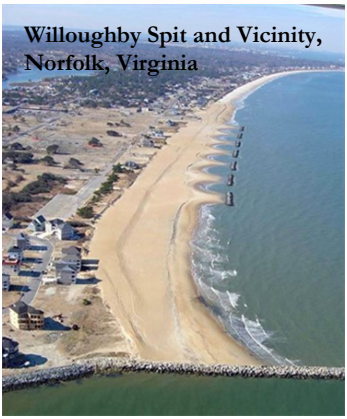
Figure 1: Flood Event Life Cycle

2 CROSSWALK OF PROGRAMS

VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
FEDERAL					
Federal Emergency Management Agency (FEMA)					
Building Resilient Infrastructure & Communities Grant Program (BRIC)					
Community Rating System (CRS)	3.1.1	X	X		
Damage Assessments	5.5.3				X
Environmental Planning and Historic Preservation (EHP)	3.1.1	X			X
Flood Mitigation Assistance (FMA) Program	3.1.1	X	X		
Hazard Mitigation Grant Program (HMGP)	3.1.1				X
Hurricane Liaison Team (HLT)	4.1.1	X		X	
Individual Assistance (IA) Program	3.1.1				X
Individuals and Households Program (IHP)	6.1.1				X
National Dam Safety Program (NDSP)	3.1.1	X	X		X
National Flood Insurance Program (NFIP)	3.1.1	X	X		
Pre-Disaster Mitigation Program (PDM)	3.1.1	X			
Public Assistance (PA) Program	3.1.1				X
Rehabilitation of High Hazard Potential Dams (HHPD)					

2 CROSSWALK OF PROGRAMS

VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
FEDERAL					
U.S . Army Corps of Engineers (USACE)					
Flood Plain Management Services (FPMS) Program	6.1.3	X	X		X
Continuing Authorities Program (CAP)	6.1.3	X	X		X
Planning Assistance to States (PAS) Program	6.1.3	X	X		X
Silver Jackets Program	3.1.1	X	X		X
Rehabilitation and Inspection Program (RIP)	6.1.3				X
National Levee Safety Program	6.1.3	X	X	X	X
General Investigation (GI)	3.1.1	X	X		X
Nationwide Permit	6.1.3				X
Navigation Program	6.1.3				X
Temporary Power	5.5.1			X	X



VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
National Oceanic and Atmospheric Administration (NOAA)/National Weather Service (NWS)					
Advanced Hydrologic Prediction System (AHPS)	4.1.1	X		X	X
National Water Model (NWM)	4.1.1		X	X	
National Hurricane Center (NHC)	4.1.1		X	X	
Climate Prediction Center (CPC)	4.1.1		X	X	X
Office for Coastal Management Grants	4.1.1	X			X
NWS Weather Forecast Offices (WFOs)	4.1.1		X	X	X
NWS River Forecast Centers (RFCs)	4.1.1		X	X	X
StormReady Program	4.1.1	X	X	X	X
Virginia Sea Grant (VASG)	6.1.6	X	X		X
U.S. Department of Housing and Urban Development (HUD)					
Community Disaster Block Grant Disaster Recovery Program (CDBG-DR)	6.1.2				X
Community Disaster Block Grant National Disaster Resilience Competition (CDBG-NDR)	6.1.2				X

VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
Natural Resources Conservation Service (NRCS)					
Emergency Watershed Protection (EWP) Program	6.1.4				X
Watershed and Flood Prevention Program	3.1.1	X			
Watershed Surveys and Planning	3.1.1	X			
Watershed Rehabilitation (Dam Rehabilitation)	6.1.4	X			X
Farm Service Agency (FSA)					
Emergency Conservation Program (ECP)	6.1.4				X
Emergency Farm Loans	6.1.4				X
Tree Assistance Program (TAP)	6.1.4				X
Non-insured Crop Disaster Assistance Program (NAP)	6.1.4				X
Conservation Reserve Program (CRP)	6.1.4	X			X
Rural Development (RD)					
Business and Industrial Loan Guarantees	6.1.4				X
Community Facilities Direct Loan & Grant Program	6.1.4				X
Water & Waste Disposal Revolving Loan Funds	6.1.4				X
Single Family Housing Repair & Loan Grants	6.1.4				X
Mutual Self-Help Housing Technical Assistance Grants	6.1.4				X
Multi-Family Housing Rental Assistance	6.1.4				X
U.S. Department of Energy					
Energy Assurance Planning	3.2.1	X			
National Science Foundation (NSF)					
Human, Disasters, and the Build Environment Grants	6.1.7	X	X		

VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
U.S. Geological Survey (USGS)					
Flood Inundation Mapping (FIM)		X	X		
WaterWatch	4.1.1		X	X	
Flood Event Viewer	5.5.2			X	
Landslides Hazard Program	4.1.1	X	X	X	X
U.S. Small Business Association (SBA)					
Home and Personal Property Loans	6.1.5				X
Business Physical Disaster Loans	6.1.5				X
Economic Injustice Disaster Loans	6.1.5				X
Military Reservists Economic Injury Loans	6.1.5				X
Federal Highway Administration (FHWA)					
Highway Emergency Relief Program (ER)	6.1.9				X
Federal Transit Administration (FTA)					
Emergency Relief (ER)	6.1.9		X	X	X
Federal Railroad Administration (FRA)					
Railroad Rehabilitation & Improvement Financing (RRIF) Program	6.1.9		X		X
Federal Aviation Administration (FAA)					
Airport Improvement Program (AIP)	6.1.9		X		X
U.S. Environmental Protection Agency (EPA)					
Clean Water State Revolving Fund (CWSRF)	6.1.8	X	X		X
Drinking Water State Revolving Fund (DWSRF)	6.1.8	X	X		X
Internal Revenue Service (IRS)					
Disaster Casualty Loss	6.1.10				X
U.S Department of Labor					
Disaster Unemployment Assistance (DUA) Program	6.1.11				X

VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
STATE					
Virginia Department of Transportation (VDOT)					
Virginia 5-1-1	4.1.1		X	X	X
Hurricane Evacuation Routes/Guide	4.2.1		X	X	
Virginia Department of Conservation and Recreation (DCR)					
Floodplain Management Program	3.1.2	X	X		X
Virginia Flood Risk Information System	3.1.2	X	X		
Dam Safety, Floodplain Prevention and Protection Assistance Grants	3.1.2	X	X		X
Virginia Department of Emergency Management (VDEM)					
Local Emergency Recovery Plan	3.2.2	X			X
Emergency Management Grants	3.2.2				X
Shelter Coordination	3.4.2			X	X
VA Flood Observation and Warning Network (IFLOWS)	4.1.1			X	
Virginia Department of Environmental Quality (DEQ)					
Clean Water State Revolving Fund (CWSRF) Program	6.1.8	X	X		X
Virginia Clean Water Revolving Loan Fund (VCWRLF) Program	6.1.8	X	X		X
Virginia Department of Health					
Drinking Water State Revolving Fund (DWSRF) Program	6.1.8	X	X		X
Virginia Department of Social Services					
Virginia 2-1-1	5.2				X
Virginia National Guard					
Disaster Response	5.4.1			X	X
REGIONAL Planning District/Regional Commissions (PDC/RC)					
Accomack-Northampton PDC	3.1.3		X		X
Central Shenandoah Valley PD	3.1.3		X		X
Cumberland Plateau PDC	3.1.3		X		X

VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
Commonwealth RC	3.1.3		X		X
Crater PDC	3.1.3		X		X
George Washington RC	3.1.3		X		X
Hampton Roads PDC	3.1.3		X		X
LENOWISCO PDC	3.1.3		X		X
Middle Peninsula PDC	3.1.3		X		X
Mount Rogers PDC	3.1.3		X		X
New River Valley RC	3.1.3		X		X
Northern Neck PDC	3.1.3		X		X
Northern Shenandoah Valley RC	3.1.3		X		X
Northern Virginia RC	3.1.3		X		X
Rappahannock-Rapidan RC	3.1.3		X		X
Richmond Regional PDC	3.1.3		X		X
Region 2000 LGC	3.1.3		X		X
Roanoke Valley-Alleghany RC	3.1.3		X		X
Southside PDC	3.1.3		X		X
Thomas Jefferson PDC	3.1.3		X		X
West Piedmont PDC	3.1.3		X		X
Regional Volunteer Organizations Active in Disaster (VOAD)					
Northern	3.2.3			X	X
Peninsula	3.2.3			X	X
South Central	3.2.3			X	X
Southeastern	3.2.3			X	X
Virginia Capital Area	3.2.3			X	X
VOLUNTEER					
Virginia Voluntary Organizations in Disaster (VAVOAD)	5.2.1			X	X
American Red Cross	5.2.1			X	X
The Salvation Army	5.2.1			X	X
Federation of Virginia Food Banks	5.2.1			X	X
Points of Light, Hands on Network	5.2.1			X	X
United Way	5.2.1			X	X

VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
PRIVATE					
Virginia Environment Endowment (VEE)	6.4.1	X			X
National Fire Protection Association (NFPA)	4.1.2	X			X

3 MITIGATION MEASURES

VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
New Construction (Floodwalls, Levees, etc.)					
Federal Emergency Management Agency (FEMA)					
Hazard Mitigation Grant Program (HMGP)	3.1.1	X	X		X
U.S. Army Corps of Engineers (USACE)					
Continuing Authorities Program (CAP)	3.1.1	X	X		X
General Investigation (GI)	3.1.1	X	X		X
Repair Existing Measures (Floodwalls, etc.)					
U.S. Army Corps of Engineers (USACE)					
Rehabilitation and Inspection Program (RIP)	6.1.3				X
Natural Resources Conservation Service (NRCS)					
Emergency Watershed Protection (EWS Program)	6.1.4				X

VIRGINIA FLOOD RISK GUIDE CROSSWALK OF AVAILABLE PROGRAMS					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
Nonstructural Measures (Acquisition, Elevation, Floodproof)					
Federal Emergency Management Agency (FEMA)					
Hazard Mitigation Grant Program (HMGP)	3.1.1	X	X		
U.S. Army Corps of Engineers (USACE)					
Continuing Authorities Program (CAP)	3.1.1	X	X		X
General Investigation (GI)	3.1.1	X	X		X
Risk Analysis					
Federal Emergency Management Agency (FEMA)					
Hazard Mitigation Grant Program (HMGP)	3.1.1	X			X
U.S. Army Corps of Engineers (USACE)					
Floodplain Management Services (FPMS)	3.1.1	X			X
Silver Jackets (SJ)	3.1.1	X			X
Planning Assistance to States	6.1.3	X			X
Department of Conservation and Recreation (DCR)					
Floodplain Management Program	3.1.2	X			X
Dam Safety Program	3.1.2	X			X
Modeling					
U.S. Army Corps of Engineers (USACE)					
Floodplain Management Services (FPMS)	3.1.1	X			X
Silver Jackets (SJ)	3.1.1	X			X
Planning Assistance to States	6.1.3	X			X
Public Outreach					
Federal Emergency Management Agency (FEMA)					
Community Rating System	3.1.1	X			
U.S. Army Corps of Engineers (USACE)					
Floodplain Management Services (FPMS)	3.1.1	X			
Silver Jackets (SJ)	3.1.1	X			

Table 3: Floodplain Management Measures and Program Crosswalk

3.1 HAZARD MITIGATION PLANNING

Hazard mitigation planning is the process of analyzing current risks for a particular location and implementing projects or programs that will reduce loss of life and damages from a future event. Mitigation activities can range from a constructed project, planning study, training of local staff and volunteers, to public outreach. Communities can use data and their own understanding of their assets and vulnerabilities to maximize project results to increase health, safety and financial risk. Investing in hazard mitigation can help communities save money from infrastructure damage and, possibly, protect the environment.

3.1.1 Federal Programs

FEMA Public Assistance (PA) Program

The FEMA PA Grant Program offers federal assistance to state, local, and tribal governments as well as private non-profit organizations. This program helps communities recover quickly by providing funding for debris removal, emergency protection measures, and restoration of public facilities and non-profit organization facilities. Federal funding is not less than 75 percent and the state funding is up to 25 percent. The PA Program is only available after the President has declared a disaster.

https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit

FEMA Individual Assistance (IA) Program

Individuals and families often suffer devastating losses during disasters. FEMA offers assistance after a presidentially-declared disaster to individuals or families whose homes were damaged.
https://www.disasterassistance.gov

FEMA Hazard Mitigation Grant Program (HMGP)

The Hazard Mitigation Grant Program (HMGP) provides post-disaster federal assistance for long term hazard mitigation measures following major disaster declarations. Funding is available to implement projects in accordance with State, Tribal, and local priorities. The goal of this program is to create more resilient communities and avoid damage to lives and property. The projects selected are funded with up to 75 percent of federal money and 25 percent from state government, local government, or the property owner.

https://www.fema.gov/hazard-mitigation-grant-program

Examples of hazard mitigation ideas can be found here:
https://www.fema.gov/media-library-data/20130726-1904-25045-0186/fema_mitigation_ideas_final508.pdf

FEMA Flood Mitigation Assistance (FMA) Grant Program

The Flood Mitigation Assistance (FMA) program provides funds on an annual basis so that measures can be taken to reduce or eliminate risk of flood damage to buildings insured under the National Flood Insurance Program (NFIP). The FMA Program was created to reduce the amount of claims filed under the NFIP. In order to receive funding through the FMA, the applicant must have adopted a FEMA-approved Hazard Mitigation Plan and must be participating in NFIP.

For more information on eligible projects see:

https://www.fema.gov/flood-mitigation-assistance-grant-program

FEMA Pre-Disaster Mitigation (PDM) Grant Program

The PDM program is designed to assist States, Territories, Indian Tribal governments and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events – and thereby increase reliance. Local Hazard Mitigation Plans are usually funded through this grant, which is offered to the state annually. Hazard Mitigation Plans must be updated every 5 years and are a pre-requisite to Public Assistance parts C-G. See figure 2 for the 5-year planning cycle for these plans.

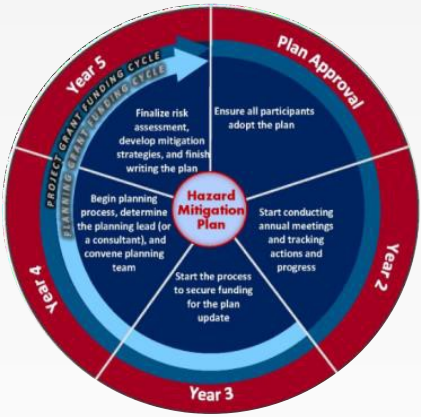


Figure 2:
Hazard Mitigation Plan Life Cycle

FEMA National Flood Insurance Program (NFIP)

The NFIP provides affordable flood insurance for communities to protect homeowners and business owners from damages of flooding. Communities are required to adopt and enforce floodplain management regulations to participate in the NFIP. These floodplain management ordinances help protect communities from flood damage in areas of known risk.

The NFIP includes Special Flood Hazard Areas (SFHA), which are identified on FEMA Flood Insurance Rate Maps (FIRM). Flood insurance is required for properties located in SFHA that have a federally backed loan or received federal disaster insurance.

Community members, particularly those that are in SFHA, may need to be educated about this program along with community regulations, so they can protect themselves. Local officials should help raise awareness with the public and also play a role in educating insurance brokers, lenders,

and realtors. Flood insurance is available to homeowners, renters, and business owners no matter their flood zone as long as their community is participating in the NFIP. Flood insurance policies have a 30-day waiting period before they become effective, so it important that property owners purchase flood insurance before a disaster occurs.

https://www.fema.gov/national-flood-insurance-program

Building Resilient Infrastructure & Communities Grant Program (BRIC)

Funded through the Disaster Relief Fund as a 6% set aside from all disaster expenses focusing on funding public infrastructure projects that increase a community resilience before a disaster occurs.

Notice of Funding Opportunity will be issued in 2020 with money becoming available in 2021

FEMA Community Rating System (CRS)

The CRS Program provides a reduction in flood insurance premiums for the implementation of floodplain management activities that go beyond the minimum requirements of the NFIP. Not only can participating communities save their residents from 5% to 45% on their flood insurance premiums, but the activities the community pursues under this program help make them more flood resistant.

Communities can often leverage information they already have to gain CRS points. There are four series of activities; Series 300 – Public Information, Series 400 – Mapping and Regulations, Series 500 Flood Damage Reduction, and Series 600 – Flood Preparedness. The discount a community receives is dependent upon how many points they earn by implementing up to 19 activities (94 elements) that lie within these series. There is also extra credit available for communities that hold higher standards outside the SFHA.

Local CRS User Groups support communities that participate, or would like to participate in the program, by sharing information and even working on joint projects. More information can be found here:

https://crsresources.org/

https://www.fema.gov/national-flood-insurance-program-community-rating-system

The *CRS Coordinator's Manual* is available online here:

https://crsresources.org/manual/

FEMA Environmental Planning and Historic Preservation (EHP)

The Environmental Planning and Historic Preservation (EHP) program integrates the protection and enhancement of environmental, historic, and cultural resources into FEMA's mission, programs and activities; ensures that FEMA's activities and programs related to disaster response and recovery, hazard mitigation, and emergency preparedness comply with federal environmental and historic preservation laws and executive orders; and provides environmental and historic preservation technical assistance to FEMA staff, local, State and Federal partners, and grantees and subgrantees.

https://www.fema.gov/office-environmental-planning-and-historic-preservation

FEMA National Dam Safety Program (NDSP)

The NDSP provides technical assistance, grant funds, and research to states in order to reduce risk of dam failure. Grants can be used to train state personnel, increase inspections, increase submissions of Emergency Action Plans, expedite permit review, improve coordination, inspect of dams to repair, or conduct workshops on dam safety.

https://www.fema.gov/national-dam-safety-program

Rehabilitation of High Hazard Potential Dams (HHPD)
Funded in 2019 and anticipated to continue in subsequent years, provides assistance for technical, planning, design and other pre-construction activities.

Eligible high hazard potential dams are non-Federal dams that are located in a state with a state dam safety program; are classified as "high hazard potential" by the state dam safety agency in the state in which the dam is located; have an emergency action plan approved by the relevant state dam safety agency; and the state in which the dam is located determines the dam fails to meet minimum dam safety standards of the state and poses an unacceptable risk to the public.

USACE General Investigations (GI)

The GI Program is a platform to solve water resource problems. The Projects involve a feasibility study and, if the selected alternative is approved by Congress, a construction project. Projects funded under the GI program can vary in size and cost, but all serve to protect communities from future disasters and limit loss of life and property.

USACE Continuing Authorities Program (CAP)

The CAP Program allows the USACE to plan, design, and implement certain water resources projects in conjunction with a local sponsor. This program and nine different legislative authorities for nine different types of projects,

some of which specifically address long-term needs of communities affected by flood events:

Streambank and Shoreline Protection - Section 14 of the Flood Control Act of 1946

- Hurricane and Storm Beach Erosion and Damage Control – Section 103 of the River and Harbor Act of 1962
- Flood Control – Section 205 of the Flood Control Act of 1948
- Snagging and Clearing for Flood Damage Reduction – Section 208 of the Flood Control Act of 1954

Each CAP project has two phases: feasibility and design/implementation. In order to begin the process, the local sponsor must submit a request for assistance letter describing the goal of the project and the sponsor's financial capability. If there is federal interest, the project will move forward with the creation of a Project Management Plan (PMP) and Federal Cost Sharing Agreement (FCSA). The feasibility phase will be concluded with a document, deciding how to move forward in the design and implementation phase.
CAP projects, although smaller than GI projects, also mitigate damages of disasters.

USACE Silver Jackets (SJ) Program

The SJ Program is a collaborative effort between federal and state agencies to evaluate problems relating to flood risk and implement initiatives to help reduce this risk. Silver Jackets interagency teams are a valuable resources because of their diverse knowledge to share information and access to a variety of resources. The teams work on all issues surrounding flood risk, including hazard mitigation. For more information on the Virginia Silver Jackets team:
https://silverjackets.nfrmp.us/State-Teams/Virginia

USACE Floodplain Management Services (FPMS)

Under the FPMS Program, USACE can provide a variety of technical services and guidance. Potential projects include mitigation studies, hydraulic modeling, floodplain mapping, inundation mapping, etc. These projects are completely federally funded.

NRCS Watershed Surveys and Planning (WSP)

The WSP provides funding for surveys and plans to identify land treatment and nonstructural solutions to water resources problems. Appropriations vary, but funding is available to carry out these projects. NRCS also provides technical assistance.

https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wsp/

NRCS Watershed and Flood Prevention Operations (WFPO) Program

The WFPO Program helps federal, state, local, and tribal governments prevent damage to watersheds through providing technical and financial assistance for a variety of projects. Projects can be up to 250,000 acres and at least 20 percent of total benefits must relate to agriculture. Funding depends on the climate at the time.

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/landscape/wfpo/?cid=nrcs143_008271

NOAA Office for Coastal Management

The Office for Coastal Management operates four programs: National Coastal Zone Management Program, National Estuarine Research Reserves, NOAA Coral Reef Conservation Program, and Digital Coast.

The Coastal Zone Management Program is federal partnership with a state or territory to address coastal issues by protecting resources, managing development with respect to need, and coordinating actions. A Coastal and Estuarine Land Conservation Plan (CELCP) was created for the program. Funding is available to implement measures from NOAA.

https://coast.noaa.gov/states/virginia.html

The National Estuarine Research Reserves is a program in which 29 coastal sites are studied with funding and guidance from NOAA with local management via state or university partner. The Chesapeake Bay, in Virginia, is one of the 29 sites and is managed by Virginia Institute of Marine Science and the College of William and Mary. Information on the site: https://coast.noaa.gov/nerrs/reserves/chesapeake-bay-va.html

NOAA's Digital Coat provides data, tools, and training that may be valuable for local officials: https://coast.noaa.gov/digitalcoast

NOAA/NWS Flood Safety

NOAA/NWS hosts a web page with numerous resources related to flooding.

http://www.floodsafety.noaa.gov.

DHS Office of Infrastructure Protection

The Office of Infrastructure Protection (IP) is responsible for identifying and managing threats to the nation's critical infrastructure, including natural disasters. The IP provides information to the owners of the infrastructure (state, local, tribal, and territorial partners) and helps these partners manage these assets and respond after an event.

The IP regional offices correlate to FEMA regional offices; therefore, Virginia is served by Region III located in Philadelphia, PA.

For more information, visit the IP website: https://www.dhs.gov/office-infrastructure-protection

To contact IP Region III: IPRegion3@hq.dhs.gov

3.1.2 State Programs

DCR Floodplain Management Program

The Floodplain Management Program was established by the Flood Damage Reduction Act of 1989. DCR serves as the coordinator of all flood protection programs and activities in the Commonwealth and is responsible for the statewide Floodplain Management Plan.

The Floodplain Program serves as the state coordinating office for the NFIP and CRS. Floodplain staff assist communities with their floodplain ordinances and maps, provide floodplain workshops and trainings, and provide technical assistance and guidance. To assist with this role, DCR has several resources available to aid localities and other agencies including the Virginia Flood Risk Information System (VFRIS), Local Floodplain Management Directory, training calendar, and a state model floodplain ordinance.

http://www.dcr.virginia.gov/floods

DCR Virginia Flood Risk Information System (VFRIS)

DCR, in collaboration with the Virginia Institute of Marine Science's Center for Coastal Resources Management, created VFRIS to best inform communities and property owners of their flood risk. It is a compilation of information available from FEMA, FWS, ESRI GIS, and Virginia GIS, making it easy for property owners to access all of this information in one place.

Educating the public helps prepare them to avoid hazardous situations. VFRIS helps communities, real estate agents, property buyers, property owners, and others discern an area's flood risk. Understanding this risk helps local officials plan for development, and it helps property owners and others better understand flood insurance rates, potential flood mitigation options, as well as knowing where potential development restrictions will apply.
http://cmap2.vims.edu/VaFloodRisk/vfris2.html

DCR Dam Safety Program

The Dam Safety Program ensures proper design, construction, operation and maintenance of dams to protect public safety within the Commonwealth of Virginia. The program requires all dams of regulatory size to apply for an Operation and Maintenance Certificate. To receive a Regular Operation and Maintenance Certificate, the owner must have include an assessment of the dam by a licensed Professional Engineer and an Emergency Action Plan. If a dam has a deficiency but does not pose imminent danger to public safety, a Conditional Operation and Maintenance Certificate may be issued to allow the owner time to correct the deficiency.

Dams are classified with a hazard potential depending upon the downstream losses anticipated in event of failure. Hazard potential is unrelated to the structural integrity of a dam. Rather, it is directly related to potential adverse downstream impacts should the given dam fail. This program classifies dams into three categories based on hazard potential: high, significant, and low. To be in compliance with regulations, dams must be inspected by a Professional Engineer at varying times. High hazard potential dams must be inspected every two years and significant hazard potential dams must be inspected every three years. Low hazard potential dams must be inspected every six years, unless the dam would only cause damage to the property of the owner of the dam.

http://www.dcr.virginia.gov/dam-safety-and-floodplains/dam-safety-index

DCR Dam Safety Inventory System (DSIS)

DCR's Dam Safety Inventory System (DSIS) is an online application that provides information and services related to dams in Virginia. Approved users with internet access can login, view, create, and edit DCR dam data and regulatory records. DSIS was designed to store descriptive data, accept regulatory applications from system participants, provide a map service to view dams, and provide all information needed to prepare and support emergency services.

DSIS Phase 1 was completed in August 2017 and is currently being utilized by Dam Safety staff and public entities. Current efforts focus on fully populating the database with all necessary spatial, non-spatial, and electronic document data. Phase 2 is set to finish in the winter of 2019. Access to DSIS may be found here: http://www.dcr.virginia.gov/dam-safety-and-floodplains/ds-dsis

DCR Dam Safety, Flood Prevention and Protection Fund

The Dam Safety, Flood Prevention and Protection Assistance Fund includes state grants that help dam owners and Virginia localities enhance public safety and reduce the risk of dam failures and property

damage from flooding. All grants are reimbursements and require a 50 percent match.

DCR grants are available to local governments to improve methods for flood prevention and protection. Grants are also available to local governments and private entities owning existing, regulated dams to improve dam safety in the Commonwealth.

http://www.dcr.virginia.gov/dam-safety-and-floodplains/dsfpm-grants

Commonwealth of Virginia Floodplain Management Plan

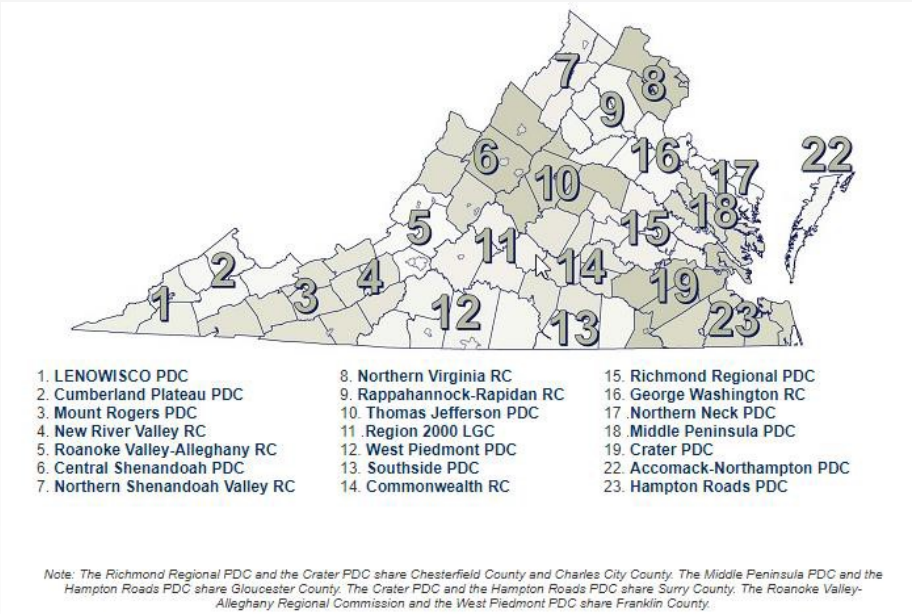


Figure 3: Map of Regional Planning District Commissions
Source: http://www.vapdc.org

The Floodplain Management Plan is a comprehensive guidance document for federal, state, and local officials to address floodplain management issues common to Virginia and to assess the floodplain management needs of the Commonwealth while establishing strategies, measures, and priorities for meeting those needs.

The Plan presents the Commonwealth's strategy for the identification, planning, and mitigation of flood hazards as well as to encourage sound floodplain management. In addition, the Plan provides tools for flood hazard risk identification to enhance the knowledge and skills of local and state officials responsible for floodplain management and to promote the advancement of responsible development in and beneficial uses of floodplains.

DCR's Floodplain Management Program is currently updating the Commonwealth's Floodplain Management Plan. The current version (2005) of the Commonwealth of Virginia Floodplain Management Plan is available online here:

http://townhall.virginia.gov/l/GetFile.cfm?File=C:%5CTownHall%5Cdocroot%5CGuidanceDocs%5C199%5CGDoc_DCR_3285_v1.pdf

Commonwealth of Virginia Hazard Mitigation Plan

The Commonwealth of Virginia Hazard Mitigation Plan, updated every five years, identifies both natural and man-made hazards, and provides strategies and actions to mitigate the risk associated with these hazards. All states must have a FEMA approved Hazard mitigation Plan to qualify for FEMA's non-emergency funding programs in addition to the Hazard Mitigation Grant Program.

The full Commonwealth of Virginia Hazard Mitigation Plan can be found here:

http://www.vaemergency.gov/wp-content/uploads/2018/03/COV-SHMP-3-2018-Public.pdf

3.1.3 Regional Programs

Local and Regional Hazard Mitigation Plans

Hazard Mitigation Plans reflect regional and community based risk to identified hazards, and offer strategies and specific actions to reduce this risk. Natural hazards must be included, but many plans also profile man-made hazards (such as infrastructure failure). In Virginia, the state has supported the development of PDC-based hazard mitigation planning. There are 21 regional Planning District Commissions (PDCs), each made up of two or more localities. The plans are developed by multi-discipline planning teams and stakeholder groups that involve every sector in the region including utilities, hospitals, non-profits and businesses – not just community officials. All local and regional Hazard Mitigation Plans must be updated every five years to reflect current demographics, development trends, and hazards.

The plans should be a comprehensive look at structural and non-structural measures that could be implemented and use the hazard mitigation planning process to integrate with other community planning tools such as comprehensive and capital improvement plans. Localities should use their plans to decrease risk to safety, property damage, and ensure economic resilience.

FEMA requires localities who receive non-emergency disaster assistance to have an approved and adopted Hazard Mitigation Plan. Grants are available for developing and updating these plans through FEMA funds given to the state.

Regional and local hazard mitigation plans can be found on the regional planning commissions' websites or the VDEM website:

http://www.vaemergency.gov/emergency-management-community/emergency-management-plans/local-mitigation-plans/

Information for all PDCs including individual websites, maps, and contact information can be found here:

http://www.vapdc.org

3.1.4 Best Practices – Hazard Mitigation

Flooding is the most common and costly disaster in the country – and specifically in Virginia. However, there are many ways to reduce your home's risk of flooding, and not all of them are difficult or expensive. There are a range of actions you can take to reduce your risk of damage. To determine which might be the best for you and your home, consider following these three key steps:

1. Know Your Risk.

Anywhere it can rain, it can flood–so we all live in a flood zone, and we all live with the risk of flood damage to our property. Learn more details about your home's level of flood risk, including the type of flood zone it is in and, if available, the potential flood elevation (referred to as the "base flood elevation" on a flood map). A good place to start is FEMA's online Flood Map Service Center at www.msc.fema.gov/portal/. You can also visit the officials in your community who maintain the FEMA flood maps and elevation certificates; they may work in the local planning and zoning office or in the building department. Talk to them, your neighbors, and others about any past flood events and how high the water has risen in the past at or near your home.

2. Insure Your Property.

As a homeowner, it's important to insure your home and personal belongings. Even if your home is in a low- or moderate-risk flood zone, purchasing a flood insurance policy is highly recommended. It provides you with financial protection from a flood event. Flood damage isn't covered by standard homeowners insurance policies, and just a few inches of

floodwater can end up costing thousands of dollars in repairs. More than 25 percent of flood insurance claims come from properties that are not in an identified high-risk zone, but most homeowners in these areas are eligible for coverage at a preferred rate. Preferred Risk Policy premiums are the lowest premiums available, offering building and contents coverage for one low price.

3. Reduce Your Risk.

Decide how to prepare your family and protect your home from flooding. Consider which of the methods included in this guide are most appropriate and practical, based on your home's flood risk, and create a plan to mitigate the risk to your property. Even after a mitigation project, some risk will remain, so learn about more actions to prepare and protect your family, home, and belongings at www.ready.gov/make-a-plan.

INSIDE THE HOME/STRUCTURE

For interior areas below the potential flood elevation, consider making the following alterations:

- Protect your valuable possessions. Move important documents and other valuable or sentimental items to a safer location, well above the potential flood elevation and/or inside watertight containers.
- Seal your foundation and basement walls. Close any foundation cracks with mortar and masonry caulk or hydraulic cement, which expands and fills gaps completely. Seal walls in your basements with waterproofing compounds to avoid seepage. Make sure any floor drains are clear of obstructions.
- Install flood vents. Flood vents are small permanent openings that allow floodwater to flow freely through an enclosure such as a crawlspace or garage. Properly positioned and installed flood vents protect homes during floods by preventing water pressure buildup that can destroy walls and foundations. Flood openings may be required for lower enclosures of homes being built in high-risk flood zones, but they can also be installed in existing homes. Once installed, make sure your flood vents are kept free of debris and will allow the free-flow of floodwater.
- Install a sump pump. Sump pumps, which pump groundwater away from your home, can be an excellent defense against basement seepage and flooding. They draw in the groundwater from around the house and direct it away from the structure through drainage pipes. Be sure to choose a device with battery-operated backup, in case of electrical power failure.
- Prevent sewer backups. Install drain plugs for all basement floor drains to prevent sewer backups. Another recommended option, regardless of the potential flood elevation, is to install sewer backflow valves for all pipes entering the building. These devices, which allow water to flow only

one direction, prevent floodwater and wastewater from backing up into your home through toilets, sinks, and other drains. They are available in a variety of designs that range from simple to complex, but they should be installed by a qualified, licensed plumber.

Use flood-resistant building materials.

- Replace wooden floorboards and carpets with ceramic tile, vinyl, rubber, or other flood-resistant materials. Use moveable rugs instead of fitted carpets.
- Replace internal walls and ceilings with flood-resistant material such as lime plaster, cement board, concrete, or pressure-treated and decay-resistant wood.
- Replace wooden doors and window frames with metal or other flood resistant options.
- Raise electrical system components.
- Increase the height of electric service panels (fuse and circuit breaker boxes) and all outlets, switches, and wiring to at least 1 foot above the potential flood elevation. These modifications should be made by a licensed electrician.

Protect utilities and service equipment.

- Move the main parts of your heating, ventilation, and air conditioning (HVAC) systems to a higher floor or the attic. Consider raising other major appliances, such as washers, dryers, and hot water heaters, above the ground floor. If relocation or elevation is not possible, you can protect service equipment in place using low floodwalls and shields. Alternative options such as replacing traditional hot water heaters with tankless units should also be considered.
- Anchor indoor/outdoor fuel tanks. Anchor fuel tanks by attaching them to a large concrete slab that weighs enough to resist the force of floodwaters.

Install a flood alert system.

- A variety of flood sensors and other early warning devices can alert you to the risk of imminent flooding so that you can take preventative or protective actions before extensive damage occurs.

FLOOD PREPAREDNESS

You may be able to take additional actions immediately before an expected flood event that will prevent or reduce flood damage to your home:

- Activate flood protection devices (turn on sump pumps, close backflow valves, etc.).
- Shut off electricity at the breaker panel.

3.2 RECOVERY PLANNING

- Safeguard important paperwork and move furniture, rugs, electronics, and other valuable belongings to upper floors, or at least off the floor of the ground level.
- Elevate major appliances onto concrete blocks.
- Clean gutters, downspouts, and splash pads, along with any nearby drainage ditches or storm drains; clear snow and ice away from foundations.
- Deploy temporary flood barriers, such as portable flood gates or shields, sandbags, inflatable floodwalls, and flood skirts.

Visit the following websites:

FEMA, Protect Your Property

www.fema.gov/protect-your-property

FEMA Region III, Mitigation Division

www.fema.gov/region-iii-mitigation

FloodSmart

www.floodsmart.gov

Read more detailed publications available from FEMA:

Homeowner's Guide to Retrofitting

www.fema.gov/media-library/assets/documents/480

Reducing Flood Risk to Residential Buildings That Cannot Be Elevated.

www.fema.gov/media-library/assets/documents/109669

Protecting Your Home and Property from Flood Damage.

www.fema.gov/media-library/assets/documents/21471

Protecting Building Utility Systems from Flood Damage.

www.fema.gov/media-library/assets/documents/3729

Protect Your Property from Flooding.

www.fema.gov/media-library/assets/documents/13261

Short-term and long-term recovery planning can be key to leverage available resources and ensure a successful recovery. Individuals, organizations, local governments, and state governments need to be aware of what steps to take immediately after an event and after the immediate risks have subsided. Preparation will reduce safety hazards and damages lost from an event, allowing communities to return to normal.

3.2.1 Federal Programs

EDA Disaster Recovery Planning

The U.S. Economic Development Association (EDA) can provide long-term recovery planning assistance under the authority of the Presidential Policy Directive – 8: National Preparedness. FEMA's National Disaster Recovery Framework establishes the Recovery Support Functions for state and federal agencies. EDA supports the community planning and capacity function as well as the economic function.

Long-term planning is vital to disaster-stricken regions. The technical assistance and financial assistance will help communities improve resiliency and avoid mistakes previously made.

https://www.eda.gov/programs/disaster-recovery/

FEMA Environmental Planning and Historic Preservation (EHP)

The EHP program ensures that historic preservation laws are also taken into account for all aspects of disaster response. FEMA has experts in historical preservation who provide assistance to historic communities.

https://www.fema.gov/office-environmental-planning-and-historic-preservation

DOE Energy Assurance Planning

The Office of Electricity Delivery & Energy Reliability (OE) provides technical assistance to state and local governments for energy assurance planning. Communities need to prepare for disasters that will cause challenges related to their energy sources. Once weaknesses are identified, local and state governments can work to improve functionality and redundancy. OE has provided grants in the past for assistance on matters relating to energy resiliency, but does not always have funding.

https://www.energy.gov/oe/services/energy-assurance/emergency-preparedness/state-and-local-energy-assurance-planning

3.2.2 State Programs

DCR Floodplain Management Program

The Floodplain Management Program was established by the Flood Damage Reduction Act of 1989. DCR serves as the coordinator of all flood protection programs and activities in the Commonwealth and is responsible for the statewide floodplain management plan.

The Floodplain Program serves as the state coordinating office for the NFIP and CRS. Floodplain staff assist communities with their floodplain ordinances and maps, provide floodplain workshops and trainings, and provide technical assistance and guidance. To assist with this role, DCR has several resources available to aid localities and other agencies including the Virginia Flood Risk Information System (VFRIS), Local

Floodplain Management Directory, training calendar, and a state model floodplain ordinance.

http://www.dcr.virginia.gov/floods

DCR Virginia Flood Risk Information System (VFRIS)

DCR, in collaboration with the Virginia Institute of Marine Science's Center for Coastal Resources Management, created VFRIS to best inform communities and property owners of their flood risk. It is a compilation of information available from FEMA, FWS, ESRI GIS, and Virginia GIS, making it easy for property owners to access all of this information in one place.

Educating the public helps prepare them to avoid hazardous situations. VFRIS helps communities, real estate agents, property buyers, property owners, and others discern an area's flood risk. Understanding this risk helps local officials better plan for development, and it helps property owners and others better understand flood insurance rates, potential flood mitigation options, as well as knowing where potential development restrictions will apply.

http://www.dcr.virginia.gov/dam-safety-and-floodplains/fpvfris

VDEM Local Emergency Recovery Plan

VDEM encourages communities to be proactive in planning for disaster response. They provide resources to support local communities and/or individuals develop a Disaster Recovery Plan.

The *Emergency Preparedness Handbook* which pertains to individuals and families can be accessed here:

http://vaemergency.gov/wp-content/uploads/drupal/Emergency-Preparedness-Handbook-VDEM-2016.pdf.

VDEM Emergency Management Grants

VDEM offers grants to improve preparedness and response. The funds are available to local governments and State Agencies.

http://www.vaemergency.gov/emergency-management-community/grants/

3.2.3 Non-Governmental Organizations/Volunteers

Recovery planning is essential for non-governmental organizations and volunteer groups in addition to national, state, and local governments.

These groups pay particular attention to managing volunteers and donations after a disaster. Each organization has processes in place to efficiently respond to those in need.

The National Voluntary Organizations Active in Disaster (VOAD) has created a guide for their member organizations and partners to streamline processes for long term recovery. VOAD resources could be helpful to local officials for managing groups and improve the working relationship between non-governmental and governmental organizations.

VOAD Long Term Recovery Guide:

https://mhyiy252svc3dxfu11iackq1-wpengine.netdna-ssl.com/wp-content/uploads/2014/05/long_term_recovery_guide_-_final_2012.pdf

Emergency alert systems can prepare residents and prevent harm to safety, physical damages, and economic damages. Alerts can be federal, state, or local depending on the affected area.

3.3 EFFECTIVE ALERT/WARNING SYSTEM

3.3.1 National Weather Service

The NWS has the sole federal statutory authority to issue flood watches and warnings to the public. The NWS issues flood outlooks (event expected within a 7-day period), watches (1 to 3 days in advance) advisories and warnings (minutes to 1-2 days in advance) via its AWIPS system. Flood products are disseminated by the NWS via variety of pathways: See http://www.nws.noaa.gov/nwws/#Products. Products are highlighted on NWS webpages and usually distributed through NWS social media platforms (Twitter and Facebook).

NWS Flood Products

Hazardous Weather Outlook (SAME code: HWO) – Issued routinely to highlight the likelihood of flooding (and other weather threats) and available on the web pages of the NWS Forecast offices.

Flood/Flash Flood Watch (FFA) – Flooding or flash flooding possible (50-80 percent chance of occurrence). Watches may be displayed by local media at their discretion and are sent to social media (Twitter, Facebook).

Flood Advisory (FLS) – An areal advisory (>80 percent likelihood of occurrence) provides information on elevated river/stream flow or ponding of water when such an event warrants notification of the public in a product less urgent than a warning. Disseminated through normal NWS channels and displayed by vendors and local media at their discretion.

Flood Warning (FLW) – Flooding is likely (>80 percent chance of occurrence) which may present a threat to life or property but not in the immediate future (generally >6 hr.). Flood Warnings may be for a specific official forecast point along a river or for more generalized areal flooding from ungauged streams or overland flooding.

Flash Flood Warning (FFW) – Short-term (generally < 6hr) flooding likely (>80 percent chance of occurrence) which presents an immediate threat to life and property. An FFW can trigger the Emergency Alert System (EAS) depending on state and local media policy. In addition, and perhaps more critically in the cell-phone era, is that an FFW will trigger a Wireless Emergency Alert (WEA) and is the only hydrologic product that will do so.

Flash Flood Emergency – (FFW or FFS) – In exceedingly rare situations, when a severe threat to human life and catastrophic damage from a flash flood in imminent or ongoing, the NWS may add a headline to a new or existing FFW for a 'FLASH FLOOD EMERGENCY'. Such headlines are used only when reliable sources have provided clear evidence that rapidly rising flood waters are placing or will place people in exceptional life-threatening situations.

3.3.2 Emergency Alert System (EAS)

The Emergency Alert System (EAS) allows the President of the United States direct access to the public via radio and television in case of a national emergency. The system can also be used by the NWS, states, and local governments for regional and local emergencies.

3.3.3 Virginia Emergency Alert System

The Commonwealth of Virginia has the *Commonwealth of Virginia Emergency Alert System Plan* to outline who has authority to implement the alert system, agencies that are involved, and how the alert system is activated.

The Commonwealth of Virginia is separated into areas as pertinent to the EAS. After following the appropriate procedures an emergency alert can be put out by the state government.

3.3.4 Local Alert Systems

Similar to the state alert process, the local government can also put out an emergency alert. Each locality should have a written procedure outlining their emergency alert standards.

3.4 SHELTERING

3.4.1 Shelter-in-place

Local officials should ensure that communities are prepared if conditions warrant sheltering-in-place. Although rare, conditions could create a

hazardous environment where driving or walking outside could pose safety risks. As part of the alert, officials should provide guidance on evacuation or sheltering-in-place.

If told to shelter-in-place, residents need to be prepared with food, water, and emergency supplies. Local officials need to ensure that the public has access to this information and are able to take the necessary steps when a disaster strikes. VDEM provides guidance on what supplies individuals should have in the *Emergency Preparedness Handbook:* http://vaemergency.gov/wp-content/uploads/drupal/Emergency-Preparedness-Handbook-VDEM-2016.pdf.

3.4.2 Public Shelters

Depending on the severity of an event, some residents may require public shelters. Shelters vary in type, length of stay, capacity, resources provided, vulnerability, and pet restrictions. Post-disaster shelters can be managed by different agencies and non-profit organizations. As part of the 2009 FEMA/USACE Hurricane Evacuation Restudy, VDEM is responsible for providing a list of available shelters along with their vulnerability to flooding. The 2009 Study will be updated in 2018.

If a disaster is imminent, the list of shelter locations and information about the shelters will be posted on the VDEM website:

http://www.vaemergency.gov/news-local

VDEM also provides resources related to sheltering on their website:

http://www.vaemergency.gov/get-involved/shelter-resource-lists

Volunteers can be influential in the timeliness and success of disaster relief efforts. Members of the community have skills that can be leveraged to support recovery, through hands-on support or helping behind the scenes. Local officials can help connect residents with volunteer organizations to improve participation in these groups.

Organizations have the resources and expertise to provide training and manage volunteers. Volunteers who are trained and effectively managed can safely help the victims within their community. The Community Emergency Response Team (CERT) Program can train individuals for immediate response. The VaVOAD (Virginia Voluntary Organizations Active in Disaster) can help potential volunteers connect with organizations active in their region and direct them to that organization's resources.

3.5 VOLUNTEER PREPARATION

3.5.1 Pre-Event Volunteer Training

Training increases effectiveness of volunteers and helps avoid putting addition strain on the volunteer organizations when a disaster occurs. Since the organizations can focus on deploying the volunteers rather than training after a disaster strikes, the response and recovery will be quicker.

3.5.2 How to Volunteer

Information is readily available online through all of the volunteer organizations' websites, which can be accessed through the VaVOAD. Potential volunteers can learn about what each organization does, how to get involved, receive training, and prepare to jump into action following a disaster.

3.5.3 Community Emergency Response Team

The CERT Program educates and trains community members about disaster preparedness and response. This is a national program, managed by local and state officials.

https://www.ready.gov/community-emergency-response-team

3.5.4 Non-Governmental Organizations/Volunteers Training

Many volunteer organizations will provide training to citizens who would like to get involved. Local governments should help promote the services offered to educate the public about flood risks and increase the number of volunteers that can help out after a disaster.

4 PRIOR TO AND DURING A FLOOD EVENT

4.1 STATUS INFORMATION

4.1.1 State Programs

Integrated Flood Observing and Warning System (IFLOWS)

VDEM operates a network of real-time rain and stream gages that supports the flood warning program of the NWS.

http://www.vaemergency.gov/emergency-management-community/emergency-management-resources/integrated-flood-observing-and-warning-systems-iflows

The data is available online at: http://virginiaiflows.mt-iv.com

VDOT 5-1-1 Virginia

511 Virginia provides real-time traffic information including street closures, road conditions, traffic, and construction. During a flood event, communities can use this resource to prevent unnecessary safety risk and limit damage.

Local officials should make sure residents are aware of this service. The service can be accessed on the website www.511virginia.org, in addition to

dialing 5-1-1.

4.1.2 Federal Programs

USGS Flood Event Viewer

The USGS stream gage network is the largest stream gage network in the United States, but even with over 8,000 real-time stations, more data is needed for certain storms. During large, short-term events, the USGS collects additional data (high water marks, additional sensor deployments) to aid in documenting high water events. This short-term event data is uploaded to the USGS Short-Term Network (STN) for long-term archival. The USGS Flood Event Viewer provides convenient, map-based access to storm-surge and other event-based data collected within the USGS STN.

https://water.usgs.gov/floods/FEV/

USGS Landslide Hazard Program (LHP)

Landslides often occur during and after flood events, amplifying the damage. The goal of the LHP is to increase understanding of landslides, provide information to communities at risk of landslides, and help communities respond to disasters. USGS conducts research on landslides and collects data pre- and post- landslide to improve understanding in order to mitigate effects in the future.

https://landslides.usgs.gov/aboutus

National Weather Service (NWS)

The NWS in Virginia is served by five (5) Weather Forecast Offices (WFOs): Wakefield (AKQ); Baltimore-Washington (LWX); Blacksburg-Roanoke (RNK); Morristown, TN (MRX) and Charleston, WV (RLX). The NWS issues Flood Outlooks, Watches, and Warnings when there may be a threat to life or property. These products are distributed through established pathways. Before and during a flood, the NWS products will be updated and disseminated distributed to the public and its constituents. The NWS also provides various levels of Information Decision Support Services (IDSS) to its core partners (Emergency management, federal, and state agencies).

https://www.weather.gov

In addition, four different NWS River Forecast Centers (RFCs) provide centralized river flood forecast guidance to the WFOs for parts of the state of Virginia:

The Middle Atlantic RFC - https://www.weather.gov/marfc/

Ohio River RFC - https://www.weather.gov/ohrfc/

Southeast RFC - https://www.weather.gov/serfc/

Lower Mississippi RFC - https://www.weather.gov/lmrfc/

NWS Climate Prediction Center (CPC)

NWS Advanced Hydrologic Prediction Service (AHPS)

River observations and official deterministic (single-value) forecasts are available through AHPS. Quality controlled observed precipitation data (a mix of radar and rain-gage based) is also available for the previous 24-hours and back as far as one year.

https://water.weather.gov/ahps/index.php

Ensemble river forecasts (multiple value) via the Hydrologic Ensemble Forecast System (HEFS) are also becoming increasingly available within AHPS which will provide probability-based forecasts for official forecast points.

NWS National Water Model (NWM)

The NWS Office of Water Prediction operates the NWM which is a hydrologic model that simulates observed and forecast stream flow over the entire continental U.S. Details on the NWM and access can be found at:

http://water.noaa.gov/about/nwm

National Hurricane Center (NHC)

Hurricanes, tropical storms and their remnants are perhaps the number one flood-producing threat in Virginia. The NHC is the official site for U.S. hurricane forecasting, including other resources such as storm surge products, outreach documents, storm reports, etc. The NHC also partners with FEMA's National Hurricane Program, participating with Hurricane Evacuation Studies and the Hurricane Liaison Team.

https://www.nhc.noaa.gov/

NWS Alerts

The National Weather Service issues alerts when there may be a threat to life or property. The alerts are distributed through established pathways. During a flood, the alerts will be updated and distributed to ensure that communities are up-to-date.

NWS StormReady

The National Weather Service (NWS) StormReady Program sets higher standards for local emergency managers to improve operations leading up to an imminent storm. Communities must apply to be certified StormReady. To be approved, a community must:

- Establish a 24-hour warning point and emergency operations center
- Have more than one way to receive severe weather warnings and forecasts and to alert the public
- Create a system that monitors weather conditions locally

- Promote the importance of public readiness through community seminars
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

To find out more information: https://www.weather.gov/stormready

FEMA Hurricane Liaison Team (HLT)

The HLT is a team of federal, state, and local emergency managers who have experience in handling hurricanes. The director of the NHC requests the HLT to provide accurate and timely information to all levels of government. Although the HLT is not making decisions, they enable those making decisions to best serve their communities.

USGS WaterWatch

WaterWatch is a web service hosting stream gage-based maps that show real-time stream flow conditions. The map highlights areas experiencing flood and/or high-flow conditions.

https://waterwatch.usgs.gov

DHS Office of Infrastructure Protection

The Office of Infrastructure Protection (IP) is responsible for identifying and managing threats to the Nation's critical infrastructure, including natural disasters. The IP provides information to the owners of the infrastructure (state, local, tribal, and territorial partners) as a threat is developing.

For more information, visit the IP website: https://www.dhs.gov/office-infrastructure-protection

To contact IP Region III: IPRegion3@hq.dhs.gov

4.1.3 Non-Governmental Organizations

NFPA Firewise

Firewise USA is a program that is co-sponsored by the National Fire Protection Association (NFPA), USDA, U.S. Department of the Interior, and the National Association of State Foresters to educate communities about wildfires and how to minimize losses. The Firewise Program also provides interactive mapping showing where wildfires are occurring and where there is risk of a wildfire. The resources and tools provided by Firewise can help educate community members and reduce costs. With respect to flooding, wildfires can drastically change the terrain and render the ground unable to absorb water. Even areas that do not typically flood, are now at risk for flash flooding and mudflows for up to five years after a wildfire.

4.2 EVACUATION

4.2.1 State Programs

Hurricane Evacuation Routes

VDEM and VDOT have evacuation routes that are identified in the *Virginia Hurricane Preparedness Guide.* Evacuation routes reduce chaos when there is an impending disaster.

Virginia Hurricane Preparedness Guide

This guide includes valuable information for residents that face the threat of a hurricane, including: preparation guidelines, emergency contact information, and evacuation routes. The guide can be found here: http://www.vaemergency.gov/wpcontent/uploads/drupal/HurricaneGuide15_ALTmap.pdf.

4.3 DISASTER DECLARATIONS

The type of declaration made for a particular disaster directly affects the recommended actions and programs available for the recovering communities. The process of declaring a disaster at local, state, and federal levels is important to understand when preparing for and responding to a disaster.

4.3.1 Authority to Declare Declarations

In the Commonwealth of Virginia, the Governor has authority to declare a state of emergency. For events that occur in specific jurisdictions, the affected jurisdiction's government can declare an emergency. The President of the United States can declare a state of emergency or major disaster after a state declares a state of emergency.

4.3.2 State Emergency Declaration Process

The Governor of Virginia can declare a state of emergency by executive order or with verbal announcement with the executive order to follow. The governor can request federal assistance if the damage warrants, but not all emergencies result in such a request and not all requests are approved by the President.

4.3.3 State of Virginia Threat Levels

In the Commonwealth of Virginia there are four threat levels. Each threat level has different legal and operational ramifications. The threat levels can apply to a variety of emergencies, not only natural disasters.

Routine

During a routine status level there is no state of emergency and there have been no requests for assistance from state and local agencies. It is possible that there are local incidents that require a local declaration of emergency.

In a routine threat level, the hurricane readiness condition is 5, which means it is hurricane season.

Increased Readiness

An increased readiness status level indicates that one or more localities may have made local emergency declarations and the Governor may have declared a state of emergency. This could also indicate an unusual event at a nuclear facility, a plausible terrorist threat, or another situation or threat resulting in the use of the Emergency Operations Plan. The hurricane readiness condition is 4, indicating there could be dangerous winds within 72 hours.

Response Operations

During response operations, there may be a State of Emergency or a federal disaster declaration for Virginia. The VEOC has added staff on a 24-hr schedule, the state's Emergency Operations Plan is in use, a probable terrorist event has been identified, and Virginia is participating in EMAC (Emergency Management Assistance Compact) or Statewide Mutual Aid activities. Hurricane Readiness Condition 3 meaning destructive winds could occur within 48 hours.

Recovery Operations

The recovery operations status means the VEOC is involved, but the status level will be decreased. This decrease in status level means the activities will be taken over by a Recovery Coordination Center or a Joint Field Office.

4.4 FEDERAL DECLARATION PROCESS

The federal emergency declarations are outlined in the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The President can make a major disaster declaration or an emergency declaration in order to provide assistance after a state governor has requested federal assistance.

4.4.1 Major Disaster Declaration

A major disaster declaration can be made for a natural event that the President determines has caused damage that the states and local governments are incapable of handling. This declaration provides federal assistance for individuals and public infrastructure.

4.4.2 Emergency Declaration

An emergency declaration can be made for any event when the President believes the state, local, and tribal governments require assistance. This amount is not to exceed $5 million without the consultation of Congress.

4.5 LOCAL DECLARATIONS

Localities may declare their own state of emergency in accordance with their laws and regulations. These may vary for each local government in the Commonwealth of Virginia. A local declaration would activate the Emergency Operations Plan.

5 IMMEDIATE NEEDS POST-EVENT

EMERGENCY MEASURES AND PROGRAM CROSSWALK					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
Debris Removal					
Federal Emergency Management Agency (FEMA)					
Public Assistance	6.1.1			X	
Emergency Protection measures					
Federal Emergency Management Agency (FEMA)					
Public Assistance	6.1.1			X	
U.S. Army Corps of Engineers (USACE)					
Nationwide Permits	6.1.3			X	
Emergency Power					
U.S. Army Corps of Engineers (USACE)					
Emergency Power	5.5.1			X	
Emergency Transportation Projects					
Federal Highway Administration					
Highway Emergency Relief (ER) Program	6.1.9			X	
FTA Emergency Relief (ER) Program	6.1.9			X	

5.1 SAFETY INFORMATION

Immediately following a flood event, safety information needs to be disseminated to the public. Local officials should distribute this information to local communities as the event occurs.

5.2 VOLUNTEER/NON-GOVERNMENTAL ORGANIZATIONS

5.2.1 Virginia Voluntary Organizations in Disaster (VaVOAD)

VaVOAD, a valuable resource for local governments, is a group of non-profit and faith-based organizations that can act after a disaster. The group is made up of four regional VOADs: South Center Virginia Regional, Southeastern Virginia Regional, Virginia Capital Area Regional, and Virginia Peninsula Regional. The VaVOAD connects all of its' participant organizations with local, state, and federal agencies.

https://vavoad.communityos.org/cms/

American Red Cross

American Red Cross provides disaster services including overnight shelter, health services, and distribution of food, water, and emergency supplies.

In addition to these services, American Red Cross also provides special services for the military. With a large military presence in parts of the state, members of the military should be aware that they can reach out to the Red Cross after an emergency.

http://www.redcross.org/local/virginia

Member	Website	Phone Number
FeedMore (Central Virginia Food Bank)	http://www.feedmore.com	804-521-2500
Fredericksburg Area Food Bank	http://www.fredfood.org	540-371-7666
Blue Ridge Area Food Bank	http://www.brafb.org	540-248-3663
Virginia Peninsula Food Bank	http://www.hrfoodbank.org	757-596-7188
Foodbank of Southeastern Virginia	http://www.foodbankonline.org	757-627-6599
Feeding America Southwest Virginia	http://www.faswva.org	504-342-3011
Capital Area Food Bank/Northern Virginia	http://www.capitalareafoodbank.org	703-541-3063

The Salvation Army

The Salvation Army provides disaster services to victims of natural disasters. Services they provide immediately following a disaster include food, emergency communications, shelter, medical services, and donation management. The Salvation Army leverages volunteers and donations to help those in need. The Salvation Army Team Emergency Radio Network (SATERN) helps disperse information immediately after a disaster.

http://virginiasalvationarmy.org/

Federation of Virginia Food Banks

The Federation of Virginia Food Banks represents a group of food banks across the state that can provide food and water for victims of disaster. The federation has seven regional food bank members:

United Way

United Way assists communities throughout Virginia during and after disasters. One valuable resource United Way offers is 2-1-1 to connect victims with local resources; this can be accessed over the phone or the computer: https://www.211virginia.org/consumer/index.php.

During major disasters, United Way creates specific fund to respond to the needs of a specific community. Through donations and volunteers in addition to existing United Way programs, the organization can make a dramatic difference in recovery efforts.

https://www.unitedway.org/

5.3 REGIONAL ASSISTANCE

Mutual Aid

Mutual Aid programs ensure that a region is equipped and prepared to respond to a disaster event. Some localities do not have the resources required to handle it themselves, so mutual aid enables the neighboring localities to support emergency operations.

5.4 STATE ASSISTANCE

5.4.1 Virginia Department of Emergency Management

Virginia Emergency Operations Center (VEOC)

The VEOC handles and responds to disasters across the Commonwealth of Virginia. It connects local, state, federal, non-profit, and private groups to appropriately respond to emergencies.

Initial Damage Assessments

To obtain a disaster declaration and to be eligible for FEMA disaster assistance, damage must be properly recorded. VDEM requires local emergency managers to submit a Cumulative Local Initial Damage Assessment Report (IDA) within 72 of the event. The IDA is a summary of all damages to the community including infrastructure, residences, and businesses. VDEM divides IDA into two groups based on the type of funding that would be required, one for FEMA IA and one for FEMA PA. IA pertains to private property and PA pertains to public property. An IDA does not replace the requirement for a Substantial Damage determination outlined in the local floodplain ordinance and the Virginia Uniform Statewide Building Code (USBC). See Section 7.1 for more information.

To help the public and local official estimate damage, VDEM provides guidelines pertinent to each type of assistance:

Guidelines for IA Damage Assessment: http://www.vaemergency.gov/wp-content/uploads/drupal/IA_Training_Aid_Table_color021507_0.pdf

Guideline for PA Damage Assessment: http://www.vaemergency.gov/wp-content/uploads/drupal/PA_guide_template_color021507_0.pdf

The IDA report can be submitted through phone, email, or web using WebEOC. Instructions for using WebEOC: http://www.vaemergency.gov/wp-

content/uploads/drupal/WebEOC_IDA_Report_Instructions_090408_0.pdf.

VDEM provides a form to record disaster damage via telephone from citizens and a form for local governments to record damage to infrastructure. Each of these forms and additional resources for damage assessment can be accessed here: http://www.vaemergency.gov/emergency-management-community/recovery-and-resilience/disaster-damage-assessment

5.4.1 Virginia National Guard

Occasionally, a disaster will be severe enough for the governor to mobilize the National Guard. Under the command of the governor, the National Guard can provide a variety of services to communities.

5.4.2 Virginia 2-1-1

This phone number can help connect victims of a disaster with resources such as shelters, reporting damage, food services, and debris cleanup. Virginia 2-1-1 can be accessed by dialing 2-1-1 or visiting: https://www.211virginia.org

The Virginia Department of Social Services provides this service in partnership with Council of Community Services, The Planning Council, and United Way.

5.5 FEDERAL ASSISTANCE

5.5.1 United States Army Corps of Engineers (USACE)

Emergency Power

The USACE can provide emergency power support to local and state governments in order to protect communities following a disaster. USACE can aid local communities through technical assistance, installation and operation of emergency generators, safety inspections and damage assessments of electrical distribution systems. Emergency power programs are coordinated with FEMA and Department of Energy (DOE).

The emergency power services provided by the USACE help keep vital infrastructure functioning, including hospitals, police stations, fire stations, and shelters. As the power is restored, USACE can remove the systems put in place and return communities to typical service.

5.5.2 United States Geological Survey (USGS)

USGS Flood Event Viewer

The USGS stream gage network is the largest stream gage network in the US, but even with over 8,000 real-time stations, more data is needed for certain storms. During large, short-term events, the USGS collects additional data (high-water marks, additional sensor deployments) to aid in documenting high-water events. This short-term event data is uploaded to the USGS Short-Term Network (STN) for long-term archival. The USGS Flood Event Viewer provides convenient, map-based access to storm-surge and other event-based data

collected within the USGS STN.

https://water.usgs.gov/floods/FEV/

5.5.3 U.S. Department of Transportation

FHWA Highway Emergency Relief (ER) Program

The ER Program allows the FHWA to use the Highway Trust Fund to perform repair or reconstruction to roads damages from a natural disaster. The disaster does not need to be presidentially declared. Roads eligible for ER are roads larger than local or minor collectors.

The funding provided by ER varies, but is capped at $100 million for each entity for each event. ER funding can be Traditional or Traditional (Expedited); Traditional takes six to ten weeks for application, but Traditional (Expedited) takes two to three weeks for an application.

For more information on FHWA's ER program:

https://www.fhwa.dot.gov/programadmin/erelief.cfm

FTA Emergency Relief (ER) Program

The FTA ER Program can help fund preemptive protection measures or repairs and replacement. Funds can also be used for evacuation, rescue operations, temporary service, or relocation. If Congress has appropriated funding for the FTA ER program, states, local governments, and transit authorities are eligible for 80 percent of the costs for capital and operating projects.

For more information visit the FTA website:
https://www.transit.dot.gov/funding/grant-programs/emergency-relief-program/emergency-relief-program

The FTA published *Emergency Relief Manual* to provide more information on response and recovery. It can be accessed here:

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Emergency_Relief_Manual_and_Guide_-_Sept_2015.pdf

5.5.4 Damage Assessments

Initial Damage Assessments

To obtain a state and federal disaster declaration and, therefore, qualify for many forms of disaster assistance, there must be significant damage to a community. Damage needs to be assessed, recorded, and reported up to the state as soon as possible after the event. FEMA, in addition to VDEM, provides guidelines for collecting data to ensure it is accurate, consistent, and efficient. See Section 5.4.1 for more information.

The *FEMA Damage Assessment Operations Manual* lays out roles and responsibilities of local governments and FEMA regional office members, identifies information to be captured, and establishes standard

processes for damage assessments. The document can be found here:

https://www.fema.gov/media-library-data/1459972926996-a31eb90a2741e86699ef34ce2069663a/PDAManualFinal6.pdf

Substantial Damage (SD) Assessments

FEMA provides guidelines for determining substantial damages to ensure it is accurate, consistent, and compliant with NFIP requirements. If a major disaster declaration occurs, FEMA staff may be deployed to assist with SD assessments, but it is the locality's responsibility to make SD determinations – see Section 7.1.

The Substantial Improvement/Substantial Damage Desk Reference outlines the roles and responsibilities of local governments, how to make a determination, including costs that must be considered, and sample notices and letters to property owners. The document can be found here:

https://www.fema.gov/media-library-data/20130726-1734-25045-2915/p_758_complete_r3.pdf

FEMA also developed a Substantial Damage Estimator (SDE) Tool to assist communities in estimating substantial damage for residential and non-residential structures in accordance with the requirements of the NFIP. The tool can be used to assess flood, wind, wildfire, seismic, and other forms of damage. DCR provides training on the SDE Tool in Virginia. The tool and user manual can be found here: https://www.fema.gov/media-library/assets/documents/18692

After a disaster, there is typically debris that can be hazardous. Removing debris allows communities to move forward with repairs and rebuilding. Communities can prepare prior to the event by establishing debris staging areas, creating a plan for disposal of debris (including contracting with local vendors), and communicating guidelines for individuals.

Non-profit organizations are active in debris removal in addition to providing resources for victims. The Salvation Army and the American Red Cross are two groups that provide this service.

5.6 DEBRIS REMOVAL

5.6.1 Temporary Debris Staging Areas

After a disaster, road conditions may be poor so it is important for local governments to identify areas where government workers and/or volunteers

5.6.1 Temporary Debris Staging Areas

After a disaster, road conditions may be poor so it is important for local governments to identify areas where government workers and/or volunteers can place debris temporarily.

5.6.2 Debris Management Planning

Local governments must have a plan for managing debris in case of an emergency. Debris can outlast the disaster itself and pose a continuous safety hazard. Local Hazard Mitigation Plans often have Hazus analysis for predicted debris totals based on hurricane or flooding scenarios. Hazus is a FEMA program that estimates potential losses from natural disasters.

5.6.3 Individuals' Debris

Citizens may have hazardous debris on their property. Government officials should be prepared to instruct their residents on how to clear their properties.

5.6.4 Floodplain Management Requirements

Immediately after a flood, property owners will want to quickly restore their properties and businesses to pre-flood conditions. It is important that the community first ascertain if the property is located in a regulated SFHA that will be subject to different permitting requirements than other parts of the locality. Debris removal is considered development in the SFHA and requires a floodplain permit. Structures must also have a substantial damage determination conducted before cleanup and repairs can be completed. See Section 7.1 for more information.

RECOVERY MEASURES AND PROGRAM CROSSWALK					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
Individual Financial Assistance					
Federal Emergency Management Agency (FEMA)					
Individual Assistance	6.1.1				X
Internal Revenue Service					
Casualty Loss Provisions	6.1.10				X
Rural Development					
Single Family Housing Repair Loans and Grants	6.1.4	X	X		X
Mutual Self-Help Housing Technical Assistance Grants	6.1.4	X	X		X
Small Business Association					
Disaster Loans Program	6.1.5				X
Commercial Financial Assistance					
Farm Service Agency (FSA)					
Emergency Conservation Program (ECP)	6.1.4				X
Emergency Farm Loans	6.1.4				X
Tree Assistance Program (TAP)	6.1.4				X
Non-insured Crop Disaster Assistance Program (NAP)	6.1.4				X
Rural Development					
Business and Industrial Loan Guarantees	6.1.4				X
Multi-Family Housing Rental Assistance	6.1.4				X
Small Business Association					
Disaster Loans Program	6.1.5				X
Community Development					
Federal Emergency Management Agency (FEMA)					
Hazard Mitigation Grant Program (HMGP)	6.1.1	X	X		X
U.S. Army Corps of Engineers (USACE)					
Continuing Authorities Program (CAP)	6.1.3	X	X		X

RECOVERY MEASURES AND PROGRAM CROSSWALK					
	SECTION	MITIGATION/ PLANNING	PREPARATION/ TRAINING	EVENT/ RESPONSE	RECOVERY
National Resources Conservation Service (NRCS)					
Emergency Watershed Protection (EWP)	6.1.4				X
Rural Development					
Community Facilities Direct Loan and Grant Program	6.1.4	X	X		X
Water and Waste Disposal Revolving Loan Funds	6.1.4	X	X		X
Department of Housing and Urban Development (HUD)					
Community Development Block Grant Disaster Recovery (CBDG-DR)	6.1.2				X
National Disaster Resilience Competition (CBDG-NDR)	6.1.2	X	X		X
U.S. Environmental Protection Agency					
Clean Water State Revolving Fund (CWSRF)	6.1.8	X	X		X
Drinking Water State Revolving Fund (DWSRF)	6.1.8	X	X		X
Infrastructure Rehabilitation					
U.S. Army Corps of Engineers (USACE)					
Rehabilitation and Inspection Program (RIP)	6.1.3				X
Federal Railroad Authority					
Railroad Rehab & Improvement Financing (RRIF)	6.1.9	X	X		X
Federal Aviation Authority (FAA)					
Airport Improvement Program	6.1.9	X	X		X

6.1 FEDERAL ASSISTANCE PROGRAMS

6.1.1 Federal Emergency Management Agency

Public Assistance (PA) Program

The FEMA PA Grant Program offers federal assistance to state governments, local governments, tribal governments, and private non-profit organizations. This assistance helps localities recover through debris removal, emergency protection measures, and restoration of public facilities and certain non-profit organization facilities. Federal funding is not less than 75 percent, while the state is up to 25 percent.

https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit

Individual Assistance Program

Individuals and families often suffer devastating losses during disasters. FEMA offers assistance after a presidentially-declared disaster to individuals or families whose homes were damaged.

https://www.disasterassistance.gov

Individual and Households Program (IHP) Assistance

The IHP is part of the FEMA Individual Assistance Program that provides financial assistance and services to those who have suffered damages related to an event. This program is 75 percent federal funded and 25 percent state funded.

https://www.fema.gov/individual-disaster-assistance

Hazard Mitigation Grant Program (HMGP)

The Hazard Mitigation Grant Program (HMGP) provides federal assistance following a disaster to complete projects that will lower the risk and cost of future disasters. FEMA offers the grants to states, tribes, and local communities after a disaster declaration. Since funding is limited, not all projects are funded. The projects that are selected are funded with up to 75 percent of federal money and 25 percent from state government, local government, or the individual.

https://www.fema.gov/hazard-mitigation-grant-program

Flood Mitigation Assistance (FMA) Program

The FMA Program, previously mentioned in the pre-flood event section, can also be used after a flood. After an event, there is new information and evidence of new risks due to the evolving problem of flooding. Grant funding from FEMA can be used to update local hazard mitigation plans post disaster, to keep them current and relevant.

FEMA requires hazard mitigation plans to be updated every five years in order for applicants to be able to receive non-emergency funding. Along with new hazards, the mitigation plan should be updated to prioritize effective

solutions and track progress on identified mitigation actions.

Local officials should consider new information when updating their hazard mitigation plans to ensure they have effective strategies in place for future events.

https://www.fema.gov/flood-mitigation-assistance-grant-program

6.1.2 Department of Housing and Urban Development

Community Development Block Grant Disaster Recovery (CDBG-DR)

The CDBG-DR Program provides grant funding to communities and states to rebuild areas affected by a presidentially declared disaster.

https://www.hudexchange.info/programs/cdbg-dr/

National Disaster Resilience Competition (CDBG-NDR)

This HUD Program allows communities to submit proposals that will help increase their resiliency against future natural disasters. The original program provided funding to communities affected by disasters between 2011 and 2013.

6.1.3 United Stated Army Corps of Engineers

Flood Plain Management Services (FPMS) Program

The FPMS Program was established by Section 206 of the 1960 Flood Control Act. This program is fully funded by the federal government and provides technical services to local, state, or tribal governments to improve floodplain management.

To receive assistance, the local, state or tribal government needs to request assistance through a letter providing background of the location and the issue. Then, the USACE will reach of to the local sponsor to develop a scope and move forward with the project.

Continuing Authorities Program (CAP)

The CAP program allows the USACE to plan, design, and implement certain water resources projects in conjunction with a local sponsor. This program and nine different legislative authorities for nine different types of projects, some of which specifically address long-term needs of communities affected by flood events:

- Streambank and Shoreline Protection - Section 14 of the Flood Control Act of 1946
- Hurricane and Storm Beach Erosion and Damage Control – Section 103 of the River and Harbor Act of 1962
- Flood Control – Section 205 of the Flood Control Act of 1948
- Snagging and Clearing for Flood Damage Reduction – Section 208 of the Flood Control Act of 1954

Each CAP project has two phases: feasibility and design/implementation. In order to begin the process, the local sponsor must submit a request for assistance letter describing the goal of the project and the sponsor's financial capability. If there is federal interest, the project will move forward with the creation of a Project Management Plan (PMP) and Federal Cost Sharing Agreement (FCSA). The feasibility phase will be concluded with a document, deciding how to move forward in the design and implementation phase.

Using the document produced during the feasibility phase, the USACE and the local sponsor will complete the work necessary for construction or implementation of the project.

Planning Assistance to States (PAS) Program

The PAS Program is authorized by Section 22 of the Water Resources Development Act of 1972 and allows the USACE to provide technical assistance to local, state, and tribal governments for a variety of water resources issues. Studies are often completed through this program to help communities with planning.

The local sponsor needs to submit a letter to request for assistance from the USACE, then the federal and local sponsor will work together to create a scope. The PAS Program is funded via cost-sharing where the local sponsor and the federal sponsor each fund 50 percent of the study.

Nationwide Permits

The USACE can issue Nationwide Permits (NWP) for activities that have minimal impacts on the environment. The permits cover a variety of activities, some of which could be needed after a disaster. With the implementation of a NWP 3 or NWP 13 repairs can be carried out to replace structures, fills or stabilize banks destroyed by storms, floods or other acts of nature. Individuals or localities should first coordinate emergency actions with local Corps offices in Virginia.

http://www.nao.usace.army.mil/Missions/Regulatory/Contacts.aspx

General Investigations (GI) Program

The USACE GI Program to work with a local sponsor to solve a water resource problem through a feasibility study and a construction project if the project has been determined to be feasible. The projects completed under this authority need to be authorized by Congress.

Rehabilitation and Inspection Program (RIP)

RIP helps provide assistance to local communities, ensuring their flood control infrastructure is working. If a feature is damaged during a flood and has become deficient, USACE can provide funding for repair.

National Levee Safety Program

The Levee Safety Program ensures the functionality of vital infrastructure to protect communities from flood risk. The National Levee Database hosts information about a majority of the levees in the country, including their inspection rating.

http://www.usace.army.mil/Missions/Civil-Works/Levee-Safety-Program/

Navigation Program

USACE manages waterways to maintain a safe transportation system. After a disaster, navigation projects may be required as certain pathways may have been compromised during the event.

http://www.usace.army.mil/Missions/Civil-Works/Navigation

6.1.4 U.S. Department of Agriculture

NRCS Emergency Watershed Protection (EWP)

The EWP provides financial and technical assistance for damages to infrastructure and land resulting from a natural disaster. This program does not require a presidential disaster declaration. Funds can be used for a variety of projects including stabilizing banks, disposing of debris, repair of levees and structures, repair of drainage system, vegetation, and other conservation practices.

A local sponsor must apply to the EWP program. Funding is not always available and project may only be partially funded.

https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/

NRCS Watershed Rehabilitation

NRCS provides funding to rehabilitate dams that are near the end of their 50-year design lives. Local project sponsors must request funding from NRCS after a specific project is identified. Dam failure will result in damage to public health and safety; rehabilitation can prevent and future failure.

The program includes financial and technical assistance from NRCS to create a watershed plan for the community. Project funding must be allocated after the local sponsor requests assistance.

https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wr/

FSA Conservation Reserve Program (CRP)

The CRP pays farmers enrolled in the program to remove portions of their land from agricultural production and, instead, plant species to improve environmental health. The CRP has different initiatives, some of which apply directly to wetland and floodplains.

https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index

FSA Emergency Conservation Program (ECP)

The ECP funds repairs for farmers and ranchers that are results of natural disasters. The funds can also be used for the implementation of water conservation methods. Funding for the program is determined by Congress. The cost-share varies, but can be up to 90% federal and 10% local.

https://www.fsa.usda.gov/programs-and-services/conservation-programs/emergency-conservation/index

FSA Emergency Farm Loans

Emergency farm loans are available after a presidentially declared disaster. The funds can help farmers and ranchers rebuild and recover after a natural disaster. Loans may not exceed $500,000. To be eligible for production losses, the farmer must have lost 30% of their primary crop.

Farmers can apply directly to the FSA within eight months after the disaster.

https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/emergency-farm-loans/index

FSA Tree Assistance Program (TAP)

TAP provides financial assistance to orchardists and nursery owners that suffered damages from a natural disaster. To be eligible – the applicant's trees must have suffered more that 15 percent mortality. Applications must be submitted within 90 days of the disaster to FSA.

https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/tree-assistance-program/index

FSA Non-insured Crop Disaster Assistance Program (NAP)

NAP provides funds to farmers of non-insurable crops after low yields occurred due to a natural disaster. Financial assistance cannot exceed $125,000 per crop year.

https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/noninsured-crop-disaster-assistance/index

Rural Development (RD) Business and Industrial Loan Guarantees

The USDA guarantees loans for rural businesses to increase private lending. Loans are not specific to flood risk, but could be used for repairs to improve resiliency or for modernization.

https://www.rd.usda.gov/programs-services/business-industry-loan-guarantees

Rural Development Community Facilities Direct Loan & Grant Program

This program funds essential community facilities in rural areas. Similar to

other RD loan programs, funds could be used to reduce risk to the local community. Funds can be used for new facilities, facility upgrades, community support services, public safety services, educational services, and food systems.

https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program

Rural Development - Water & Waste Disposal Revolving Loan Funds

Rural areas often do not have the capital funds to improve their water and wastewater systems, but the USDA offers revolving loan funds to aid these communities. Funds can be used for pre-development costs for large projects and small capital improvement projects to improve water and wastewater infrastructure. States, localities, and nonprofits can apply for these funds.

https://www.rd.usda.gov/programs-services/water-waste-disposal-revolving-loan-funds

Rural Development Single Family Housing Repair Loans & Grants

The Single Family Housing Repair Loans & Grants (Section 504 program) provides loans to low-income rural homeowners for repair or modernization. The program also provides grants to elderly, low-income homeowners to fix safety issues. The maximum loan available is $20,000 while the maximum grant is $7,500.

https://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants

Rural Development Mutual Self-Help Housing Technical Assistance Grants

Self-Help Housing Grants provide funding to organizations to supervise the construction of homes for low-income individuals in rural areas. The funds cannot be used for construction materials, labor, or real estate. This program can help very-low income and low-income groups build resilient homes that are safe.

https://www.rd.usda.gov/programs-services/mutual-self-help-housing-technical-assistance-grants

Rural Development Multi-Family Housing Rental Assistance

This program makes payments to owners of Rural Rental Housing or Farm Labor Housing on behalf of tenants. To apply, owners should contact the local RD office.

https://www.rd.usda.gov/programs-services/multi-family-housing-rental-assistance

6.1.5 Small Business Association (SBA)

Disaster Loans Program

The SBA provides four types of disaster loans for those affected by declared disasters. These low-interest loans can be used by individuals and businesses for economic or physical recovery.

Types of loans include: Home and Personal Property Loans, Business Disaster Loans, Economic Injury Disaster Loans, and Military Reservists Economic Injury Loans.

https://www.sba.gov/funding-programs/disaster-assistance

6.1.6 National Oceanic and Atmospheric Administration

Virginia Sea Grant

The Virginia Sea Grant (VASG) is a regional branch of NOAA's National Sea Grant Program. NOAA works with seven local universities – George Mason University, James Madison University, Old Dominion University, University of Virginia, Virginia Commonwealth University, College of William and Mary (Virginia Institute for Marine Science), and Virginia Tech University - to carry out missions including research, education, and outreach to better understand and protect coastal and marine resources.

Although funding varies annually, VASG provides funding for research and projects that pertain to their mission. VASG operates in four focus areas: healthy coastal ecosystems, sustainable fisheries & aquaculture, resilient communities & economies, and environment literacy & workforce development.

These are competitive grants and are not specific to flood risk, but the funding could be used for research, projects, education, or outreach relating to flood risk.

For more information visit the VASG website: https://vaseagrant.org.

6.1.7 National Science Foundation

National Science Foundation Grants

The National Science Foundation (NSF) manages The Humans, Disasters, and the Built Environment (HBDE) Program, which provides funding for research related to communities and environments with disasters and/or hazards. Similar to VASG, local universities carry out any research for the program.

These grants have been used in Virginia in the past for projects related to evacuation and critical infrastructure. Leveraging academia can improve understanding and data without utilizing extensive local government resources.

These programs are competitive and funding varies. For more information about the NSF HBDE program:

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13353

6.1.8 U.S. Environmental Protection Agency

Clean Water State Revolving Fund (CWSRF)

The CWSRF supports a variety of projects to improve water quality. Each state manages their revolving loan funds – Virginia has the Virginia Clean Water Revolving Loan Fund (VCWRLF). Local and state officials can submit water infrastructure projects for funding from the VCWRLF through the Virginia Department of Environmental Quality (DEQ).

For information on the CWSRF, visit: https://www.epa.gov/cwsrf/learn-about-clean-water-state-revolving-fund-cwsrf

For information on the VCWRLF, visit: http://www.deq.virginia.gov/Programs/Water/CleanWaterFinancingAssistance.aspx

Drinking Water State Revolving Fund (DWSRF)

The DWSRF provides loans and other financing options for water infrastructure projects. The DWSRF is managed at a state level by Virginia Department of Health (VDH).

Information from EPA can be accessed here:

https://www.epa.gov/drinkingwatersrf

Information from VDH can be accessed here: http://www.vdh.virginia.gov/drinking-water/financial-construction-assistance-programs/drinking-water-funding-program-details/

6.1.9 U.S. Department of Transportation

FHWA Highway Emergency Relief (ER) Program

The ER Program allows the FHWA to use the Highway Trust Fund to perform repair or reconstruction to roads damages from a natural disaster. The disaster does not need to be presidentially declared. Roads eligible for ER are roads larger than local or minor collectors.

The funding provided by ER varies, but is capped at $100 million for each entity for each event. ER funding can be Traditional or Traditional (Expedited); Traditional takes six to ten weeks for application, but Traditional (Expedited) takes two to three weeks for an application.

For more information on FHWA's ER program:

https://www.fhwa.dot.gov/programadmin/erelief.cfm

FTA Emergency Relief (ER) Program

The FTA ER Program can help fund preemptive protection measures or

repairs and replacement. Funds can also be used for evacuation, rescue operations, temporary service, or relocation. If Congress has appropriated funding for the FTA ER program, states, local governments, and transit authorities are eligible for 80 percent of the costs for capital and operating projects.

For more information visit the FTA website: https://www.transit.dot.gov/funding/grant-programs/emergency-relief-program/emergency-relief-program

The FTA published *Emergency Relief Manual* to provide more information on response and recovery. It can be accessed here:

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Emergency_Relief_Manual_and_Guide_-_Sept_2015.pdf

FRA Railroad Rehab & Improvement Financing (RRIF)

The RRIP program allows the FRA Administrator to provide loans to finance acquisition, rehabilitation, refinancing, and new intermodal or railroad facilities. Although the program is not specific to disaster recovery, the assistance may be valuable if damage occurred. The loans can account for up to 100% of the project with repayment periods up to 35 years.

The program is available to railroads, state governments, local governments, and a combination of public-private entities. For more information: https://www.transportation.gov/buildamerica/programs-services/rrif

FAA Airport Improvement Program

The AIP offers grants to public and private agencies for airports that are in the *National Plan of Integrated Airport Systems.* Eligible Virginia airports can be found here: https://www.faa.gov/airports/planning_capacity/npias/reports/media/NPIAS-Report-2017-2021-Appendix-B-Part-6.pdf

Grants can be used for planning and development purposes. Funding varies for the size of airport; small airports can receive 90-95 percent of costs, while medium and large airports can receive 75 percent.

For more information: https://www.faa.gov/airports/aip

6.1.10 Internal Revenue Service (IRS)

Casualty Loss Provisions

Victims of a disaster can claim casualty losses on personal property. If the loss is from a presidentially declared disaster, the deduction can be made on the prior-year return. A victim can use Form 4684 to determine losses. More information and for 4684 can be found here:

https://www.irs.gov/credits-deductions/individuals/deducting-casualty-disaster-and-theft-losses-at-a-glance

6.1.11 U.S Department of Labor

Disaster Unemployment Assistance (DUA) Program

The DUA Program provides health benefits for those who lost their jobs as a result of a presidentially declared disaster. This can include loss of job, injury, inability to reach work, damage to workplace, or death of head of household. Once it is announced that DUA is available, individuals have 30 days to file a claim.

https://www.benefits.gov/benefits/benefit-details/597

6.2 STATE ASSISTANCE PROGRAMS

6.2.1 DCR

DCR Floodplain Management Program

The Floodplain Management Program was established by the Flood Damage Reduction Act of 1989. DCR serves as the coordinator of all flood protection programs and activities in the Commonwealth and is responsible for the statewide floodplain management plan.

The Floodplain Program serves as the state coordinating office for the NFIP and CRS. Floodplain staff assist communities with their floodplain ordinances and maps, provide floodplain workshops and trainings, and provide technical assistance and guidance. To assist with this role, DCR has several resources available to aid localities and other agencies including the Virginia Flood Risk Information System (VFRIS), Local Floodplain Management Directory, training calendar, and a state model floodplain ordinance.

http://www.dcr.virginia.gov/floods

Dam Safety Program

The Dam Safety Program ensures proper and safe design, construction, operation, and maintenance of dams to protect public safety within the Commonwealth of Virginia. The program requires all dams of regulatory size apply for an Operation and Maintenance Certificate. To receive a Regular Operation and Maintenance Certificate, the owner must have include an assessment of the dam by a licensed professional engineer and an Emergency action Plan. If a dam has a deficiency but does not pose imminent danger to public safety, a Conditional Operation and Maintenance Certificate may be issued to allow the owner time to correct the deficiency.

Dams are classified with a hazard potential depending upon the downstream losses anticipated in event of failure. Hazard potential is unrelated to the structural integrity of a dam. Rather, it is directly related to potential adverse

downstream impacts should the given dam fail. This program classifies dams into three categories based on hazard potential: high, significant, and low. To be compliance with regulations, dams must be inspected by a professional engineer at varying times. High hazard potential dams must be inspected every two years and significant hazard potential dams must be inspected every three years. Low hazard potential dams must be inspected every six years, unless the dam would only cause damage to the property of the owner of the dam.

6.3 REGIONAL ASSISTANCE PROGRAMS

6.3.1 Planning District Commissions (PDC)

Technical Assistance

Each PDC can assist local officials with their recovery needs. RPCs offer a variety services including regional planning, feasibility studies, emergency preparedness, data collection, grant application writing, and grant management. PDCs are familiar with the local environment, issues, and past solutions; they also collaborate with other PDCs and can provide different insight for a local issue.

The Virginia Association of Planning District Commissions (VAPDC) connects the 21 PDCs throughout Virginia to encourage idea sharing and coordination to improve the Commonwealth of Virginia.

The VAPDC website hosts information about each PDC and collaborative efforts. It can be accessed here: http://www.vapdc.org.

6.4 PRIVATE ASSISTANCE PROGRAMS

6.4.1 Virginia Environmental Endowment

The Virginia Environmental Endowment (VEE) offers the following grant programs:

- James River Water Quality Improvement Program
- Virginia Program
- Kanawha and Ohio River Valleys Program

Projects that receive grants from VEE must have matching funds and must meet the requirements for progress reporting. VEE grants are competitive and funding fluctuates. For information on project requirements and submission, visit the VEE website: http://www.vee.org.

7 DOCUMENTING THE DISASTER

7.1 DAMAGE ASSESSMENTS & PERMITTING

INITIAL DAMAGE ASSESSMENTS (IDA)

To obtain a disaster declaration and to be eligible for FEMA disaster assistance, damage must be properly recorded. VDEM requires local emergency managers to submit a Cumulative Local Initial Damage Assessment Report (IDA) within 72 of the event. The IDA is a summary of all damages to the community including infrastructure, residences, and businesses. VDEM provides assistance with IDAs – see 5.4.1 for more information.

Substantial Damage (SD) Determinations

In compliance with the local floodplain ordinance and the Virginia USBC, any structure that is located in the SFHA that is damaged (any cause) must be assessed to determine if it was substantially damaged. The local floodplain administrator and building official are responsible for this assessment.

Substantial Damage means 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% of the market value of the structure before the damage occurred. Work on structures that are determined to be substantially damaged is considered to be substantial improvement, regardless of the actual repair work performed.

> NOTE: 50% is the NFIP minimum threshold for substantial damage; localities may adopt a lower threshold or cumulative requirements in their local floodplain ordinance.

When a structure in the SFHA is substantially damaged, it must be brought into full compliance with the current floodplain ordinance and Virginia USBC requirements. It is important to capture the extent of damage BEFORE repairs or improvements are made to make an accurate determination, ensure compliance, and to make sure the property owners are fully aware of what will be necessary BEFORE they spend money on repairs. Local floodplain administrators can reach out to DCR or FEMA for further guidance.

Your community should have an administrative procedure for SD Determinations. It is important to know where the SFHA is in your community, approximately how many structures are there, what regulations apply, and who the necessary staff are to make SD Determinations before a disaster occurs. Coordinating with the emergency manager during the Initial Damage Assessment process to identify damaged structures in the SFHA can make the SD process more efficient.

Floodplain Development Permits

In accordance with the local floodplain ordinance, ALL development in the SFHA must be permitted. It is important to educate property owners on this requirement so they do not invest in repairs or improvements that may not be compliant, especially following a disaster.

Development, for floodplain permitting purposes, means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

This requirement CANNOT BE WAIVED because of a disaster. Other permits, such as building or zoning, may also be required. Local floodplain administrators can reach out to DCR or FEMA for further guidance.

7.2 STORING DATA

Data collection helps local communities prepare for future events by improving their basis for decision making. All data collected should be properly stored as soon as possible after the event so that it is not lost. Localities should make an effort to share data amongst themselves and possibly with other entities that may be interested. If data is appropriately stored and shared, an analysis can be completed and trends from the data will improve how communities prepare and react.

7.3 HIGH WATER MARKS

High water marks can help officials determine what areas were affected and to what extent. This information can help officials prioritize more susceptible areas or even perform targeted mitigation projects. To obtain high water marks, officials should make sure to take pictures, record levels, and record geographic points.

The USGS also maintains a national database that include high water mark information for many past flood events.

High water marks should correlate with those taken in the past to allow for appropriate comparison. Maintaining high water marks can also become a valuable educational tool for local governments in reminding their citizens about past flood events. In addition, collecting observed data helps to validate hydrologic and hydraulic modeling analyses.

For more information on identifying and preserving high water marks, see *Identifying and Preserving High Water Marks, a* USGS publication: https://pubs.usgs.gov/tm/03/a24/tm3a24.pdf.

7.4 NOAA/NWS STORM DATA

The NWS documents impacts (including loss of life, injuries and dollar damages) from floods and flash floods every month on a county-by-county basis. This data is gathered from local media sources, law enforcement, emergency management, spotters, amateur radio and the public. This data is available on-line from January 1996 to the present and in hard-copy (pdf) form back to January, 1959.

https://www.ncdc.noaa.gov/stormevents

This page intensionally left blank

8 CONTACT LIST

ORGANIZATION	PHONE	WEBSITE	SOCIAL MEDIA
FEDERAL			
FEMA	800-621-3362	https://www.fema.gov/	
FEMA - Region III	215-931-5500	https://www.fema.gov/region-iii-dc-de-md-pa-va-wv	
USACE - Norfolk District	757-201-7500	http://www.nao.usace.army.mil/	
HUD - Field Office			
SBA - Region III (Mid-Atlantic)	610-382-3092	https://www.sba.gov/offices/regional/iii	
SBA -Richmond District Office	804-771-2400	https://www.sba.gov/offices/district/va/richmond	
NWS - Baltimore/Washington D.C.	703-996-2200	https://www.weather.gov/lwx/	
NWS - Blacksburg	540-552-1401	https://www.weather.gov/rnk/	
NWS - Wakefield	757-899-4200	https://www.weather.gov/akq/	
NWS – Morristown, TN	423-586-3771	https://www.weather.gov/mrx	
NWS – Charleston, WV	304-746-0180	https://www.weather.gov/rlx	
USGS – Richmond Field Office	804-261-2600	https://www.usgs.gov/centers/va-wv-water	
Virginia NCRS	804-287-1691	https://www.nrcs.usda.gov/wps/portal/nrcs/site/va/home/	
STATE			
DCR	804-786-6124	http://www.dcr.virginia.gov	
VDEM - Headquarters	804-897-6500	http://www.vaemergency.gov/	
VDEM - Emergency Operations Center	804-674-2400	http://www.vaemergency.gov/	
REGIONAL			
Central Virginia Emergency Management Alliance	804-323-2033	http://www.richmondregional.com/CVEMA	
VOLUNTEER			
VaVOAD	N/A	http://www.vavoad.org	
Federation of Virginia Food Bank	804-521-2500	http://vafoodbanks.org/	
American Red Cross	800-733-2767		

5 COMMUNITY SECTION

EMERGENCY MANAGEMENT			
Phone:		Address:	
E-mail:		Website:	
FLOODPLAIN MANAGER			
Phone:		Address:	
E-mail:		Website:	
PUBLIC HEALTH			
Phone:		Address:	
E-mail:		Website:	
ROAD MAINTENANCE/CONSTRUCTION			
Phone:		Address:	
E-mail:		Website:	
PROPERTY ASSESSMENT AND TAX QUESTIONS			
Phone:		Address:	
E-mail:		Website:	
HUMAN SERVICES AND HOUSING			
Phone:		Address:	
E-mail:		Website:	
SOLID WASTE DEPARTMENT			
Phone:		Address:	
E-mail:		Website:	
POLICE DEPARTMENT			
Phone:		Address:	
E-mail:		Website:	
BUILDING CODES/INSPECTIONS			
Phone:		Address:	
E-mail:		Website:	
PLANNING/ZONING			
Phone:		Address:	
E-mail:		Website:	
FIRE DEPARTMENT/EMS			
Phone:		Address:	
E-mail:		Website:	

APPENDIX A: COMMONLY USED ABBREVIATIONS

AHPS	Advanced Hydrologic Prediction System
AWIPS	Advanced Weather Interactive Processing System
CERT	Community Emergency Response Team
CRP	Conservation Reserve Program
CWRLF	Clean Water Revolving Loan Fund
DEQ	Virginia Department of Environmental Quality
DHS	U.S. Department of Homeland Security
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DWSRF	Drinking Water State Revolving Fund
ECP	Emergency Conservation Program
EDA	Economic Development Administration
EHP	Environmental and Historic Preservation
EMA	Emergency Management Agency
EMAC	Emergency Management Assistance Compact
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ESC	Emergency Services Coordinator
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHA	Federal Housing Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FIRM	Flood Insurance Rate Map
FSA	Farm Service Agency
FMA	Flood Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
HRPDC	Hampton Roads Planning District Commission
HUD	U.S. Department of Housing and Urban Development
IDA	Cumulative Local Initial Damage Assessment Report

IRS	Internal Revenue Service
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NSF	National Science Foundation
NWM	National Water Model
NWS	National Weather Service
PDM	Pre-Disaster Mitigation
PDC	Planning District Commission
RD	Rural Development
RFC	River Forecast Center
SBA	Small Business Administration
SFHA	Special Flood Hazard Area
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
VAVOAD	Virginia Voluntary Organizations Active in Disaster
DCR	Virginia Department of Conservation and Recreation
DSIS	Dam Safety Inventory System
VAPDC	Virginia Association of Planning District Commissions
VCWRLF	Virginia Clean Water Revolving Loan Fund
VDEQ	Virginia Department of Environmental Quality
VDEM	Virginia Department of Emergency Management
VDH	Virginia Department of Health
VEOC	Virginia Emergency Operations Center
VEE	Virginia Environmental Endowment
WFO	Weather Forecast Office

®