

Executive Summary

Background

The purpose of the Regional Natural Hazard Mitigation Plan is to prepare for natural disasters before they occur, thus reducing loss of life, property damage, and disruption of commerce. The Federal Emergency Management Agency (FEMA) requires such a plan as a condition for eligibility in certain mitigation grant programs. The plan applies to all jurisdictions in the Thomas Jefferson Planning District – Albemarle County, the City of Charlottesville, Greene County, Louisa County, Fluvanna County, Nelson County, and the Towns of Stanardsville, Louisa, Mineral, Scottsville, and Columbia. The original plan was adopted by all jurisdictions in 2006; the plan was updated in 2012, with FEMA approval on July 30, 2012 and formal adoption by all localities completed in December 2012. This is the five-year update, with a formal adoption date of March 23, 2018.

Sections of Plan

The following sections are included in the plan:

1. Introduction – overview of hazard mitigation generally.
2. Planning Process – the process through which the plan was developed, including public input.
3. Community Profile – general information about communities in the planning district.
4. Hazard Identification and Analysis – general information about potential hazards in the planning district, the historic record of hazard events, and the probability of future events.
5. Vulnerability Assessment – analysis of the impact hazards could cause, with estimated potential losses for various hazard scenarios.
6. Capabilities Assessment – survey of current local capacity to prepare for natural hazards.
7. Mitigation Strategies – goals, objectives, and action items selected to mitigate hazards identified.

Planning Process

The lead agency in the preparation of this plan is the Thomas Jefferson Planning District Commission. A Hazard Mitigation Working Group guided the preparation of this plan and will assume responsibility for monitoring the progress of implementation on an annual basis. The Working Group consisted of at least one representative from each locality. Working Group members represented the planning department, emergency management department, and/or Administration from each locality.

The following sources of stakeholder input were used:

- Regular meetings of the Hazard Mitigation Working Group.
- One public workshop
- An online survey

- Presentations to Local Emergency Planning Committees, Plan Review Committees, and work with local staff
- Recommendations from existing plans and documents.
- Public comment period of entire draft plan

Hazard Identification and Analysis/Vulnerability Assessment

All hazards in the region are ranked by this plan according to overall relative threat, which combines the probability of occurrence with the impact of an event. The Working Group reviewed the HIRA data and assigned values for each hazard at their meeting on October 5, 2016.

EVENT	PROBABILITY	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	RISK
	<i>Likelihood this will occur</i>	<i>Possibility of death or injury</i>	<i>Physical losses and damages</i>	<i>Interruption of services</i>	<i>Relative threat*</i>
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%
Hurricane/high wind/windstorms	3	3	3	3	100%
Flooding	3	1	3	2	67%
Winter storms/weather	3	1	1	3	56%
Wildfire	2	1	1	1	22%
Lightning	2	1	1	1	22%
Drought and extreme heat	2	1	1	1	22%
Dam failure	1	2	2	2	22%
Tornado	1	1	2	2	19%
Earthquake	1	1	2	2	19%
Landslide	1	1	1	1	11%
AVERAGE SCORE	1.90	1.30	1.70	1.80	34%

*Threat increases with percentage.

RISK = PROBABILITY * SEVERITY
0.34 0.63 0.53

The Hazard Identification section includes a description of all natural hazards that affect the region and provides analysis on their location, extent, severity, and probability of occurrence. The impact of a hazard can be thought of as the intersection between natural events and human settlement. Therefore, the Vulnerability Assessment considers both hazard patterns and current and future development patterns in the region, in order to fully measure vulnerability of human life and property to natural disasters. Mapping software developed by FEMA is used to quantify financial losses of various events deemed probable by the most current scientific consensus. Special attention is paid to critical facilities and infrastructure essential to disaster response and the continuity of crucial community services after a disaster.

Most data on hazards are derived from federal and state government sources, and data on development and critical facilities are derived primarily from local government sources. Results are presented in a series of maps and charts.

Mitigation Strategy

The following goals and objectives, grouped into five broad categories, are recommended by the plan:

Education and Outreach (E)

- GOAL: Increase awareness of hazards and encourage action to mitigate the impacts
 - OBJECTIVE: Educate families and individuals on disaster mitigation and preparedness
 - OBJECTIVE: Train key agency staff and volunteer groups in disaster mitigation and preparedness
 - OBJECTIVE: Train staff at schools and residential facilities in disaster mitigation and preparedness
 - OBJECTIVE: Encourage and equip employers to develop emergency action plans
 - OBJECTIVE: Protect sensitive areas through conservation practices

Infrastructure and Buildings (I)

- GOAL: Reduce the short and long-term impact of hazard events on buildings and infrastructure
 - OBJECTIVE: Diversify the energy system to provide multiple power source and fuel supply options
 - OBJECTIVE: Diversity the communications system to provide alternative lines for use during loss of capacity
 - OBJECTIVE: Diversify the transportation system by increasing connectivity and providing modal options
 - OBJECTIVE: Elevate, retrofit and relocate existing structures and facilities in vulnerable locations
 - OBJECTIVE: Construct or upgrade drainage, retention, and diversion elements to lessen the impact of a hazard

Whole Community (C)

- GOAL: Prepare to meet the immediate needs of the population during natural hazards
 - OBJECTIVE: Train staff to effectively communicate with and transport people regardless of their language proficiency and physical needs.

- OBJECTIVE: Ensure that the population can access emergency shelters in a timely manner and have functional needs met, in the event of a natural hazard

Mitigation Capacity (M)

- GOAL: Increase mitigation capacity through planning and project implementation
 - OBJECTIVE: Reduce property risks through planning, zoning, ordinances and regulations
 - OBJECTIVE: Incorporate mitigation planning concepts into local plans and ordinances
 - OBJECTIVE: Pursue funding to implement identified mitigation strategies

Information and Data Development (D)

- GOAL: Build capacity with information and data development to refine hazard identification and assessment, mitigation targeting and funding identification
 - OBJECTIVE: Identify data and information needs and develop methods to meet these needs
 - OBJECTIVE: Ensure that each critical facility has a disaster plan in place

Mitigation Action Items

A set of mitigation action items are designated for each locality to substantively further the objectives of the plan. The detailed list of action items includes the supporting goal, hazard to be mitigation, party responsible for implementation, timeframe of implementation, estimated cost, and potential funding sources. Furthermore, all action items are prioritized and listed in order from high, moderate, to low priority.

The following is an abridged list of action items for each jurisdiction and the Thomas Jefferson region:

Activity Code Activity Description

Thomas Jefferson Region	
RHE1	Provide a copy of the Regional Hazard Mitigation Plan to each library in the Jefferson-Madison Regional Library system
RME1	Conduct a public education program on disaster preparedness, leveraging existing materials and sharing resources regionally
RMD1	Identify locations for deposit of debris after a hazard

Albemarle County	
AHE1	Develop a Comprehensive fire safety communications/education strategy, addressing open space protection, the burn permit process, and “Ready, Set, Go Program” (Fire Wise workshops), and residential and business preparedness
AHE2	Increase the number of trained emergency responders, both staff and volunteers
AHI1	Implement recommendations from the Community Water Supply Plan, including water demand management/conservation and drought monitoring and management

AHM1	Incorporate this Regional Hazard Mitigation Plan into local comprehensive plans and Emergency Operations Plans
AHM2	Install fire mitigation measures, including dry hydrants, fire breaks, and fire rings.
AHD1	Continue to assess resistance of existing critical facilities to natural hazards
AHC1	Continue and expand the use of citizen alert systems
AME1	Ensure that all schools have regular disaster response drills
AME2	Continue to pursue conservation practices in sensitive areas, including flood-prone areas.
AMI1	Build or repair bridges so as not to impede floodways
AMI2	Upgrade bridges to support emergency vehicles
AMI3	Carry out physical security improvements to water and wastewater systems, which may include fencing, door hardening, window hardening, locks, bollards, cameras, signage, lighting, access control and intrusion detection.
AMI4	Procure technology equipment for Water/Wastewater system component inspections.
AMM1	Implement recommendations from Drought Plan
AMM2	Through the development process, discourage or disallow development in flood-prone areas
AMM3	Provide planning support for water and wastewater systems operational and integrated security management
AMM4	Seek financial support for an integrated regional camera and monitoring system, including research, planning, procurement, implementation, management and maintenance.
AMD1	Expand GIS data for use in mitigation planning, preparedness planning, and response activities
ALE1	Encourage property owners and residents to clear creek beds, storm drain inlets, ditches and channels, and to remove debris where flooding has increased.
ALE2	Ensure all houses and businesses have clear address signs that are visible during snowstorms and other emergencies
ALE3	Continue educational campaign about the benefits of open space and sensitive area protection.
ALC1	Increase the capacity to shelter in place in public buildings.
ALI1	Improve the maintenance of stormwater conveyance system.
ALI2	Implement Stormwater Management Plan to reduce floodwater and pollution discharge via stormwater systems.
ALI3	Maintain and Retrofit stormwater management basins/facilities including dam maintenance and upgrades
ALI4	Partner with utility companies to keep power lines free of vegetation
ALI5	Reduce pollution discharge via stormwater systems
ALI1	Reduce pollution discharge via stormwater systems
ALC1	Increase the capacity to shelter in place in public buildings.

ALE1	Continue educational campaign about the benefits of open space and sensitive area protection.
ALI1	Improve the maintenance of stormwater conveyance system.
ALI2	Implement Stormwater Management Plan to reduce floodwater and pollution discharge via stormwater systems.
ALI3	Maintain and Retrofit stormwater management basins/facilities including dam maintenance and upgrades
ALI4	Partner with utility companies to keep power lines free of vegetation

Town of Scottsville

ASMM1	Ensure all houses and businesses have clear address signs that are visible during snowstorms and other emergencies
ASMM2	Enforce removal of debris from the bank of the James River on a periodic basis, to comply with flood zone ordinance
ASLM1	Install a cameral to gauge the level of the creed at the pump station
ASLM2	Incorporate hazard mitigation plan into community plans

City of Charlottesville

CHE1	Provide training for building inspectors and code officials on mitigation techniques and hazard-resistant buildings.
CHE2	Ensure that all schools have regular disaster response drills.
CHI1	Implement recommendations from the Community Water Supply Plan.
CHM1	Incorporate hazard mitigation plan into community plans.
CHM2	Conduct Community Emergency Response Team (CERT) classes to equip individuals and groups to assist in the event of a disaster.
CHM3	Provide incentives to institutions and homeowners for use of low-flow appliances.
CHM4	Continue to expand use of citizen alert system.
CHM5	Implement recommendations from Drought Management Plan.
CHM6	Ensure that all shelters and public buildings have a battery-powered emergency radio and flashlight.
CME1	Support purchase of rain barrels
CMI1	Build or repair bridges so as not to impede floodwaters
CMI2	Add signage to roads in locations that frequently flood.
CMI3	Retrofit emergency service buildings for hazard resistance.
CMM1	Support volunteer groups and encourage collaboration on public outreach and education programs on hazard mitigation.
CMM2	Create a strategy for using existing media outlets for communications during a hazard event.
CLE1	Provide citizens with literature about flood and drought-smart landscaping.
CLE2	Create educational campaign about the benefits of open space and sensitive area protection.

CLI1	Improve the maintenance of stormwater conveyance system.
CLI2	Reduce pollution discharge via stormwater systems.
CLI3	Retrofit stormwater management basins

Fluvanna County

FHE1	Ensure all houses and businesses have clear address signs that are visible during snowstorms and other emergencies
FHE2	Carry out an educational campaign for businesses to develop emergency procedures and shelter-in-place plans
FHI1	Install warning signs and develop alternate routes for roads that flood briefly during heavy rains (e.g. Slaters Fork Road, Carysbrook, farm pond dam locations)
FHI2	Install new fire hydrants along new JRWA water line on east side of County
FHC1	Implement community notification protocols before, during, and after a disaster event
FHC2	Conduct regular disaster response drills in schools, and with staff at Assisted Living Facilities and Nursing Homes
FHC3	Continue and expand the use of citizen alert systems
FHM1	Develop a comprehensive fire safety communication strategy, addressing open space, burn permit, FireWise, and dry hydrants
FHM2	Adopt fire code
FHM3	Develop protocols and enforcement mechanisms for a burn ban
FHM4	Incorporate this Regional Hazard Mitigation Plan into local comprehensive plans and Emergency Operations Plans
FHD1	Develop a disaster plan for the Fork Union Sanitary District (FUSD)
FME1	Carry out a targeted educational campaign in subdivisions at high risk for fire impacts
FME2	Conduct tabletop exercises for damage assessments
FME3	Bring in experts to conduct in-house staff training in best management practices in hazard mitigation and preparedness
FME4	Offer training on post-event inspection and develop a protocol to serve as a mechanism for prioritization
FME5	Increase the number of trained emergency responders, both staff and volunteers
FME6	Conduct FireWise workshops
FME7	Provide educational information about burn laws permit process
FMI1	Identify vulnerable structures and apply for funding to implement acquisition and demolition, relocation, floodproofing, or structural retrofit projects
FMI2	Demolish and Remove remains of old surface water treatment plant located on TM 58 A 26 & 27(County-owned property)
FMI3	Remove +/-20,000 gallon water storage tank from James River.
FMC1	Continue campaigns like “Five-Dog Nights” in the county to distribute emergency kits/supplies to low-income and vulnerable populations
FMC2	Develop protocols and applications to communicate with individuals and households about emergency planning and shelter information (utilize Meals on Wheels lists and/or welfare check lists)
FMM1	Identify areas to receive debris from post-event clean-up efforts

FMM2	Develop evacuation plans for dam breaches from Charlottesville-area dams
FMD1	Expand GIS data for us in mitigation planning, preparedness planning, and response activities
FLE1	Promote CERT training opportunities available in the region to equip individuals and groups to assist in the event of a disaster
FLE2	Cross-train current volunteers across other County functional areas
FLI1	Identify repetitive loss properties, develop appropriate mitigation action, and apply for funding
FLC1	Develop County agreements (possibly with women's prison) for food services for county-supported shelters (including high school and Lake Monticello clubhouse)
FLM1	Develop Continuity of Operations Plans (COOP) for locality departments and update the plans annually
FLM2	Develop county-wide evacuation plans for catastrophic incidents

Greene County	
GHI1	Partner with utility companies to keep power lines free of vegetation
GHI2	Conduct structural evaluations of current and proposed shelters
GHI3	Install backup generators in shelters and critical facilities
GHI4	Enhance public safety emergency communications to provide reliable, dependable coverage
GHI5	Enhance access to broadband county-wide
GHC1	Assist the schools with regular disaster response drills and disaster planning
GHM1	Continue and expand use of citizen alert systems
GHM2	Provide training for building inspectors and code officials on mitigation techniques and hazard-resistant buildings
GHM3	Ensure all critical facilities have updated shelter-in-place plans
GHM4	Update driveway codes to allow access for emergency vehicles
GHM5	Routinely inspect fire hydrants
GHM6	Update local stormwater ordinances to be in compliance with statewide regulations
GHM7	Increase number of trained emergency responders
GHM8	Ensure that all shelters and public buildings have a battery-powered emergency radio and flashlight
GME1	Develop cooperative agreements between all agencies involved in emergency management, provide methods of communication between agencies responsible for being present at the Emergency Operations Center following a disaster, and conduct joint exercises
GME2	Conduct FireWise workshops (in conjunction with the Virginia Department of Forestry)
GMI1	Add signage to roads in locations that frequently flood
GMM1	Incorporate hazard mitigation plan into other applicable community plans
GMM2	Conduct Community Emergency Response Team (CERT) classes to equip individuals and citizens to assist one another in the event of a disaster
GMM3	Investigate safety and maintenance of roads in private communities
GMM4	Develop and implement a Drought Management Plan

GMD1	Standardize GIS data for use in mitigation planning
GMD2	Conduct channel improvement study
GMD3	Create a needs survey that identifies special needs population and residences and/or facilities needing attention in the event of emergencies or evacuations
GMD4	Ensure evacuation routes are upgraded to proper standards
GLE1	Develop an all-hazard resource center
GLI1	Retrofit emergency services buildings for hazard resistance
GLI2	Build and repair bridges so as not to impede floodwaters
GLI3	Ensure culverts, streams, channels, storm drains, and gutters remain clear of debris
GLI4	Install more dry hydrants in high wildfire risk areas
GLC1	Update the Greene County Emergency Operations Plan
GLM1	Adopt more stringent policy to discourage floodplain development
GLM2	Provide paid fire and rescue staff
GLM3	Ensure all structures have clear address signs that are visible during snowstorms

Town of Stanardsville	
GSHM1	Increase water capacity and pressure for the Town of Stanardsville to enable optimal emergency response
GSMC1	Partner with Greene County to provide a mobile pet shelter for use during hazard events
GSM1	Ensure all houses have clear address signs that are visible during snowstorms
GSLM1	Incorporate hazard mitigation plan into community plans

Louisa County	
LHI1	Enhance access to broadband internet in rural areas
LHI2	Install backup generators in shelters and critical facilities
LHI3	Implement recommendations from Water Supply Plan
LHI4	Ensure all shelters and public buildings have a battery-powered emergency radio & flashlight
LHC1	Ensure that all schools have regular disaster response drills
LHM1	Provide training for building inspectors and code officials on mitigation techniques and hazard-resistant building
LHM2	Continue and expand use of citizen alert systems countywide, including within Towns
LHM3	Increase number of trained emergency responders
LHM4	Develop driveway codes to allow emergency vehicle access
LHM5	Improve local capabilities to perform earthquake building safety evaluations and enforce building codes in high seismic hazard areas
LMI1	Put high water marks on bridges
LMC1	Create a needs survey that identifies special need homes or facilities needing attention in case of emergencies or evacuations
LMM1	Investigate safety and maintenance of roads in private communities

LMM2	Conduct Community Emergency Response Team (CERT) classes to equip individuals and groups to assist in the event of a disaster
LMM3	Ensure all houses have clear address signs that are visible during snowstorms
LMM4	Incorporate hazard mitigation plans into community plans
LMM5	Incorporate special needs populations into Hazard Mitigation and Emergency Operations Plans
LLE1	Provide more education about the burn permit process
LLE2	Create an educational program to help residents understand the benefits and costs of earthquake insurance
LLI1	Equip owners of historic properties that may be more susceptible to earthquake damage with information about retrofitting structures to improve earthquake resistance
LLI2	Add signage to roads in locations that frequently flood
LLD1	Track and map space available for pets at local SPCA and other animal shelters

Town of Louisa

LLHM1	Incorporate hazard mitigation plans into community plans
LLMM1	Ensure all houses have clear address signs that are visible during snowstorms
LLLI1	Bury utilities underground in town of Louisa

Town of Mineral

LMHM1	Incorporate hazard mitigation plans into community plans
LMMM1	Ensure all houses have clear address signs that are visible during snowstorms
LMLI1	Bury utilities underground in town of Mineral

Nelson County

NHI1	Install backup generators in shelters and critical facilities
NHM1	Continue and expand use of citizen alert systems
NHM2	Provide training for building inspectors and code officials on mitigation techniques and hazard-resistant building
NHM3	Conduct Community Emergency Response Team (CERT) classes to equip individuals and groups to assist in the event of a disaster
NME1	Conduct Firewise Workshops
NME2	Provide educational instruction and materials to school age youth and their teachers on proper procedures for responding to natural disasters
NMI1	Investigate safety and maintenance of roads in private communities
NMM1	Ensure all houses have clear address signs that are visible during snowstorms
NLE1	Ensure that all homeowners and businesses located in areas prone to landslides are aware of the risks and appropriate responses to an event
NLI2	Maintain and add more fire rings in camping areas for controlled fires

Activity Code Key

