

APPENDICIES

To be included in final document.

Appendix A Committee Meetings



Roanoke Valley-Alleghany

REGIONAL
commission

313 Luck Avenue, SW | Roanoke, Virginia 24016 | P: 540.343.4417 | F: 540.343.4416 | rvarc@rvarc.org

Regional Pre-Disaster Mitigation Plan Committee

Agenda

March 14, 2018

10 a.m.

1. Welcome and Introductions
2. Purpose of the Plan
3. Required Updates
4. Committee Membership
5. Schedule
6. Other Business

Roanoke Valley – Alleghany Region
Pre-Disaster Mitigation Plan Update



March 14, 2018

1

Purpose of the Plan

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Disaster Mitigation Act of 2000

- Amended the Robert T. Stafford Disaster Emergency Assistance Act.
- Established a national pre-disaster mitigation program at the state and local government level.
- Streamline disaster relief activities.
- Controls Federal costs of assistance.
- Coordination with all local interest groups.
- Identification of specific projects and actions.
- Links to the State planning process.

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Local Impact

- Places a new emphasis on mitigation planning at the local government level.
- Ties Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM) eligibility to plan approval.
- Local governments are required to develop and submit an adopted mitigation plan as a condition to receive HMGP or PDM funding.

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Hazard Mitigation Grant Program (HMGP)

The purpose of HMGP is to help communities implement hazard mitigation measures following a Presidential Major Disaster Declaration by enacting mitigation measures that reduce the risk of loss of life and property from future disasters. Must provide a long-term, cost-effective solution to avoid repetitive damage.

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Pre-Disaster Mitigation Program (PDM)

The PDM Program assists in implementing a sustained pre-disaster hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. This program provides opportunities for raising public awareness about reducing future losses before disaster strikes through planning and project grants.

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Local Impact

- In 2002 VDEM requested that PDCs take the lead in developing regional pre-disaster mitigation plans. The Roanoke Valley-Alleghany Regional Plan was approved by FEMA on March 29, 2006 and again on August 8, 2013.



Plan Update Process



Required Updates

Plan Requirements – Risks

- Identify all hazards and related risks
- Profile hazard events (type, location)
- Identify assets
- Assess vulnerability
- Estimate potential loss
- Analyze development trends

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Natural Disasters Identified

- Earthquake
- Flood
- Hurricane
- Karst
- Landslide
- Tornado
- Wildfire
- Winter Storm

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Extent, Occurrence, and Probability

- Natural Hazard Extent (localized or jurisdiction-wide impact)
- Natural Hazard Past Occurrences
- Natural Hazard Probability of Occurrence

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Probability of Hazard Occurrence

Locality	Earthquake	Flood	Hurricane	Straight Line Winds	Landslide	Tornado	Wildfire	Water Storm
Allegheny County	1	3	1	2	1	1	3	3
Bolehurst County	1	3	1	2	1	1	3	3
Town of Buchanan	1	3	1	2	1	1	2	3
Town of Clifton Forge	1	3	1	2	1	1	2	3
City of Covington	1	3	1	2	1	1	1	3
Craig County	1	3	1	2	1	1	3	3
Town of Fincastle	1	1	1	2	1	1	1	3
Town of Iron Gate	1	1	1	2	1	1	2	3
Town of New Castle	1	2	1	2	1	1	1	3
City of Roanoke	1	3	1	2	1	1	1	3
Roanoke County	1	3	1	2	1	1	3	3
City of Salem	1	3	1	2	1	1	1	3
Town of Trouville	1	3	1	2	1	1	2	3
Town of Vinton	1	3	1	2	1	1	1	3

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Probable Extent of Disaster

Locality	Earthquake	Flood	Hurricane	Straight Line Winds	Landslide	Tornado	Wildfire	Water Storm
Allegheny County	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Bolehurst County	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Town of Buchanan	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Town of Clifton Forge	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
City of Covington	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Craig County	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Town of Fincastle	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Town of Iron Gate	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Town of New Castle	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
City of Roanoke	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Roanoke County	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
City of Salem	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Town of Trouville	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide
Town of Vinton	Localized	Localized	Jurisdiction wide	Localized	Localized	Localized	Localized	Jurisdiction wide

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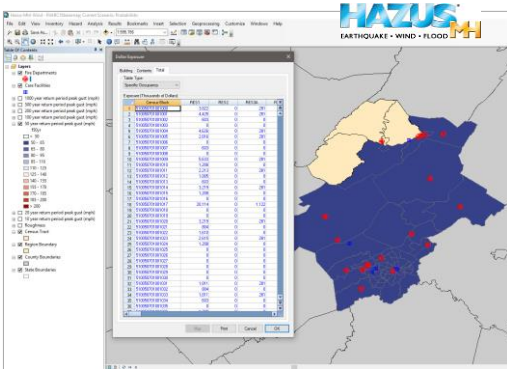
Past Hazard Occurrences

Locality	Earthquake	Flood	Hurricane	Straight Line Winds	Landslide	Tornado	Wildfire	Water Storm
Allegheny County	No	Yes	Yes	Yes	No	No	Yes	Yes
Bolehurst County	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Town of Buchanan	No	Yes	Yes	Yes	No	No	No	Yes
Town of Clifton Forge	No	Yes	Yes	Yes	Yes	No	No	Yes
City of Covington	No	Yes	Yes	Yes	No	No	No	Yes
Craig County	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Town of Fincastle	No	Yes	Yes	Yes	No	No	No	Yes
Town of Iron Gate	No	Yes	Yes	Yes	No	No	Yes	Yes
Town of New Castle	No	Yes	Yes	Yes	No	No	No	Yes
City of Roanoke	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Roanoke County	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City of Salem	No	Yes	Yes	Yes	No	Yes	No	Yes
Town of Trouville	No	Yes	Yes	Yes	No	No	No	Yes
Town of Vinton	No	Yes	Yes	Yes	No	No	No	Yes

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Hazard Inventory Mapping

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Damage Estimates

Allegheny County Flood Loss Estimate (unincorporated areas)

	Parels/Structures in Floodplain	Value of Structures in Floodplain	Structure Damage at 3 ft Flood depth	Contents Damage at 3 ft Flood Depth	Total Estimated Damage
Residential	630	\$35,966,900	\$12,859,077	\$7,018,142	\$19,877,119
Commercial	34	\$7,545,690	\$2,431,068	\$1,668,501	\$3,891,573
Total	664	\$46,309,500	\$15,282,135	\$8,482,562	\$23,764,697

Average Damage per Residential Structure in Floodplain: \$31,545
 Average Value per Residential Structure in Floodplain: \$57,182
 Average Damage per Commercial Structure in Floodplain: \$114,458
 Average Value per Commercial Structure in Floodplain: \$219,859

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NFIP Claims 1978-2011

Community Name	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments
Alleghany County	193	169	0	24	\$2,464,681
Botetourt County	216	189	0	27	\$2,659,948
Boydton, Town of	65	60	0	3	\$1,777,294
Clifton Forge, Town	9	8	0	1	\$74,846
Covington, City of	144	126	0	18	\$803,730
Craig County	99	72	0	27	\$1,300,627
Fincastle	0	0	0	0	\$0
Iron Gate	0	0	0	0	\$0
New Castle, Town of	4	4	0	0	\$32,441
Roanoke County	496	324	2	80	\$3,410,280
Roanoke, City of	1,015	815	0	200	\$18,313,284
Salem, City of	679	583	0	116	\$15,706,788
Trounville, Town of	9	5	0	4	\$9,534
Winton, Town of	89	60	0	29	\$1,252,000
Region	2,911	2,395	2	514	\$47,834,674
Total For Virginia	38,420	30,655	122	7,643	\$565,656,484

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Six Types of Mitigation Measures Considered

1. Prevention
2. Property Protection
3. Public Education and Awareness
4. Natural Resource Protection
5. Emergency Services
6. Structural Projects

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City of Salem Hazard Mitigation Projects

Project	Hazard Mitigated	Benefit	Cost Estimate	Benefit Hr-Cost	Priority	Funding Partners	Lead Agency	Status	Schedule
Flood hazard mapping update modernization	Flooding	Increased accuracy of flood maps	N/A	High	Medium	FEMA, VDEM	Local government	N/A	N/A
Reverse 911	All hazards	Reduced loss through improved warning system	\$85,000	High	High	FEMA, VDEM, Local Government	Local government, Fire & Emergency Services, Police, IT	N/A	2011-2016
Communication equipment interoperability	All hazards	Improved coordination among jurisdictions; improved response times; instant alerts	\$1,000,000 to 3,000,000	N/A	High	FEMA, Local government	Local government, Fire & Emergency Services, Police, IT	N/A	2011 - ?
Additional hazard related GIS layers/data	All hazards	Increased accuracy of hazard mitigation planning	\$50,000	High	High	USGS, NOAA, FEMA, VDEM, VDOT, VDOF, local	Local government, Engineering & Inspections	ongoing	ongoing
Participate in, and remain in good standing with, the National Flood Insurance Program (NFIP)	Flooding	Reduction of future flood damage through enforcement of floodplain ordinances and availability of discounted flood insurance for property owners	N/A	High	High	FEMA	Local government, Engineering & Inspections	ongoing	ongoing

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Plan Requirements – Adoption

Once VDEM & FEMA approve the final draft, the plan must be formally adopted by all participating jurisdictions in order to remain eligible for the Hazard Mitigation Grant Program and Pre-Disaster Mitigation Program.

VDEM encourages local governments to adopt this plan by resolution.

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Plan Requirements – Maintenance

- Coordinating Body Should Continue Meeting
- Implementation Through Existing Programs
- Evaluating and Updating the Plan
- Continued Public Involvement

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Committee Membership

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Pre-Disaster Mitigation Plan Committee

Ryan D. Matuszough
Director of Public Safety
Allegheny County

Daniel Murray
Emergency Manager
Botetourt County

Town Manager
Town of Buchanan

Barry G. Baiser
Chief of Police
Town of Clifton Forge

Dan Collins
County Administrator
Craig County

Robert Decardis
Emergency Services Coordinator
Craig County

Richard Douglas
City Manager
City of Covington

Eric Tyson
Emergency Management Coordinator
City of Covington

Marc Stone
Battalion Chief
City of Roanoke

Dwaina D'Ardonne
Storm-water Utility Manager
City of Roanoke

Danielle DeHart
CRS Coordinator
City of Roanoke

Ligh Anne Weitzenfeld
Water Quality Administrator
City of Roanoke

Dustin Campbell, Deputy Chief
County of Roanoke Fire & Rescue
Roanoke County

David Henderson, PE
County Engineer
Roanoke County

Charles Grant
City Engineer
City of Salem

Chris Linkous
Emergency Services Coordinator
Town of Vinton

Jonathan T. Simmons
All-Hazards Planner
VOSH Region 6

Mike Guzo
Disaster Response and Recovery Officer
VOSH Region 6

Nathan Melvin
Chair
Roanoke Valley LEPC

Joe Boswell
Senior Area Forester
Virginia Department of Forestry

Joby Timm
Forest Supervisor
George Washington & Jefferson National Forests

Marc Davis
Community Services Manager
Blue Ridge Independent Living Center

Phil Hyzell
Warning Coordination Meteorologist
National Weather Service

Peter Corrigan
Hydrologist
National Weather Service



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Schedule



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Additional Information

www.rvarc.org/disaster



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**Roanoke Valley-Allegheny Hazard Mitigation Plan Committee
Attendance Form
March 14, 2018**

Name	Agency / Company	Address	Phone	Email
ED WEUS	RWREC	PO BOX 2569 ROANOKE 24010	343-4417	eweus@rwrec.org
Matt Miller	RVARC	313 Luck Ave SW Roanoke 24016	343 4417	mmiller@rwarc.org
Danielle DeLaA	City of Roanoke Stormwater	1802 Courtland Rd NE Roanoke VA 24012	540-853-5915	danielle.deharte@roanokeva.gov
Leigh Wetzendorf	City of Roanoke Stormwater	"	540.853.5910	leighanne.wetzendorf@roanokeva.gov
Marc Stone	City of Roanoke Emergency Management	1701 713 Third St Roanoke, VA 24016	540.853.2426	marci.stone@roanokeva.gov
CHARLES GRANT	CITY OF SALEM	PO BOX 609 SALEM VA 24153	540 379-3032	cgrant@saalemva.gov
Jonathan Melvin	Roanoke Valley LERC	P.O. Box 660 Salem, VA 24153	540-632-9823	jmelvin@kilco.com
Jonathan Simmons	JOEM Region C	4504 Starkey Road Suite 100 Roanoke VA, 24018	804-314-1053	jonathan.simmons@dem.virginia.gov
Robert DeLuca	Craig County	PO box 308, New Castle, VA, 24127	835-7449	robert.deluca@tds.net
Ryan Muterspaugh	Allegheny County	9212 Winterberry Ave. Covington, VA 24424	540-863-6600	rmuterspaugh@co.allegheny.va.us



Roanoke Valley-Alleghany Hazard Mitigation Plan Committee Attendance Form March 14, 2018

Name	Agency / Company	Address	Phone	Email
ERIC THAYER	CITY OF COVINGTON	333 W. LOCUST ST COVINGTON, VA 24026	(540) 965-6356	erthayer@covington.vadocs
DANIEL MURRAY	BOYD COUNTY	205 N ROANOKE ST, FINCASTLE, VA 24090	540-765-3447	DANMURRAY@BOYDCOUNTYVA.GOV
DENNIS R. MCCARTHY	VA. DEPT OF FORESTRY	P.O. BOX 100 SALEM VA 24153	C 570 586 6801 O 570 987 8461	dennis.mccarthy@doF.virginia.gov
MIKE GURZ	VD EM	9517 Tunby Lane 24109 VA	804 516 5793	MIKE.GURZ@VD.EM.VA.GOV
! Tracey Stables	City of Roke	1802 Courtland Rke 24012	553-5100	dwayne.darden@roanokecountyva.gov
Dustin Campbell	County of Roanoke	5925 CURE RD ROANOKE, VA 24019	540-777-8715	dustin@roanokecountyva.gov
JAREK MONEIR	RKE COUNTY	5204 BERNARD DR. RKE VA 24018	540 772 2080	mmoneir@roanokecountyva.gov
DAVID HENDERSON	ROA COUNTY	" "	" "	dhenderson@roanokecountyva.gov
Chris Linkous	Town of Vinton	311 South Pollard St. Vinton, VA 24179	540-983-0624	clinkous@Vintonva.gov
ANITA MCMILLAN	TOWN OF VINTON	311 S. POLLARD STREET VINTON, VA 24179	540-983-0605	anemillan@vintonva.gov
Butch Workman	R. County	5204 Bernard Dr., R. Va. 24018	772-2037	butchworkman@roanokecountyva.gov
Peter Corrigan	NOAA/NWS	1750 Forecast Dr. Blacksburg, VA	540-552-1341	Peter.Corrigan@noaa.gov



Roanoke Valley-Alleghany

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313 Luck Avenue, SW | Roanoke, Virginia 24016 | P: 540.343.4417 | F: 540.343.4416 | rvarc@rvarc.org

Regional Pre-Disaster Mitigation Plan Committee

Agenda

April 11, 2018

10 a.m.

1. Welcome and Introductions
2. Review Past Hazard Events
3. Public Input Strategy
4. Other Business

Roanoke Valley – Alleghany Region Pre-Disaster Mitigation Plan Update

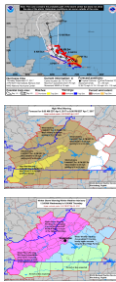


April 10, 2018

1

Natural Disasters Identified

- Earthquake
- Flood
- Hurricane
- Straight Line Winds
- Karst (remove?)
- Landslide
- Tornado
- Wildfire
- Winter Storm
- Other?



2

Presidential Disasters Declarations in VA Since 2010

- Smith Fire (FM-2860) on 2/19/2011
- Coffman Fire (FM-2861) on 2/19/2011
- Hurricane Irene (EM-3329) on 8/25/2011
- Hurricane Irene (DR-4024) on 9/2/2011
- Earthquake (DR-4042) on 11/3/2011
- Remnants of Tropical Storm Lee (DR-4045) on 11/16/2011
- **Severe Storms and Straight-line Winds (DR-4072) on 7/26/2012**
- **Hurricane Sandy (EM-3359) on 10/28/2012**
- **Hurricane Sandy (DR-4092) on 11/26/2012**
- Severe Winter Storm And Snowstorm (DR-4262) on 3/7/2016
- Hurricane Matthew (DR-4291) on 11/2/2016



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Past Hazard Occurrences

Locality	Earthquake	Flood	Hurricane	Straight Line Winds	Landslide	Tornado	Wildfire	Winter Storm
Allegheny County	No	Yes	Yes	Yes	No	No	Yes	Yes
Buckhannon County	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Town of Buckhannon	No	Yes	Yes	Yes	No	No	No	Yes
Town of Clifton Forge	No	Yes	Yes	Yes	Yes	No	No	Yes
City of Covington	No	Yes	Yes	Yes	No	No	No	Yes
Craig County	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Town of Fincastle	No	Yes	Yes	Yes	No	No	No	Yes
Town of Iron Gate	No	Yes	Yes	Yes	No	No	Yes	Yes
Town of New Castle	No	Yes	Yes	Yes	No	No	No	Yes
City of Roanoke	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Roanoke County	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City of Salem	No	Yes	Yes	Yes	No	Yes	No	Yes
Town of Fousville	No	Yes	Yes	Yes	No	No	No	Yes
Town of Vinton	No	Yes	Yes	Yes	No	No	No	Yes



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Outreach: Public Meetings

2003

- August 19th Fincastle Volunteer Fire Department
- August 21st Allegheny County Board Room
- September 2nd Craig County Governmental Building
- September 4th Roanoke County Library Headquarters



2011

- June 20th Fincastle Public Library
- June 22nd Clifton Forge Public Library
- June 23rd RVARC Conference Room



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- August 2018 -						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2 Allegheny W&S 8:00	3 RVWDB 9:00	4
5 Roanoke City Council 8:00 Roanoke City Council 8:00 Clifton Forge Lib 8:00 Buckhannon PC 7:00	6 Allegheny Bd 7:00 Clifton Forge Council 7:00	7 Allegheny Bd 7:00 Clifton Forge Council 7:00	8 A&EDC 12:00 Allegheny Co PC 5:30 RAJ Mtg Committee 10:00	9 RVVTC 1:30 Fincastle TC 7:00	10 BRCH 9:00 SLECC 11:30	11
12 13 CCB Report 12:00 Roanoke PC 1:00 Roanoke PC 1:00 Roanoke PC 1:00 Buckhannon Council 7:00 Salem Council 7:30	14 Roanoke Co Bus 9:00 Clifton Forge Council 6:30	15 Roanoke City EDA 8:00 RVWDB Target 9:00	16 RVWDB Dist 8:30 Roanoke Soc B.D 8:00 BRT Lib Council 7:30 Clifton Forge CD&C 3:00 RVWA 9:00	17 RVBA 8:30	18	19
20 Clifton Forge PC 4:30 New Castle Council 7:00 Roanoke City Council 8:00 Roanoke City Council 7:00	21 Clifton Forge PC 7:00 Clifton Forge PC 7:00	22 Clifton Forge Comm 4:00 RVARC 7:00	23 Regional Partnership 9:00 RVVTC 1:00 RVARC 3:00	24	25	26
27 Clifton Forge Finc Lib 8:00 Salem Council 7:30	28 Allegheny Chamber 12:00 Buckhannon Co Bus 3:00 Clifton Forge Council 7:00 Roanoke Co Bus 3:00 Roanoke Co Bus 7:00	29	30	31		



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Outreach: Social Media & Internet

- Facebook
- RVARC web site
- RVARC Monthly Newsletter
- Online Survey?





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Additional Information

www.rvarc.org/disaster



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**Roanoke Valley-Alleghany Hazard Mitigation Plan Committee
Attendance Form
April 11, 2018**

Name	Agency / Company	Address	Phone	Email
Ed Wells	RVARC	PO Box 2569 Roanoke VA	343-4417	ewells@rvarc.org
David Henderson	Roanoke County		632-9164	dhenderson@roanokecountyva.gov
Butch Workman	R. County	5204 BERNABO DR.	772-2037	butchworkman@roanokecountyva.gov
ANITA McMILLAN	VINTON	311 S. POLLARD ST. VINTON, VA 24179	983-0605	anitamcmillan@vintonva.gov
Chris Linkous	Vinton	311 S Pollard St Vinton, VA 24171	983-0629	clinkous@vintonva.gov
Eric Tyree	COVINGTON	333 W. LOCUST ST COVINGTON, VA 24426	(540) 965-6356	etyree@covingtonva.org
DANIEL MURRAY	BOYDSTOWN COUNTY FIRE-EMS	205 N ROANOKE ST, FINCASTLE, VA 24090	540-765-8467	DMURRAY@BOYDSTOWNVA.GOV
Ian Shaw	City of Roanoke	215 Church Ave, SW Roanoke, VA 24015	540-853-5808 540-853-5808	ian.shaw@roanokeva.gov
MARC DAVIS	B.R.I.L.C.	1502 B WILLIAMSON RD NE ROANOKE, 24012	342 1231 x 3006	mdavis@brilc.org
CHARLES GRANT	CITY OF SALEM	P.O. Box 809 Salem VA 24163	540-374 3032	cgrant@solemva.gov



Roanoke Valley-Alleghany Hazard Mitigation Plan Committee Attendance Form April 11, 2018

Name	Agency / Company	Address	Phone	Email
Dwayne Ardeman	City of Roanoke Stormwater	1802 Courtland Rd NE	853-5901	dwayne.clarke@roanokeva.gov
Danielle DeBart	City of Roanoke Stormwater	1802 Courtland Rd NE	853-5915	danielle.debate@roanokeva.gov
Matt Miller	AVARC		343-4417	mmiller@rvarc.org
Cecilia Anne Wertzfeld	City of Roanoke Stormwater	1802 Courtland Rd. NE	853.5910	leighanne.wertzfeld@roanokeva.gov
Jonathan Simms	VDEM RC	4504 Starkey Rd. Roanoke VA 24018	804-314-1053	jonathan.simms@vden.virginia.gov
Ryan Muterspaugh	Alleghany County	9212 Winterberry Ave. Covington VA	969-6338	rmuterspaugh@co.alleghany.va.us



Roanoke Valley-Alleghany

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Regional Pre-Disaster Mitigation Plan Committee

Agenda

May 9, 2018

10 a.m.

1. Welcome and Introductions
2. Review of Survey Forms
3. Inventory of Assets and Critical Facilities
4. Other Business

Roanoke Valley – Alleghany Region
Pre-Disaster Mitigation Plan Update



May 9, 2018

1

Outreach: Survey

General Public Survey Topics

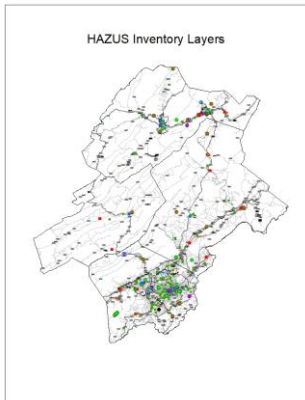
- Location
- Past Experiences
- Perceived Level of Risk
- Insurance
- Need for Assistance
- Need for Education
- Issues that Need Additional Attention

Government Staff Survey Topics

Locality



2



3

Critical Assets

- HAZUS data
 - Fire
 - Rescue
 - Police
 - Hospitals
 - Schools
 - Gas
 - Electric
 - Dams
 - Power Plants
 - Military
 - Haz-Mat Sites
 - Transportation
 - Water & Wastewater
 - Communications



4

CRS Subcommittee

- Current CRS Participants
- City of Roanoke
 - Roanoke County
 - Town of Vinton

- Localities interested in CRS
- >
 - >
 - >

Number of Representatives from each locality?
Meeting dates?



5

Additional Information

www.rvarc.org/disaster



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**Roanoke Valley-Allegheny Hazard Mitigation Plan Committee
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May 9, 2018**

Name	Agency / Company	Address	Phone	Email
Ed Wells	RVARC	PO Box 2569 Roanoke	343-4417	ewells@rvarc.org
Moist Miller	"	"	"	mmiller@rvarc.org
CHARLES GRANT	CITY OF SALEM	P.O. BOX 2669 SALEM VA 24153 713 Third St Roanoke VA 24016	377-3032	cggrant@salemva.gov
Marci Stone	City of Roanoke		853-2426	marci.stone@roanokeva.gov
Dwayne T. Ardene	City of Roanoke	1802 Courtland Rd NE	853-5900	dwayne.ardene@roanokeva.gov
Butch Workman	COUNTY OF ROANOKE		309-3531	butchworkman@roanokecountygov
Jim Cady	County of Craig	CATAUMBA, VA 24070 5418 Upper Strays Creek RD	804-6515	JimCady16@gmail.com
Dustin Campbell	County of Roanoke	5925 Cove RD. Rte, VA 24019	540-777-8705	dccampbell@roanokecountygov
Dennis McCarthy	VA DEPT. OF FORESTRY CITY OF CATAUMBA	PO BOX 100 SALEM VA 24153 333 W. LOCUST ST COURTOWN, VA 24426	640-588-6801 (640) 965-6356	dennis.mccarthy@doef.virginia.gov
Eric Tyree				ertyree@corinnon.virginia.gov



**Roanoke Valley-Allegheny Hazard Mitigation Plan Committee
Attendance Form
May 9, 2018**

Name	Agency / Company	Address	Phone	Email
Peter Corrigan	News Blacksburg	1750 Forecast Dr. Blacksburg, VA 24060	540-552-1341	peter.corrigan@roanokeva.gov
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Leygh Anne Wertzenfeld	City of Roanoke	1802 Courtland Rd NE Roanoke, VA 24012	540-853-5910	Leyghanne.Wertzenfeld@roanokeva.gov
ANITA MCMILLAN	TOWN OF VINTON	311 S. POLLARD STREET VINTON, VA 24179	540-983-0605	amcmillan@vintonva.gov
Chris Linkous	Town of Vinton	311 S. Pollard St Vinton, VA 24179	540-983-0629	clinkous@vintonva.gov



Roanoke Valley-Alleghany

REGIONAL
commission

313 Luck Avenue, SW | Roanoke, Virginia 24016 | P: 540.343.4417 | F: 540.343.4416 | rvarc@rvarc.org

Regional Pre-Disaster Mitigation Plan Committee

Agenda

July 11, 2018

10 a.m.

1. Welcome and Introductions

2. Review of Flood Loss Estimates

3. Review Survey Forms

4. Other Business

Chapter 4 Loss Estimation

Loss estimates were calculated for flooding only. Other disasters are too variable and widespread to determine any useful loss estimates.

Methodology for Flood Damage Estimates

The methodology for determining flood losses varied depending on the data available for each locality. Estimates were calculated for residential and commercial structures only. In most cases, 911-addressed structure data was available for each locality in a digital format. In Craig County, structures in the floodplain were identified by viewing aerial photos. Using the most recent version of the FEMA Digital Flood Insurance Rate Maps and local tax parcel maps, staff identified parcels associated with each structure in the 100 year floodplain. For most localities, the value of the structure was then calculated based on information from the local tax parcel database. In the Craig County and the City of Covington, estimated structure values were used. No structures were found in the Town of New Castle. Structures were separated by commercial and residential uses based on land use codes in the digital real estate databases, or by visual inspection on air photos. The top five values in each locality were reviewed to identify any anomalies that needed adjustment. For example, the parcel for Hollins University lists the value of all structures on campus when only two or three buildings are in the flood plain. Residential structure damage is based on a split level or two-story home with a basement at a flood depth of 3 feet which equates to a 33% of the structure value. Residential content damage is based on a two story or split-level home with a basement at a flood depth of 3 feet which equates to an 18% of structure value. Commercial Structure Damage is estimated at 33% and contents loss is estimated at 20% of structure value. In the City of Roanoke, adjustments were made to multi-story buildings in downtown and large buildings valued over \$5 million. Sixty-one structures were adjusted to 10 percent of their overall value. A handful of residential units in downtown were removed because they are more likely on upper floors. The water treatment plant in the City of Roanoke was not included in the analysis.

Damage estimates are for a county-wide event. They also assume a standard flood depth for each structure, which is an unknown variable unless a flood elevation is determined for each building based on topography and structure height. Likewise, the estimates include generalizations about the structure type and the contents. Furthermore, estimates do not include damage to other features such as roads, fences, utilities, stormwater features, dams, sheds, barns, livestock, and crops; nor do they include loss of use estimates.

Alleghany County (unincorporated areas)

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	664	\$24,171,500	\$7,976,595	\$4,350,870	\$12,327,465
Commercial	12	\$1,652,300	\$545,259	\$330,460	\$875,719
Total	676	\$25,823,800	\$8,521,854	\$4,681,330	\$13,203,184

Average Damage per Residential Structure in Floodplain: \$18,565
 Average Value per Residential Structure in Floodplain: \$36,403
 Average Damage per Commercial Structure in Floodplain: \$72,977
 Average Value per Commercial Structure in Floodplain: \$137,692

Botetourt County (unincorporated areas)

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	417	\$31,514,300	\$10,399,719	\$5,672,574	\$16,072,293
Commercial	43	\$14,444,200	\$4,766,586	\$2,888,840	\$7,655,426
Total	460	\$45,958,500	\$15,166,305	\$8,561,414	\$23,727,719

Average Damage per Residential Structure in Floodplain: \$38,543
 Average Value per Residential Structure in Floodplain: \$75,574
 Average Damage per Commercial Structure in Floodplain: \$178,033
 Average Value per Commercial Structure in Floodplain: \$335,912

Town of Buchanan

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	44	\$2,910,000	\$960,300	\$523,800	\$1,484,100
Commercial	25	\$4,353,700	\$1,436,721	\$870,740	\$2,307,461
Total	69	\$7,263,700	\$2,397,021	\$1,394,540	\$3,791,561

Average Damage per Residential Structure in Floodplain: \$33,730
 Average Value per Residential Structure in Floodplain: \$66,136
 Average Damage per Commercial Structure in Floodplain: \$92,298
 Average Value per Commercial Structure in Floodplain: \$174,148

Craig County (Unincorporated Areas)

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	118	\$9,440,000	\$3,115,200	\$1,699,200	\$4,814,400
Commercial	9	\$1,350,000	\$445,500	\$270,000	\$715,500
Total	127	\$10,790,000	\$3,560,700	\$1,969,200	\$5,529,900

Average Damage per Residential Structure in Floodplain: \$40,800
 Average Value per Residential Structure in Floodplain: \$80,000
 Average Damage per Commercial Structure in Floodplain: \$79,500
 Average Value per Commercial Structure in Floodplain: \$150,000

Town of Clifton Forge

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	55	\$1,819,500	\$600,435	\$327,510	\$927,945
Commercial	28	\$1,853,400	\$611,622	\$370,680	\$982,302
Total	83	\$3,672,900	\$1,212,057	\$698,190	\$1,910,247

Average Damage per Residential Structure in Floodplain: \$16,872
 Average Value per Residential Structure in Floodplain: \$33,082
 Average Damage per Commercial Structure in Floodplain: \$35,082
 Average Value per Commercial Structure in Floodplain: \$66,193

City of Covington

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	237	\$28,440,000	\$9,385,200	\$5,119,200	\$14,504,400
Commercial	35	\$8,750,000	\$2,887,500	\$1,750,000	\$4,637,500
Total	272	\$37,190,000	\$12,272,700	\$6,869,200	\$19,141,900

Average Damage per Residential Structure in Floodplain: \$61,200
 Average Value per Residential Structure in Floodplain: \$120,000
 Average Damage per Commercial Structure in Floodplain: \$132,500
 Average Value per Commercial Structure in Floodplain: \$250,000

Town of Fincastle

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	2	\$184,900	\$61,017	\$33,282	\$94,299
Commercial	2	\$300,000	\$99,000	\$60,000	\$159,000
Total	4	\$484,900	\$160,017	\$93,282	\$253,299

Average Damage per Residential Structure in Floodplain: \$47,150
 Average Value per Residential Structure in Floodplain: \$92,450
 Average Damage per Commercial Structure in Floodplain: \$79,500
 Average Value per Commercial Structure in Floodplain: \$150,000

City of Roanoke

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain*	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	547	\$48,409,900	\$15,975,267	\$8,713,782	\$24,689,049
Commercial	281	\$126,851,210	\$41,860,899	\$25,370,242	\$67,231,141
Total	828	\$175,261,110	\$57,836,166	\$34,084,024	\$91,920,190

Average Damage per Residential Structure in Floodplain: \$45,135
 Average Value per Residential Structure in Floodplain: \$88,501
 Average Damage per Commercial Structure in Floodplain: \$239,257
 Average Value per Commercial Structure in Floodplain: \$451,428

**Multi-story, high value structures values are adjusted*

Roanoke County (unincorporated areas)

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	410	\$43,473,800	\$14,346,354	\$7,825,284	\$22,171,638
Commercial	81	\$32,623,200	\$10,765,656	\$6,524,640	\$17,290,296
Total	491	\$76,097,000	\$25,112,010	\$14,349,924	\$39,461,934

Average Damage per Residential Structure in Floodplain: \$54,077
 Average Value per Residential Structure in Floodplain: \$106,034
 Average Damage per Commercial Structure in Floodplain: \$213,460
 Average Value per Commercial Structure in Floodplain: \$402,756

City of Salem

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	641	\$61,070,600	\$20,153,298	\$10,992,708	\$31,146,006
Commercial	361	\$146,439,900	\$48,325,167	\$29,287,980	\$77,613,147
Total	1002	\$207,510,500	\$68,478,465	\$40,280,688	\$108,759,153

Average Damage per Residential Structure in Floodplain: \$48,590
 Average Value per Residential Structure in Floodplain: \$95,274
 Average Damage per Commercial Structure in Floodplain: \$214,995
 Average Value per Commercial Structure in Floodplain: \$405,651

Town of Troutville

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	40	\$3,854,700	\$1,272,051	\$693,846	\$1,965,897
Commercial	26	\$3,216,900	\$1,061,577	\$643,380	\$1,704,957
Total	66	\$7,071,600	\$2,333,628	\$1,337,226	\$3,670,854

Average Damage per Residential Structure in Floodplain: \$49,147
 Average Value per Residential Structure in Floodplain: \$96,368
 Average Damage per Commercial Structure in Floodplain: \$65,575
 Average Value per Commercial Structure in Floodplain: \$123,727

Town of Vinton

	Parcels/Structures Number in Floodplain	Value of Structures in Floodplain	Damage		Total Estimated Damage
			To Structures at 3ft	To Contents at 3ft	
Residential	55	\$5,124,300	\$1,691,019	\$922,374	\$2,613,393
Commercial	34	\$6,900,300	\$2,277,099	\$1,380,060	\$3,657,159
Total	89	\$12,024,600	\$3,968,118	\$2,302,434	\$6,270,552

Average Damage per Residential Structure in Floodplain: \$47,516
 Average Value per Residential Structure in Floodplain: \$93,169
 Average Damage per Commercial Structure in Floodplain: \$107,564
 Average Value per Commercial Structure in Floodplain: \$202,950

Roanoke Valley-Alleghany Regional Commission
Hazard Mitigation Plan
Natural Hazards Survey
General Public

Thank you for taking time to answer this survey and participating in the Roanoke Valley-Alleghany Regional Commission's Hazard Mitigation Planning process. This survey is designed to help gauge household preparedness for disasters and knowledge of methods to reduce risk and loss from natural hazards. The information you provide will help improve public/private coordination of preparedness and risk reduction activities.

1. What locality is the property located in?

- Alleghany County
- Botetourt County
- Town of Buchanan
- Town of Clifton Forge
- City of Covington
- Craig County
- Town of Fincastle
- Town of Iron Gate
- Town of New Castle
- Roanoke County
- City of Roanoke
- City of Salem
- Town of Troutville
- Town of Vinton

2. Type of property:

- Residence
- Business
- Non-profit
- Government
- Institutional (education/religious)

3. Do you own or rent the property?

- Own Rent

4. In the past five years, which of the following natural disasters have impacted your property?

- | | | |
|---|------------------------------------|--|
| <input type="checkbox"/> Earthquake | <input type="checkbox"/> Flood | <input type="checkbox"/> Hurricane |
| <input type="checkbox"/> Karst/Sinkhole | <input type="checkbox"/> Landslide | <input type="checkbox"/> Straight Line Winds |
| <input type="checkbox"/> Tornado | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Winter Storm |
| <input type="checkbox"/> Other (specify)_____ | <input type="checkbox"/> None | |

5. How concerned are you about the following disaster affecting your locality?

	Extremely Concerned	Very Concerned	Somewhat Concerned	Not Concerned
Earthquake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hurricane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Karst/Sinkhole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landslide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Straight Line Winds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tornado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wildfire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Winter Storm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Have you ever received information about how to make your property safe from disasters?

- Yes No

7. If yes, how recently?

- Within the last six months
 Between 6 and 12 months
 Between 1 and 2 years
 Between 2 and 5 years
 5 years or more

8. From whom did you receive the information? (check all that apply)

- Local Government VDEM VA DCR VA DEQ
 FEMA News media Insurance agent Utility company
 American Red Cross Other (specify) _____

9. How do you, as a private property owner, prefer to receive information about how to prepare for natural disasters?

- Newspapers Television Social Media
 Radio Mail Apps
 Internet Fact Sheet/Brochure Accessible Formats (braille, audio)
 Chamber of Commerce Public Workshop/class Other _____

10. What steps, if any, have you taken to prepare for a natural disaster? (Check all that apply)

- Prepared a Disaster Supply Kit
 Designated a place to meet following a disaster
 Identified and discussed utility shutoffs
 Stocked up on supplies such as food, batteries, medical, and water.
 Wildfire Assessment of the property
 Building Safety Improvements (elevating HVAC, tornado safe room, installed flood vents, etc.)
 None

11. The hazard mitigation plan should not stand alone but be implemented through other local government documents and actions. Which of the following are most important for this purpose? (Check all that apply)

- Comprehensive Plan Zoning Ordinance Subdivision Ordinance
 Capital Improvement Plan Floodplain Ordinance Additional Hazard Mapping
 Stormwater Ordinance Transportation Plans Historic Preservation Ordinance
 Economic Development Plans Recreation Plans Other: _____

12. A number of community-wide activities can reduce the risk from natural hazards. How familiar are you of each of the following activities in your community?

Prevention Activities (building codes, open space preservation, Stormwater management regulations)

- Very Familiar Somewhat Familiar Not Familiar

Property Protection (property acquisition, floodplain protection, house relocation, critical facilities protection)

- Very Familiar Somewhat Familiar Not Familiar

Natural Resource Protection (land acquisition, floodplain protection, watershed management)

- Very Familiar Somewhat Familiar Not Familiar

Structural Projects (berms, floodwalls, stormwater ponds, streambank modification, elevating buildings)

- Very Familiar Somewhat Familiar Not Familiar

Emergency Services (warning systems, evacuation planning, government staff personnel training)

- Very Familiar Somewhat Familiar Not Familiar

Public Education and Awareness (outreach projects, speaker series, social media, partnerships with civic groups)

- Very Familiar Somewhat Familiar Not Familiar

13. Is your property located in the floodplain?

- Yes No Don't know

14. Does your property have flood insurance?

- Yes No Don't know

15. If not, what is the main reason for not having flood insurance?

- | | |
|--|---|
| <input type="checkbox"/> Not located in the floodplain | <input type="checkbox"/> Too expensive |
| <input type="checkbox"/> Not necessary | <input type="checkbox"/> Never considered it |
| <input type="checkbox"/> Deductibles too high/Not worth it | <input type="checkbox"/> Not familiar with it/don't know about it |
| <input type="checkbox"/> Other _____ | |

16. Do you know if you receive a discount on your flood insurance for the local government's participation in the Community Rating System (CRS)? [only applies to property owners in Roanoke County, the City of Roanoke and Town of Vinton]

- Yes No

17. Did you know that if the building is damaged, it has to be repaired based on the current building code?

- Yes No

18. Did you consider the possible occurrence of a natural hazard when you bought your current property?

- Yes No

19. Would you be willing to spend more money on a property that had features that made it more disaster resistant?

- Yes No

20. How much more money are you willing to spend to better protect your family and property from natural disasters?

- | | |
|--|---|
| <input type="checkbox"/> \$5,000 and above | <input type="checkbox"/> \$2500 to \$4999 |
| <input type="checkbox"/> \$1000 to \$2499 | <input type="checkbox"/> \$500 to \$999 |
| <input type="checkbox"/> \$100 to \$499 | <input type="checkbox"/> Less than \$100 |
| <input type="checkbox"/> None | <input type="checkbox"/> Don't know |

21. Which of the following incentives would motivate you to take additional steps to better protect your property from natural disasters?

- | | |
|--|--|
| <input type="checkbox"/> Insurance discount | <input type="checkbox"/> Low interest rate loan |
| <input type="checkbox"/> Lower new home construction costs | <input type="checkbox"/> Mortgage discount |
| <input type="checkbox"/> Tax break or incentive | <input type="checkbox"/> Increased safety of Occupants |
| <input type="checkbox"/> None | <input type="checkbox"/> Other (specify) _____ |

22. Other Comments:

*Thank you for providing this information.
Please leave the survey with a RVARC staff member or mail to the address below.*

For more information about the Pre-Disaster Mitigation Plan or this survey, please contact Eddie Wells, Roanoke Valley-Alleghany Regional Commission, P.O. Box 2569, Roanoke, VA 24010, Phone: 540-343-4417 or visit www.rvarc.org.

Roanoke Valley-Alleghany Regional Commission
Hazard Mitigation Plan
Natural Hazards Survey
Local Government Staff

Thank you for taking time to answer this survey and participating in the Roanoke Valley-Alleghany Regional Commission's Hazard Mitigation Planning process. This survey is designed to help gauge local government preparedness for disasters and knowledge of methods to reduce risk and loss from natural hazards. The information you provide will help improve public/private coordination of preparedness and risk reduction activities.

1. Which locality do you work for?

- Alleghany County
- Botetourt County
- Town of Buchanan
- Town of Clifton Forge
- City of Covington
- Craig County
- Town of Fincastle
- Town of Iron Gate
- Town of New Castle
- Roanoke County
- City of Roanoke
- City of Salem
- Town of Troutville
- Town of Vinton

2. Which Department do you work for?

- Administration
- Finance/Treasurer
- Water/Wastewater
- Stormwater
- Planning/Zoning
- Building Inspections
- Police Department
- Fire/Rescue Department
- Transportation
- Environmental
- Parks & Recreation
- School System
- Other (specify) _____

3. In the past five years, which of the following natural disasters have impacted your locality?

- Earthquake
- Flood
- Hurricane
- Karst/Sinkhole
- Landslide
- Straight Line Winds
- Tornado
- Wildfire
- Winter Storm
- Other (specify) _____
- None

4. How concerned are you about the following disaster affecting your locality?

	Extremely Concerned	Very Concerned	Somewhat Concerned	Not Concerned
Earthquake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hurricane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Karst/Sinkhole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landslide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Straight Line Winds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tornado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wildfire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Winter Storm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Have you ever received information about how to mitigate natural disasters?

- Yes No

6. If yes, how recently?

- Within the last six months
- Between 6 and 12 months
- Between 1 and 2 years
- Between 2 and 5 years
- 5 years or more

7. From whom did you receive the information? (check all that apply)

- Local Government
- FEMA
- American Red Cross
- VDEM
- News media
- Other (specify) _____
- VA DCR
- Insurance agent
- VA DEQ
- Utility company

8. How do you, as a government employee, prefer to receive information about how to prepare for natural disasters?

- Newspapers
- Radio
- Internet
- Chamber of Commerce
- Television
- Mail
- Fact Sheet/Brochure
- Public Workshop/class
- Social Media
- Apps
- Accessible Formats (braille, audio)
- Other _____

9. The hazard mitigation plan should not stand alone but be implemented through other local government documents and actions. Which of the following are most important for this purpose? (Check all that apply)

- Comprehensive Plan
- Capital Improvement Plan
- Stormwater Ordinance
- Economic Development Plans
- Zoning Ordinance
- Floodplain Ordinance
- Transportation Plans
- Recreation Plans
- Subdivision Ordinance
- Additional Hazard Mapping
- Historic Preservation Ordinance
- Other: _____

10. A number of community-wide activities can reduce the risk from natural hazards. How familiar are you of each of the following activities in your community?

Prevention Activities (building codes, open space preservation, Stormwater management regulations)

- Very Familiar
- Somewhat Familiar
- Not Familiar

Property Protection (property acquisition, floodplain protection, house relocation, critical facilities protection)

- Very Familiar
- Somewhat Familiar
- Not Familiar

Natural Resource Protection (land acquisition, floodplain protection, watershed management)

- Very Familiar
- Somewhat Familiar
- Not Familiar

Structural Projects (berms, floodwalls, stormwater ponds, streambank modification, elevating buildings)

- Very Familiar
- Somewhat Familiar
- Not Familiar

Emergency Services (warning systems, evacuation planning, government staff personnel training)

- Very Familiar
- Somewhat Familiar
- Not Familiar

Public Education and Awareness (outreach projects, speaker series, social media, partnerships with civic groups)

- Very Familiar
- Somewhat Familiar
- Not Familiar

11. Does your locality participate in the National Flood Insurance Program (NFIP)?

- Yes
- No
- Don't know

12. If not, what is the main reason for not participating?

- Not enough properties in the floodplain
- Not necessary
- Lack of staff/time
- Other _____
- Too expensive
- Never considered it
- Not familiar with it/don't know about it

13. Does your locality participate in the Community Rating System (CRS)?

- Yes
- No
- Don't know

14. If not, what is the main reason for not participating?

- Not enough properties in the floodplain
- Not necessary
- Lack of staff/time
- Other _____
- Too expensive
- Never considered it
- Not familiar with it/don't know about it

15. Does your locality participate in any of the following disaster mitigation or preparedness programs?

- Storm Ready
- FireWise USA
- Ready.gov
- Citizen Corps
- Virginia Floodplain Management Association
- Virginia Emergency Management Association
- Near Southwest Preparedness Alliance
- Local Emergency Planning Committee
- Other _____

16. Which of the following incentives do you think would motivate owners in your locality to take additional steps to better protect their property from natural disasters?

- Insurance discount
- Lower new home construction costs
- Tax break or incentive
- None
- Low interest rate loan
- Mortgage discount
- Increased safety of citizens
- Other (specify) _____

17. Other Comments:

Thank you for providing this information.

For more information about the Pre-Disaster Mitigation Plan or this survey, please contact Eddie Wells, Roanoke Valley-Alleghany Regional Commission, P.O. Box 2569, Roanoke, VA 24010, Phone: 540-343-4417 or visit www.rvarc.org.



**Roanoke Valley-Allegheny Hazard Mitigation Plan Committee
Attendance Form
July 11, 2018**

Name	Agency / Company	Address	Phone	Email
Eddnewells	RVARC	313 LUCK AVENUE Roanoke VA 24016	343-4417	ewells@rvarc.org
PHIL HYSELL	NWS BLACKSBURG	1750 FOREST DRIVE BLACKSBURG, VA 24060	540-552-1613 x2	PHIL-HYSELL@NWSVA.GOV
ANITA MCMILAN	TOWN OF VINTON	311 S. POLLARD ST. VINTON, VA 24179	540-983-0605	amcmilan@vintonva.gov
Chris Linkous	Town of Vinton	311 S. Pollard St. Vinton, VA 24179	540-983-0629	CLinkous@VintonVA.gov
Jason Ferguson	County of Bedford	205 N. Roanoke Street, Suite 1 Fincastle, VA 24090	540-521-8600	jferguson@bedfordva.gov
Eric Tyree	CITY OF COVINGTON	333 W. LOCUST ST COVINGTON, VA 24426	640-965-6356	etyree@covingtonva.gov
MARC DAVIS	BLUE RIDGE INDEPENDENT LIVING CENTER	1502 B WILLIAMSON RD. ROANOKE, VA 24012		mdavis@bric.org
Leigh Anne Witzendorf	City of Roanoke Stormwater	1802 Courtland Rd NE Roanoke, VA 24012	540-853-5910	leighanne.witzendorf@roanokeva.gov
Danielle Dehart	City of Roanoke Stormwater	1802 Courtland Rd, NE Roanoke, VA 24012	540-853-5915	danielle.dehart@roanokeva.gov
Matt Miller	RVARC	313 Luck Avenue	343-4417	mmiller@rvarc.org



Roanoke Valley-Alleghany

REGIONAL
commission

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Regional Pre-Disaster Mitigation Plan Committee

Agenda

August 8, 2018

10 a.m.

1. Welcome and Introductions
2. Review Survey Forms
3. Other Business



**Roanoke Valley-Alleghany Hazard Mitigation Plan Committee
Attendance Form
August 8, 2018**

Name	Agency / Company	Address	Phone	Email
Ed Wells	RVAFC	313 Larkspur SW	343-4417	ewells@vvaec.org
ANITA McMILLAN	TOWN OF VINTON	311 S. POLLARO ST. VINTON, VA 24179	983-0605	anemillan@vintonva.gov
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Roanoke Valley-Alleghany

REGIONAL
commission

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Regional Pre-Disaster Mitigation Plan Committee

Agenda

October 10, 2018

10 a.m.

1. Welcome and Introductions
2. Review of Regional Goals & Strategies and Project Listing
3. Survey Update
4. Meeting with FEMA Region 3 on October 31, 2018
5. Other Business

Chapter 5 Regional Mitigation Goals and Strategies

5.1 Project Prioritization and Benefit to Cost Consideration

In developing mitigation strategies for the region and each locality, a wide range of activities were considered in order to achieve the goals and to lessen the vulnerability of the area to the impact of natural hazards. All goals, strategies and projects are dependent on the availability and timeliness of non-local funding.

Goals and Strategies were prioritized by each individual locality. Prioritization was completed in order of relative priority – high, medium or low – based on the benefit to cost criteria and the strategy’s potential to mitigate the impact from natural hazards. Consideration was also given to availability of funding, the department/agency responsible for implementation, and the ability of the locality to implement the project. Under each identified pre-disaster, applicable local government departments will be the lead in making sure that each project or action will be implemented in timely manner with other departments, other local government representatives and/or other regional agencies.

The anticipated level of cost effectiveness of each measure was a primary consideration when developing the list of proposed projects. Since the mitigation projects are an investment of public funds to reduce damages, localities have selected, and prioritized projects based on the benefit to cost of each project in hopes of obtaining the maximum benefit. Projects were categorized as high, medium or low benefit to cost based on the available information for each proposed project. Reduced damages over the lifespan of the projects, the benefits, are likely to be greater than the project cost in all cases. Although detailed cost and benefit analysis was not conducted during the mitigation action development process, these factors were of primary concern when prioritizing and selecting the proposed projects.

5.2 Regional Mitigation Goals and Strategies

Regional mitigation goals and strategies are those that could apply to the entire region (e.g., mitigation of the impact of flooding) or can be accomplished in a more efficient manner by two or more localities working cooperatively (e.g., hazard outreach and education campaigns). **Mitigation measures are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan. Localities have also developed locality specific goals and activities that are listed in *Chapter 6 Local Mitigation Strategies* in this document.**

5.2.1 Earthquake

~~Mitigation measures for earthquakes are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Increase public awareness of the probability and potential impact of earthquakes.

Responsible Departments: Building Inspections, Emergency Management, Public Information Office

Strategy:

1. Publish a special section in local newspaper with emergency information on earthquakes. Localize the information by printing the phone numbers of local emergency services offices, the American Red Cross, and hospitals.

Goal: Ensure that structures can adequately resist seismic forces during earthquakes through the adoption and enforcement of up-to-date building codes.

Responsible Departments: Building Inspections

Strategy:

1. Additional training for building code officials and licensed contractors on provisions within the IBC, IRC and IEBC are intended to ensure that structures can adequately resist seismic forces during earthquakes. This should include a review of the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures (FEMA P-750) and FEMA's companion document Earthquake Resistant Design Concepts (FEMA P-749).

5.2.2 Flood

~~Mitigation measures for floods are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan. Localities have also developed locality specific goals and activities for this disaster that are listed in Chapter 6 Local Mitigation Strategies in this document.~~

Goal: Mitigation of loss of life and property from flooding and flood related disasters.

Responsible Departments: Building Inspections, Community Development, Engineering, GIS, Public Information Office, Public Works, Stormwater, Transportation

Strategies:

1. In cooperation with Federal and State governments, support a comprehensive public information and education program on all hazards addressed in the Regional Hazard Mitigation Plan. This can be accomplished through regional workshops and educational materials for citizens, business, local staff, and elected officials.

2. Develop and maintain an inventory of flood prone roadways in cooperation with local governments and the Virginia Department of Transportation.
3. Develop and maintain an inventory of flood prone critical regional facilities such as hospitals, public utility sites, airports, etc.

Goal: Update existing GIS data layers related to natural hazards.

Responsible Departments: Engineering, Public Works

Strategies:

1. Consider seeking funding and support programs that update FEMA's Flood Insurance Rate Maps (FIRM). Consider participation in FEMA's Cooperating Technical Partners (CTP) program that establishes partners with local jurisdictions to develop and maintain up-to-date flood maps.
2. In cooperation with local governments, utilize GIS to inventory at risk infrastructure and public and private structures within flood prone areas.
3. Participate in FEMA's Digital Flood Insurance Rate Maps (DFIRM) program.
4. Support FIRM remapping projects that address areas in the region that have the most serious mapping problems and where flooding is a repetitive problem.

Goal: Provide early warning of flooding.

Responsible Department(s): Emergency Management, Engineering, Public Works, **Stormwater**, Transportation

Strategy:

1. Identify areas with recurring flood problems and request **additional the upgrade and expansion of the IFLOWS and USGS stream and rain gauges** as appropriate to ensure that these areas are adequately covered and monitored.
2. **Develop a maintenance strategy and related funding for the IFLOWS network in the region/state.**

Goal: Identify structural projects that could mitigate the impact of flooding.

Responsible Departments: Engineering, Public Works, Transportation

Strategies:

1. Consider seeking funding to prepare site-specific hydrologic and hydraulic studies that look at areas that have chronic and repetitive flooding problems.
2. Support Virginia Department of Transportation projects that call for improved ditching, replacement of inadequate and undersized culverts, enlargements of bridge openings and drainage piping needed to minimize flooding.
3. **Work with private sector property owners - including railroad and utility companies - to identify and address recurring damage from stormwater runoff and flooding.**

Goal: Maintain an accurate database and map of repetitive loss properties.

Responsible Departments: Emergency Management, Engineering, Public Works

Strategies:

1. Localities will work with RVARC, VDEM and FEMA to update **the** list of repetitive loss properties annually.

2. Localities will obtain updated list of repetitive loss properties annually from VDEM/FEMA.
3. Localities will review property addresses for accuracy and make necessary corrections.
4. Localities will determine if and by what means each property has been mitigated.
5. Localities will map properties to show general site locations (not parcel specific in order to maintain anonymity of the property owners).
6. Localities will determine if properties have been mitigated and inform FEMA/VDEM through submission of an updated list/database and mapping.

5.2.3 Hurricane

~~Mitigation measures for hurricanes are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigate the impact of hurricanes in the Roanoke Valley-Alleghany Region.

Responsible Department: Emergency Management

Strategy:

1. Provide information about the “StormReady” program to each locality.

5.2.4 Karst

~~Mitigation measures for karst are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Improved Hazard Mapping and Assessments for karst areas and sinkholes.

Responsible Departments: Building Inspections, Engineering, Public Works

Strategy:

1. Encourage the delineation of karst areas and areas susceptible to sinkholes through a cooperative effort with the Virginia Karst Mapping Project, Virginia Speleological Survey, and Virginia Department of Conservation and Recreation (Virginia Cave Board).

5.2.5 Landslide

~~Mitigation measures for landslides are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Improved Hazard Mapping and Assessments for landslides.

Responsible Departments: Building Inspections, Engineering, Public Works, Transportation

Strategies:

1. Encourage the delineation of susceptible areas and different types of landslide hazards at a scale useful for planning and decision-making, led by USGS and State geological surveys.
2. Work with state and Federal agencies to develop data that will assist in reducing and eliminating impacts from landslides.

Goal: Mitigate potential damage to new development by landslides.

Responsible Departments: Building Inspections, Engineering, Planning, Public Works

Strategies:

1. Review of site plans to identify steep slopes and soil stability issues and require problem sites to conduct a soil analysis prior to construction.

5.2.6 Straight Line Winds

~~Mitigation measures for straight line winds are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigation of the impact of Straight Line Winds.

Responsible Departments: Emergency Management, Public Information Office

Strategy:

1. In cooperation with Federal and State governments, support a comprehensive public information and education program on Straight Line Winds. This can be accomplished through regional workshops and educational materials for citizens, business, local staff, and elected officials.

~~Goal: Ensure that structures can adequately resist wind damage during straight line wind events caused by hurricanes and severe thunderstorms through the adoption and enforcement of up-to-date building codes.~~

~~Responsible Departments: Building Inspections~~

~~Strategy:~~

- ~~1. Additional training for building code officials and licensed contractors on provisions within the IBC, IRC and IEBC are intended to ensure that structures can adequately resist wind damage during straight line wind events including Wind Provisions in the 2015 International Building Code® and the 2014 Safe Rooms for Tornadoes and Hurricanes: Guidance for Community and Residential Safe Rooms.~~

5.2.7 Tornado

~~Mitigation measures for tornadoes are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigation of the impact of Tornadoes.

Responsible Departments: Emergency Management, Public Information Office

Strategy:

1. In cooperation with Federal and State governments, support a comprehensive public information and education program on Tornadoes. This can be accomplished through regional workshops and educational materials for citizens, business, local staff, and elected officials.

Goal: Ensure that structures can adequately resist wind damage during tornados through the adoption and enforcement of up-to-date building codes.

Responsible Departments: Building Inspections

Strategy:

1. Additional training for building code officials and licensed contractors on provisions within the IBC, IRC and IEBC are intended to ensure that structures can adequately resist wind damage during tornados including Wind Provisions in the 2015 International Building Code® and the 2014 Safe Rooms for Tornados and Hurricanes: Guidance for Community and Residential Safe Rooms.

5.2.8 Wildfire

~~Mitigation measures for wildfires are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigation of the impacts of wildfire to life and property.

Responsible Departments: Community Development, Emergency Management, Engineering, Fire Department

Strategies:

1. Encourage residents and developers to use NFPA Firewise USA® building design, siting, and materials for construction.
2. Encourage VDOF to continue its Community Wildfire Assessments.
3. Identify buildings or locations vital to the emergency response effort and buildings or locations that, if damaged, would create secondary disasters in forested areas.
4. Participate in National Wildfire Preparedness Day activities.

5.2.9 Winter Storms

~~Mitigation measures for winter storms are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigation of the effects of extreme winter weather.

Responsible Departments: Emergency Services, Public Information Office

Strategies:

1. Research and consider participating in the National Weather Service “Storm Ready” program.
2. Participate in special statewide outreach/awareness activities, such as Winter Weather Awareness Week, Flood Awareness Week, etc.

5.2.10 All Hazards

~~Mitigation measures for the all hazards classification are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Improve general preparedness of the local government for all hazards.

Responsible Departments: Emergency Services, Public Information Office

Strategies:

1. In cooperation with Federal and State governments, support a comprehensive public information and education program on ~~Tornadoes~~ natural hazards. This can be accomplished through regional workshops and educational materials for citizens, business, local staff, and elected officials.
2. Participate in statewide disaster mitigation outreach and awareness activities.
3. Develop and sponsor local outreach and awareness activities such as the annual Preparathon and National Wildfire Preparedness Day events to better inform the public about natural hazards and mitigation activities.
4. Provide training to all local government staff involved in mitigation activities including those indirectly involved from such departments as transportation, schools, police, and administration.

Hazard Mitigation Plan Survey

ROANOKE VALLEY-ALLEGHANY REGIONAL COMMISSION



1

Summary

- Surveys were open from August 16, 2018 to October 1, 2018
- Notifications on social media, websites, local newspapers, and locality newsletters
- 122 responses to the Public Survey
- 50 responses to the Local Government Staff Survey



2

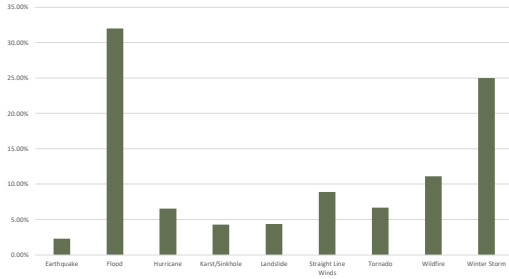
Local Government Staff Input Survey

RVARC HAZARD MITIGATION PLAN



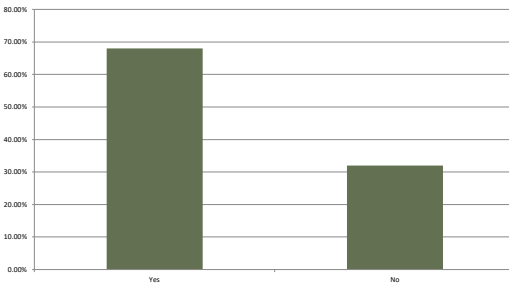
3

4. How concerned are you about the following disaster affecting your locality?
"Extremely Concerned"



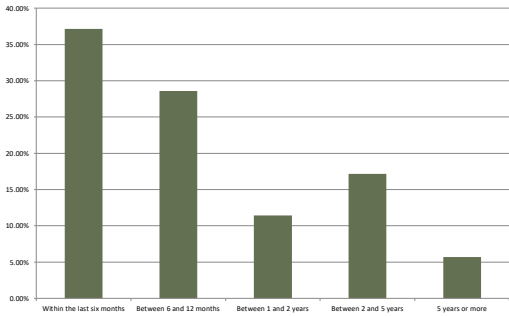
7

5. Have you ever received information about how to mitigate natural disasters?



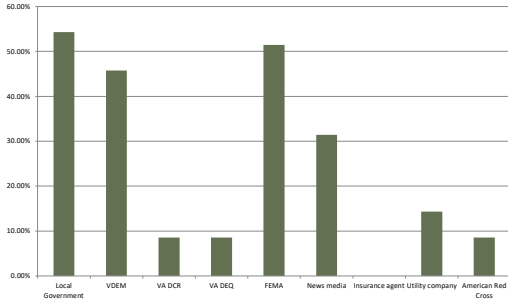
8

6. If you answered yes to Question #5, how recently?



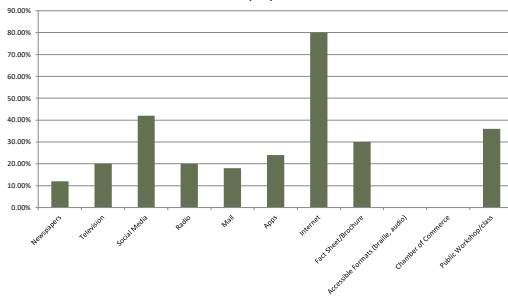
9

7. From whom did you receive the information?
(check all that apply)



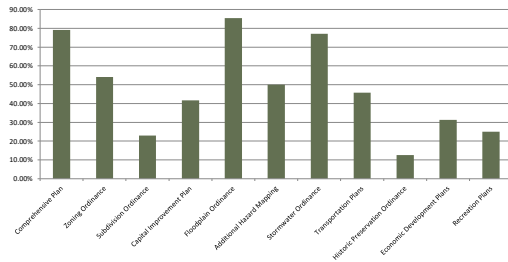
10

8. How do you, as a government employee, prefer to receive information about how to prepare for natural disasters?



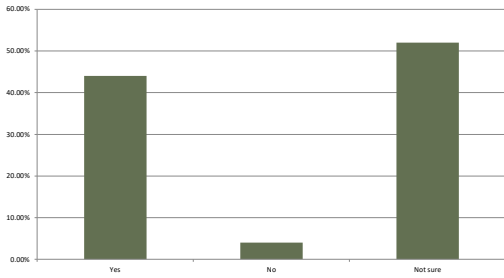
11

9. The hazard mitigation plan should not stand alone but be implemented through other local government documents and actions. Which of the following are most important for this purpose? (Check all that apply)



12

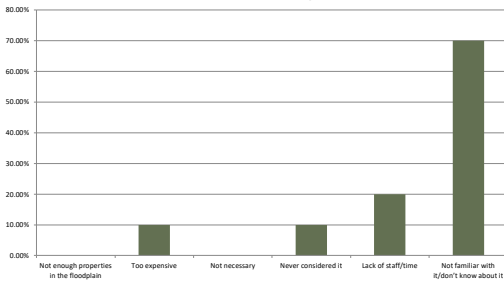
13. Does your locality participate in the Community Rating System (CRS)?





16

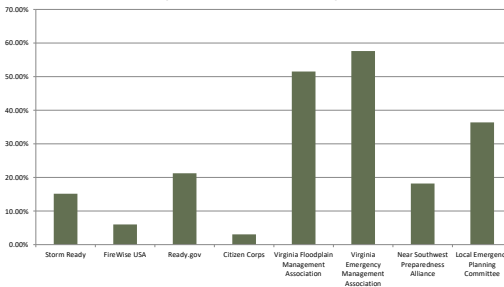
14. If you answered no to Question #13, what is the main reason for not participating?





17

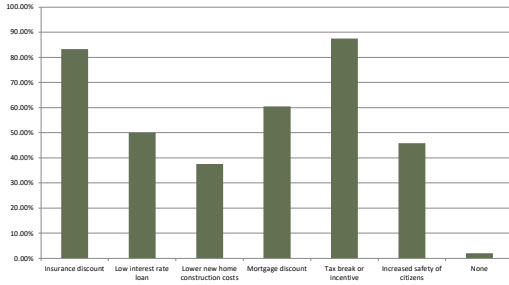
15. Does your locality participate in any of the following disaster mitigation or preparedness programs?





18

16. Which of the following incentives do you think would motivate owners in your locality to take additional steps to better protect their property from natural disasters?





19

17. Other Comments

1. None
2. :)
3. The County needs to increase working staff not management.



20

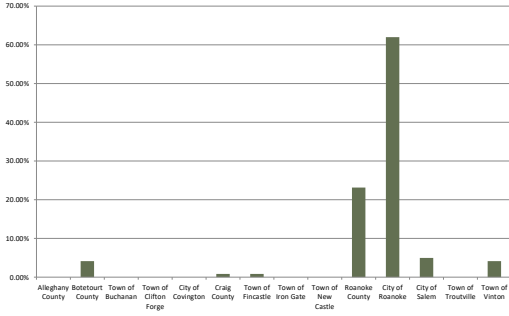
Public Input Survey

RVARC HAZARD MITIGATION PLAN



21

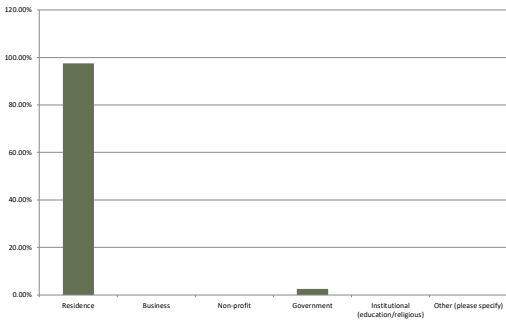
1. What locality is the property located in?





22

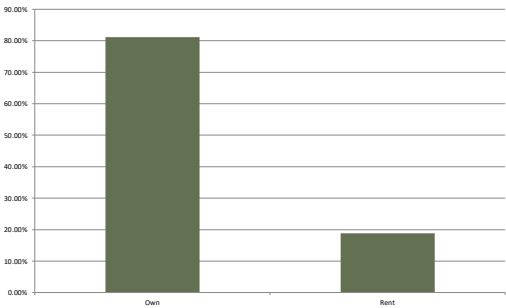
2. Type of property:





23

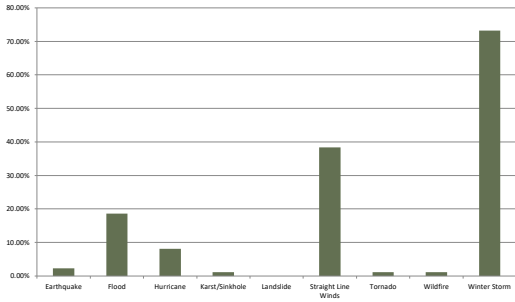
3. Do you own or rent the property?





24

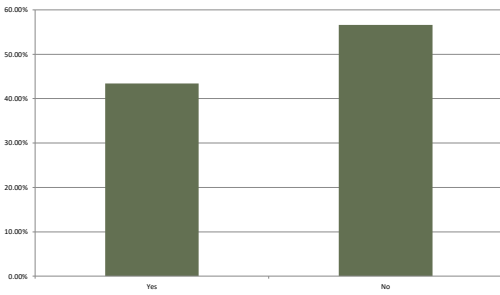
4. In the past five years, which of the following natural disasters have impacted your property?





25

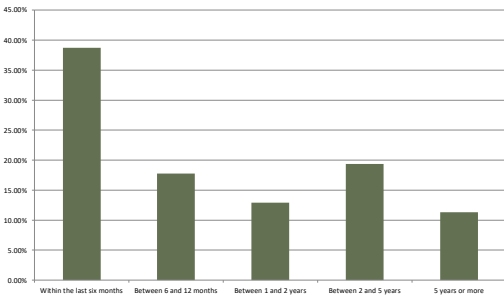
5. Have you ever received information about how to make your property safe from disasters?





26

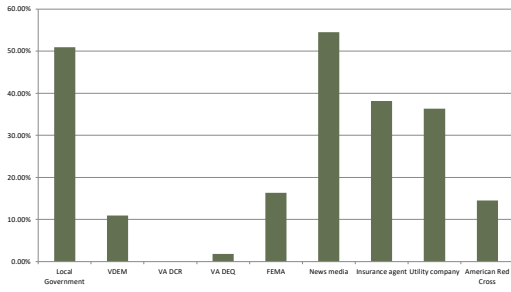
6. If you answered yes to Question #5, how recently?





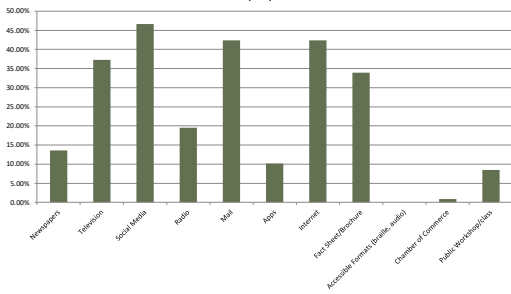
27

7. From whom did you receive the information? (check all that apply)



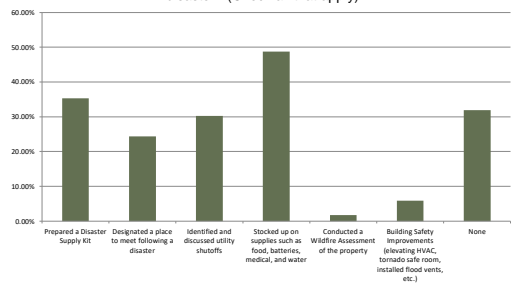
28

8. How do you, as a private property owner, prefer to receive information about how to prepare for natural disasters?



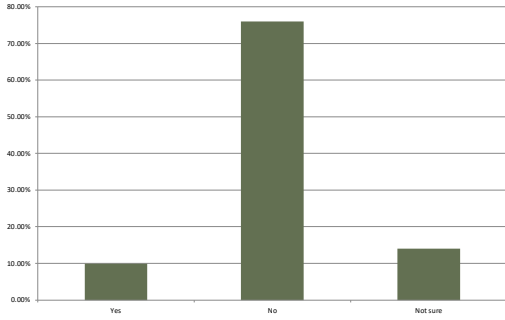
29

9. What steps, if any, have you taken to prepare for a natural disaster? (Check all that apply)



30

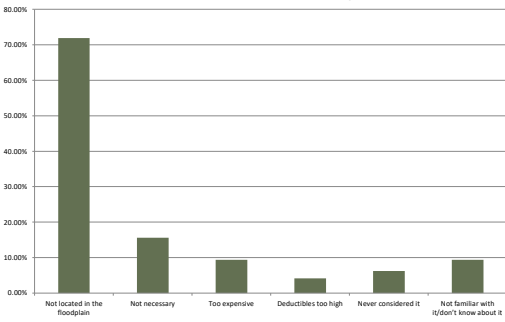
13. Does your property have flood insurance?





34

14. If not, what is the main reason for not having flood insurance?

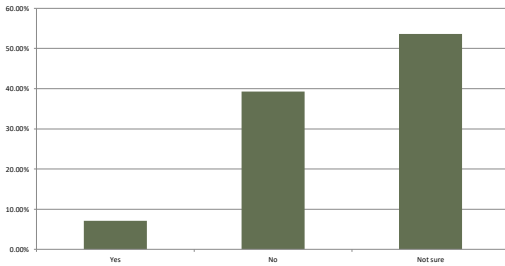




35

15. Do you know if you receive a discount on your flood insurance for the local government's participation in the Community Rating System (CRS)?

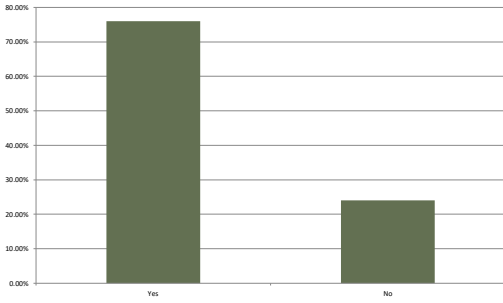
[only applies to property owners in Roanoke County, the City of Roanoke and Town of Vinton]





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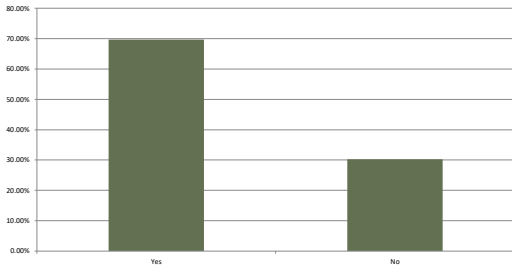
16. Did you know that if a building is damaged, it has to be repaired based on the current building code?





37

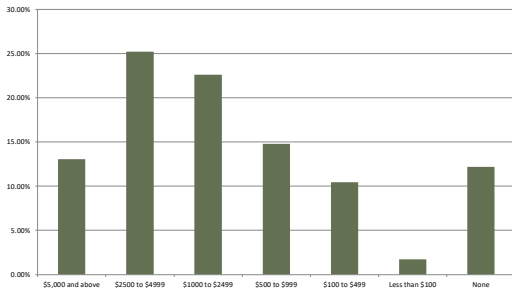
18. Would you be willing to spend more money on a property that had features that made it more disaster resistant (elevated HVAC, tornado safe room, flood vents, etc.)?





38

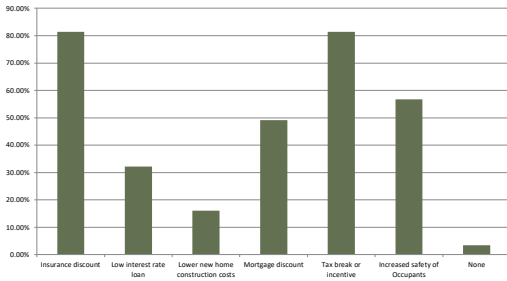
19. How much more money are you willing to spend to better protect your family and property from natural disasters?





39

20. Which of the following incentives would motivate you to take additional steps to better protect your property from natural disasters?





40

21. Other Comments

1. An informed and an aware citizen is helpful by remaining safe and helping others as needed and to dispense information to them.
2. CURRENT INSURANCE PROGRAM IS A RIP OFF. INSURANCE COMPANY FORCED REDUCTION OF COVERAGE DUE TO THREAT OF 400 % INCREASE IN PREMIUM - NO LOSSES ON PROPERTY COVERED BY PROGRAM SINCE PRIOR TO 1978
3. This is another one of those surveys that is done by bureaucrats in their language for their benefit.
4. I am 82 years old and am unable to finance suggested protective systems
5. Property is high above water, problems trees & power lines, plus area wide transportation



41

21. Other Comments (continued)

6. I don't own this property
7. My house is only 3 yrs old, so it is built to new building code standards. Only regret is HVAC system was not elevated more than 4" above ground (even though I'm on a hill--no flood risk--only high snow risk).
8. Thanks for doing this I'd like to be more in line with helping create public knowledge of weather emergencies. I am a consulting meteorologist and Spotter/Chaser.
9. Biggest concern now is emergency response for pipeline explosions!
10. If you are going to look at natural disasters in our region, it is imperative that you look at wildfires that could be tragic if Mountain Valley Pipeline is constructed on exceedingly steep, landslide prone slopes and in karst-filled valleys such as the I-81 crossing near Dixie Caverns (the name is a clue). Please do not avoid this topic.



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**Roanoke Valley-Alleghany Hazard Mitigation Plan Committee
Attendance Form
October 10, 2018**

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Roanoke Valley-Allegheny Hazard Mitigation Plan Committee Attendance Form October 10, 2018

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Roanoke Valley-Alleghany

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Regional Pre-Disaster Mitigation Plan Committee

Agenda

November 14, 2018

10 a.m.

1. Welcome and Introductions Eddie Wells

2. ~~Wildfire Risk~~ ~~Dennis McCarthy,~~
Virginia Department of Forestry

3. Review of Critical Facilities Matt Miller

4. Review of Dam Inventory Eddie Wells

5. Review of FEMA Technical Assistance Meeting Eddie Wells

6. Other Business Eddie Wells

Critical Facilities Potentially Affected By Flooding

FACILITY	TYPE	LOCALITY
City of Salem-Animal Shelter	Animal Shelter	City of Salem
Salem Municipal Building	City Hall	City of Salem
Roanoke College	College	City of Salem
Salem Court House	Court	City of Salem
Boiling Springs Volunteer Fire and Rescue	Fire Station	Alleghany County
Blue Ridge Fire and Rescue	Fire Station	Botetourt County
Troutville Fire and Rescue	Fire Station	Botetourt County
Roanoke Fire and EMS #11	Fire Station	City of Roanoke
Roanoke Fire and EMS #13	Fire Station	City of Roanoke
Back Creek Fire and Rescue	Fire Station	County of Roanoke
Salem Frame-Fire	Fire Station-Private	City of Salem
Roanoke Memorial Hospital	Hospital	City of Roanoke
WestRock	Industry	Alleghany-Covington
Western Virginia Regional Jail Access Road	Jail	Roanoke County
South County Library	Library	County of Roanoke
Highland House	Nursing Home	Alleghany County
Cave Creek Assisted Living	Nursing Home	Botetourt County
Valley Retirement Home	Nursing Home	City of Roanoke
Snyder Nursing Home	Nursing Home	City of Salem
Cloverdale Elementary	School	Botetourt County
GW Carver Elementary	School	City of Salem
Burton Center for Arts and Technology	School	City of Salem
East Salem Elementary	School	City of Salem
Back Creek Elementary School	School	County of Roanoke
Penn Forest Elementary	School	County of Roanoke
Hollins University	School	County of Roanoke
Community School	School-Private	County of Roanoke
WVWA Waste Water Treatment Plant	Waste Water	City of Roanoke

Dam Inventory

Id Number	Dam Name	Owner Name	City/County	Hazard Class	Dam Type
005001	Gathright Dam	US Army Corps of Engineers Norfolk District	Alleghany County, Bath County	Unknown	Rockfill
005002	Pond Lick Branch Dam (Mountain Lake)	Robin Vocus	Alleghany County	Low, Special	Earth
005003	Clifton Forge Dam	Town of Clifton Forge	Alleghany County	High	Gravity
005004	Landfill No. 2 Dam (Flyash Lagoon #2)	WestRock Company	Alleghany County	High	Earth
005005	Wright Dam	Anne L. Wright	Alleghany County	Unknown	Earth
005006	Casteel Hunt Club Dam	Casteel Hunt Club, Inc.	Alleghany County	Unknown	Earth
005007	Hanna Dam	Sharon Kay Hanna	Alleghany County	Unknown	Earth
005008	Jeremy Thomas Dam	Jeremy S. Thomas	Alleghany County	Unknown	Earth
005009	West Virginia Pulp Dam B	Westvaco Virginia, Inc.	Alleghany County	Unknown	Earth
005010	West Virginia Pulp Dam A	Westvaco Virginia, Inc.	Alleghany County	Unknown	Earth
019010	Falling Creek Reservoir Dam	Western Virginia Water Authority	Bedford County, Roanoke County	High	Earth
019107	Jettters Chapel Mountain Dam		Botetourt County, Bedford County	Unknown	Earth
023001	Carvin Cove Dam	Western Virginia Water Authority	Botetourt County, Roanoke County	High	Masonry
023002	Orchard Lake Dam	Dearl R and Julie A Frazee	Botetourt County	Unknown	Earth
023003	Rainbow Forest Dam	Rainbow Forest Recreational Assoc.	Botetourt County	High	Earth
023004	Blue Ridge Estates Dam (Emerald Lake)	Lake Forest Homeowners Assoc.	Botetourt County	High	Earth
023005	Botetourt Country Club Dam	Botetourt Country Club	Botetourt County	Unknown	Earth
023006	Fairview Pond Dam	Richard & Brenda Rowland	Botetourt County	Unknown	Earth
023007	Greenfield Lake Dam	Botetourt County	Botetourt County	Unknown	Earth
023008	Greenwood Sediment Pond Dam		Botetourt County	Unknown	Earth
023009	Hancock Dam	James E Hancock	Botetourt County	Unknown	Earth
023010	Wilburn Dam	Vaughn E. and Anne P. Wilburn	Botetourt County	Unknown	Earth
023011	Goldberg Beaver Dam	Keith and Theresa Goldberg	Botetourt County	Unknown	Earth
023012	Roanoke Cement Holdings Dam	Roanoke Cement Holding Inc	Botetourt County	Unknown	Earth
023013	Stokes Dam	Sandra J Stokes	Botetourt County	Unknown	Earth
023014	Lake Catherine Hunt Club Dam	Lake Catherine Hunt Club	Botetourt County	Unknown	Earth
023015	Bayne Dam	William Sr. and Willaim Jr. Bayne	Botetourt County	Unknown	Earth
023016	Grandview Dam	Grandview Investment Co.	Botetourt County	Unknown	Earth

023017	Atherholt Dam	William and Martha Atherholt	Botetourt County	Unknown	Earth
023018	Deming Dam	Douglas R. and Julia R. Deming	Botetourt County	Unknown	Earth
045001	Johns Creek Dam #2	Mountain Castles SWCD	Craig County	High	Earth
045002	Johns Creek Dam #1 (McDaniels Lake)	Mountain Castles SWCD	Craig County	High	Earth
045003	Johns Creek Dam #3	Mountain Castles SWCD	Craig County	High	Earth
045004	Johns Creek Dam #4	Mountain Castles SWCD	Craig County	High	Earth
045005	Craig County Dam #5		Craig County	Unknown	
045006	Craig County Dam #6		Craig County	Unknown	
045007	Craig County Dam #7		Craig County	Unknown	
161001	Niagara Dam	Appalachian Power Company	Roanoke County	Unknown	Gravity
161002	Loch Haven Lake Dam	Bane International Company LLC	Roanoke County	High	Gravity
161003	Orchard Dam	F&W Community Development Corp.	Roanoke County	Unknown	Earth
161004	Clifford D. Craig Memorial Dam (Spring Hollow Reservoir)	Western Virginia Water Authority	Roanoke County	High	Concrete
161005	Woods End Dam (Hidden Valley High School Dam)	Roanoke County	Roanoke County	High	Earth
161006	Cotton Hills Dam		Roanoke County	Unknown	Earth
161007	Amrhein Dam		Roanoke County	Unknown	
161008	Hudick Dam		Roanoke County	Unknown	
161009	Gustafson Dam		Roanoke County	Unknown	
161010	Salem Stone Dam		Roanoke County	Unknown	
161011	Lewis Jamison Dam		City of Roanoke, Roanoke County	Unknown	
161012	Charles Ray Cox Dam		Roanoke County	Unknown	
161013	Roanoke College Dam (Hanging Rock Golf Course)		City of Salem, Roanoke County	Unknown	
161014	Linda Howell Dam		Roanoke County	Unknown	
770001	Windsor Lake Dam	Windsor Lake Corporation	City of Roanoke	High	Earth
770002	Spring Valley Lake Dam	Spring Valley Lake, LLC	City of Roanoke	High	Earth
770003	City of Roanoke Dam #1		City of Roanoke, City of Salem	Unknown	
770004	City of Roanoke Dam #2		City of Roanoke, City of Salem	Unknown	

Source: Virginia Dam Safety Inventory System, 2018.



**Roanoke Valley-Alleghany Hazard Mitigation Plan Committee
Attendance Form
November 14, 2018**

Name	Agency / Company	Address	Phone	Email
Ed Wells	EVARC	313 LOCK TOWER SW Roanoke VA 24016	343 4417	EWells@vavarc.org
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Lugh Anna Weitzenfeld	City of Roanoke Stormwater Division	1802 Courtland Rd. NE Roanoke, VA 24012	540-853- 5910	Lughanne.Weitzenfeld@ Roanokeva.gov



Roanoke Valley-Alleghany

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commission

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Regional Pre-Disaster Mitigation Plan Committee

Agenda

December 12, 2018

10 a.m.

1. Welcome and Introductions Eddie Wells

2. Wildfire Risk Dennis McCarthy,
Virginia Department of Forestry

3. Historic Resources Addition..... Matt Miller

4. Drought Addition..... Eddie Wells

5. Other Business..... Eddie Wells

Virginia Dept. of Forestry

Since 1914



Mission: suppress forest fires & re-forest denuded lands.

1

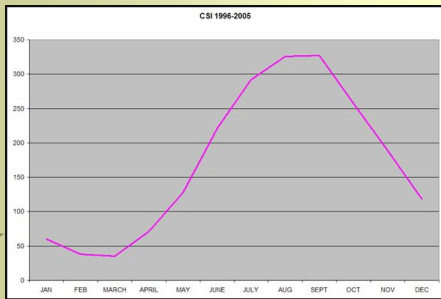
Virginia's Wildfire Statistics

Average Year:
- 1,551 wildfires
- 30,125 acres burned



2

Keetch Byrum Drought Index Scale of 0 – 800



3

Wildfire Causes by percentages

Cause	Percent
Open Burning	30
Arson	20
Smokers	14
Misc. (house, vehicle, aircraft, etc. that spread to the forest)	11
Children	9
Equipment Use	7
Railroads	5
Lightning	3
Campfires	1



4

Firefighter Tactics

WILDLAND FIRE DIRECT ATTACK

14-22



5

Firefighter Tactics

WILDLAND FIRE INDIRECT ATTACK

14-23

Fire is indirectly controlled... by burning off intervening fuel... from a planned control line.



6

Wildland/Urban Interface



7

Wildland/Urban Interface

□ Black Diamond Subdivision, Craig Co.



8

Wildland/Urban Interface

□ Currently working towards Firewise Status



9

Wildland/Urban Interface



10

Wildland/Urban Interface

Size-Up

- Where is our Safety Zone?



11

Wildland/Urban Interface

Size-Up

- Where is our Safety Zone?
- Is our Escape Route adequate?



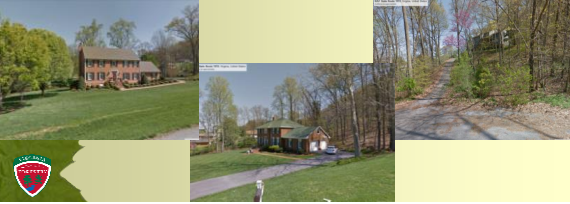
12

Wildland/Urban Interface

Size-Up

- Structural Triage

- Likely to survive with little help
- Likely to survive with much help
- Unlikely to survive / Unsafe to Defend

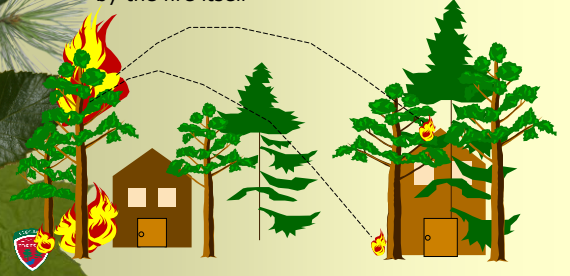


13

How do woodland homes ignite?

Directly...
by the fire itself

Indirectly...
by fire brands



14

Fire Brands



15

A Homeowner's Perspective



16

Firewise Principles

-Leaves in gutters
& on roof

- Leaves gathering
in wind eddy spots

- Firewood piles

- Wood shingles

- Other
flammables?



17

Firewise Principles

-Leaves in gutters
& on roof

- Leaves gathering
in wind eddy spots

- Firewood piles

- Wood shingles

- Other
flammables?



18

Firewise Principles

-Leaves in gutters
& on roof

- Leaves gathering
in wind eddy spots

- Firewood piles

- Wood shingles

- Other
flammables?



19

Firewise Principles

-Leaves in gutters
& on roof

- Leaves gathering
in wind eddy spots

- Firewood piles

- Wood shingles

- Other
flammables?



20

Firewise Principles

-Leaves in gutters
& on roof

- Leaves gathering
in wind eddy spots

- Wood shingles

- Firewood piles

- Other
flammables?



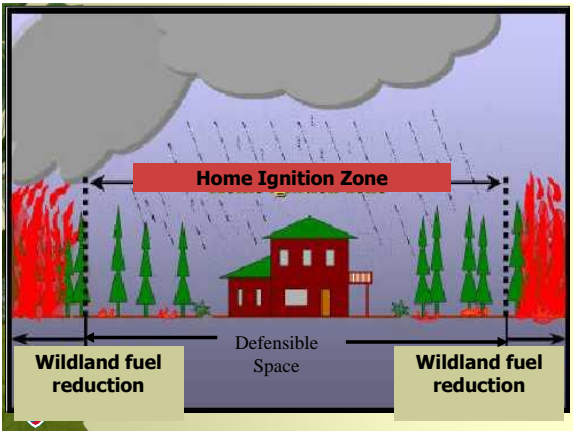
- Create defensible space



21



22



23



24

Defensible Space, Before & After



25

Defensible Space, Before & After



26

Defensible Space, Before & After



27

Defensible Space, Before & After



28

Defensible Space, Before & After



29

Defensible Space, Before & After



30

Defensible Space, Before & After



Figure 1. Before Firewise Fuel Reduction Activities



Figure 2. After Firewise Fuel Reduction Activities



Figure 3. After the Pickle Branch Wildfire

31

Firewise Communities



32

Laurel Woods, Salem VA



33

Firewise Communities



Steps toward Firewise

1. Contact Firewise
2. Site Visit
3. Community Committee
4. Assessment & Evaluation
5. Move Forward/Create a Plan
6. Implement Solutions
7. Apply for Recognition
8. Annual Renewal of Recognition



34

Firewise: Possible Solutions

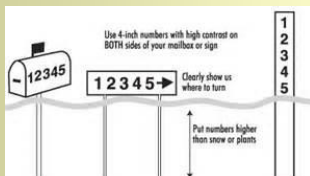
Improve access/egress



35

Firewise: Possible Solutions

Clearly mark addresses



36

Firewise: Possible Solutions

Fuel Reduction over large area



37

Firewise: Possible Solutions

Coordinate community-wide defensible space



38

Firewise: Possible Solutions

Create/improve water source



39

Questions?



Historic Structures Potentially Impacted By Flooding

ID	Name	Locality	USGS Quad sheet	Register*	Note
003-0098	Australia Furnace	Alleghany	Longdale Furnace	V/N	see 011-5116
003-0019	Clifton Furnace	Alleghany	Clifton Forge	V/N	
003-0011	H.R. Massie House (Oak Grove/Hansford Massie House)	Alleghany	Falling Spring	V/N	
003-0002	Humpback Bridge (Covered)	Alleghany	Callaghan	V/N	
003-0338	Longdale Furnace Historic District	Alleghany	Longdale Furnace	V/N	
003-5006	Luke's Mountain Historic District	Alleghany	Callaghan	V/N	
003-0018	Persinger-Wright House (Jacob Persinger, Jr. House)	Alleghany	Jordan Mines	V/N	
003-0348	Rosedale Historic District	Alleghany	Callaghan/Covington	V/N	
003-0006	Sweet Chalybeate Springs Lodge	Alleghany	Alleghany	V/N	
105-0017	Clifton Forge Commercial Historic District	Alleghany-Clifton Forge	Clifton Forge	V/N	was 105-0005
008-0136	Douthat State Park Historic District	Bath	Healing Springs/Clifton Forge	V/N	CCC; also in Alleghany Co.
011-0041	Annandale (also Lock of James River-Kanawha Canal)	Botetourt	Arnold Valley	V/N	
011-0187	Breckenridge Mill Historic District and Extension	Botetourt	Daleville, Oriskany	V/N/E	see also 011-0299
011-0040	Catawba Furnace	Botetourt	Catawba	V	see 011-5116
011-0056	Dr. William Anderson House	Botetourt	Daleville	V/N/E	
011-5155	Gala Site	Botetourt	Eagle Rock	V/	also 44B00048
011-0010	Greyledge	Botetourt	Buchanan	V/N	
011-0048	Lauderdale	Botetourt	Villamont	V/N	
011-0184	Looney Mill Creek Site	Botetourt	Buchanan	V/N	Fort Fauquier; also 44B00001
011-0057	Niningers Mill (Tinker Mill)	Botetourt	Daleville	V/N	
011-0095	Phoenix Bridge (Bridge #6386, Rt 818)	Botetourt	Eagle Rock	V/N	
011-0185	Prospect Hill	Botetourt	Villamont	V/N/E	also 218-0051-0105 (part of Fincastle HD)
011-0063	Roaring Run Furnace	Botetourt	Strom	V/N	see 011-5116
011-0032	Santillane	Botetourt	Daleville	V/N	also 218-0051-0195
011-5034	Thomas D. Kinzie House	Botetourt	Daleville	V/N	was 011-5015
011-0068	Varneys Falls Dam & Lock	Botetourt	Arnold Valley	V/N	
011-0039	Wiloma	Botetourt	Oriskany	V/N	
180-0028	Buchanan Historic District	Botetourt-Buchanan	Buchanan	V/N	criteria A & C
180-0006	Wilson Warehouse	Botetourt-Buchanan	Buchanan	V/N	also 180-0028-0030
107-0023	Conrad Fudge House (Mrs. J. T. Fudge Jr. House)	Covington	Covington	V/N	
107-0025	Covington Historic District	Covington	Covington	V/N	
022-5003	Huffman House (Bed & Breakfast)/Creekside Farm	Craig	Newport	V/N	
268-0016	New Castle Historic District Expansion	Craig-New Castle	New Castle/Catawaba	V/N	
033-0015	Booker T. Washington National Monument (Birthplace)/Burroughs Plantation	Franklin	Moneta Southwest	V/N	
127-0171	James River/Kanawha Canal Historic District (incl. Locks)	Richmond	Richmond	V/N	see 043-0252
127-0171	James River/Kanawha Canal Historic District (incl. Locks)	Richmond	Richmond	V/N	see 043-0252
127-0171	James River/Kanawha Canal Historic District (incl. Locks)	Richmond	Richmond	V/N	see 043-0252
127-0171	James River/Kanawha Canal Historic District (incl. Locks)	Richmond	Richmond	V/N	see 043-0252
127-0171	James River/Kanawha Canal Historic District (incl. Locks)	Richmond	Richmond	V/N	see 043-0252
128-0052	Belle Aire (Bell-Air)	Roanoke	Salem	V/N	was 129-0035
128-0044	Colonial National Bank	Roanoke	Roanoke	V/N	also 128-5761-0106
128-5455	Continental/Virginia Can Co. (S. H. Heironimus Warehouse), 315 Albemarle St.	Roanoke	Roanoke	V/N	
128-0039	Crystal Spring Steam Pumping Station	Roanoke	Garden City/Roanoke	V/N	
128-0040	First National Bank (People's Federal Bank/Liberty Trust Co.)	Roanoke	Roanoke	V/N	also 128-5761-0110
128-5762	Gainsboro Historic District	Roanoke	Roanoke	V/N	
128-0025	Hotel Roanoke	Roanoke	Roanoke	V/N	
128-0010	Lone Oaks (Benjamin Deyerle Place; Winsmere)	Roanoke	Bent Mountain	V/N	
128-0035	Monterey (Belmont)	Roanoke	Roanoke	V/N/E	was 080-0020
128-5432	N & W Railway Company Historic District	Roanoke	Roanoke	V/N	
128-0045	Roanoke City Market Historic District and Extension	Roanoke	Roanoke	V/N	
128-5761	Roanoke Downtown Historic District and Expansion	Roanoke	Roanoke	V/N	
128-0046	Roanoke Warehouse Historic District (Wholesale Row)	Roanoke	Roanoke	V/N	
080-0013	Samuel Harshbarger House	Roanoke	Roanoke	V/N	
128-0049	Southwest Historic District	Roanoke	Roanoke	V/N	
080-0348	Starkey Elementary School	Roanoke	Garden City	V/N	
128-5461	Virginian Railway Passenger Station/Depot, 1412 Jefferson St. (Link Museum)	Roanoke	Roanoke	V/N	
129-0075	Downtown Salem Historic District	Salem	Salem	V/N	
129-0012	Monterey, 110 High St	Salem	Salem	V/N	
129-5018	Preston House	Salem	Salem	V/N/E	
129-0009	Salem Presbyterian Church	Salem	Salem	V/N	see 129-0075
129-5023	Valley Railroad Bridge (Gish Branch Railroad Bridge)	Salem	Salem	V/N	also 44RN0186

* Register: N=national, V=Virginia, and E=Eligible

Drought Response Planning and Regulations Summary

The [State Water Resources Plan](#) was finalized and released to the public in October 2015. The SWRP identified some potential areas of concern as well as challenges for future water resources management and recommendations for action to address water supplies and drought. This State Plan is a compilation of the 48 local and regional water supply plans developed by local governments to assess their water supply needs 2010 to 2040. Each water supply plan includes information concerning community water systems and self-supplied users, existing and potential sources of water supply, existing use, and anticipated future water demand.

Five major droughts affected Virginia in the 20th century, during 1930-32, 1938-42, 1962-71, 1980-82, and from 1998 to 2002. Following the 2002 drought, the *Local and Regional Water Supply Planning Regulation* was established in Virginia, which required each locality to develop and submit a plan by 2011, either alone or in collaboration with other localities.

The regulations guiding this plan detail the information to be included in a region's/locality's water supply plan, including a drought response plan ([9VAC25-780-120](#) Drought Response and Contingency Plans). The regulation requires a locality to specify how a drought or low water condition is declared, what actions they will implement to conserve water under such a condition, and how they will enforce water conservation actions.

The water supply planning program was designed as a statewide partnership with localities having the lead role in identifying their future demands and the state providing technical support and oversight. For many regions public service authorities play a major role in drought response planning (see the Western Virginia Water Authority's [Drought Contingency Plan](#)).

The Roanoke Valley – Alleghany Regional Commission coordinates the state mandated regional water supply plans required of our member localities. There are three water supply plans which overlap the Roanoke Valley – Alleghany region. All of them were adopted and reviewed by the Virginia Department of Environmental Quality in 2013. A 5-year update to these plans is required by December of 2018, and the Regional Commission is working with localities to ensure that this deadline is met. Draft materials have been submitted to DEQ for the plan updates.

There are 48 regional plans that cover the Commonwealth. The three that cover our region are:

- The [Upper James Water Supply Plan](#) covers Alleghany, Bath, and Highland Counties, as well as Lexington, Buena Vista, Covington, Clifton Forge and Iron Gate.
- The [Roanoke River Water Supply Plan](#) covers Roanoke, Bedford, Botetourt, and Franklin Counties as well as the cities of Roanoke and Salem, and the Towns of Boones Mill, Buchanan, Fincastle, Rocky Mount, Troutville and Vinton.
- The [Craig County – Town of New Castle Regional Water Supply Plan](#) covers Craig County and the Town of New Castle.

Since the adoption of the Virginia Drought Assessment and Response Plan in 2003, drought watch declarations have been issued for various regions nearly every year, but drought warning declarations have occurred less frequently. A Drought Emergency declaration has not been issued since the 2002 drought, however statewide drought watches have been issued as have local water restrictions due to drought.

More information about the state water supply plan requirements and outcomes can be found at the [DEQ website](#) and in DEQ's October 2018 report [Status of Virginia's Water Resources](#).

9VAC25-780-120. Drought Response and Contingency Plans.

A program that includes community water systems and self-supplied users who withdraw more than an average of 300,000 gallons per month of surface water and ground water shall contain drought response and contingency plans in accordance with the following requirements:

1. Drought response and contingency plans shall be structured to address the unique characteristics of the water source that is being utilized and the nature of the beneficial use of water.
2. Drought response and contingency plans shall contain, at a minimum, the following three graduated stages of responses to the onset of drought conditions:
 - a. Drought watch stage responses are generally responses that are intended to increase awareness in the public and private sector to climatic conditions that are likely to precede the occurrence of a significant drought event. Public outreach activities shall be identified to inform the population served by a community water system of the potential for drought conditions to intensify and potential water conservation activities that may be utilized.
 - b. Drought warning stage responses are generally responses that are required when the onset of a significant drought event is imminent. Voluntary water conservation activities shall be identified with the goal of reducing water use by 5-10%.
 - c. Drought emergency stage responses are generally responses that are required during the height of a significant drought event. Mandatory water conservation activities shall be identified with the goal of reducing water use by 10-15%.
3. Drought response and contingency plans shall include references to local ordinances, if adopted, and procedures for the implementation and enforcement of drought response and contingency plans.



Roanoke Valley-Alleghany Hazard Mitigation Plan Committee
Attendance Form
December 12, 2018

Name	Agency / Company	Address	Phone	Email
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DANIEL MURPHY	ROANOKE	305 N ROANOKE ST FUMCHINE VA 24090	150-765-8421	DANIELM@BETHLEVA.GOV
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Nathan McClung	Town of Vinton	" " " " "	540-283-7009	nmcclung@vintonva.gov
Jennifer Morris	Town of Clifton Forge	PO Box 347 Clifton Forge VA 24422	540 803 2509	jmorris@cliftonforgeva.gov
Robert Humphreys	Allstate Roanoke	1817 Braeburn Dr. 106 Salem Va	C: 540-598 3753 W: 540 342 2115	r.lincoln.humphreys@gmail.com
Marci Stone	City of Roanoke	713 Third Street Roanoke VA 24016	540.953. 2476	marci.stone@roanokeva.gov



**Roanoke Valley-Alleghany Hazard Mitigation Plan Committee
Attendance Form
December 12, 2018**

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Matt Miller	RVARC		3434417	mmiller@rvarc.org
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Roanoke Valley-Alleghany

REGIONAL
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Regional Pre-Disaster Mitigation Plan Committee

Agenda

February 13, 2019

10 a.m.

1. Welcome and Introductions Eddie Wells
2. Critical Facilities Matt Miller
4. Regional Mitigation Goals and Strategies Eddie Wells
5. Other Business Eddie Wells



Critical Facilities and Higher Standards

Even a slight chance of flooding can pose too great a threat to the delivery of services offered by the maintenance and operation of a community's critical facilities. Special consideration when formulating higher regulatory standards and floodplain management plans needs to occur when critical facilities are involved.

Identifying Critical Facilities

A critical facility provides services and functions essential to a community, especially during and after a disaster. Examples of critical facilities requiring special consideration include:

- Police stations, fire stations, critical vehicle and equipment storage facilities, and emergency operations centers needed for flood response activities before, during, and after a flood
- Medical facilities, including hospitals, nursing homes, blood banks, and health care facilities (including those storing vital medical records) likely to have occupants who may not be sufficiently mobile to avoid injury or death during a flood
- Schools and day care centers, especially if designated as shelters or evacuation centers (see Figure 1 for an example of an elevated school)
- Power generating stations and other public and private utility facilities vital to maintaining or restoring normal services to flooded areas before, during, and after a flood
- Drinking water and wastewater treatment plants
- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic, and/or water-reactive materials

Protecting Critical Facilities

For a critical facility to function, building systems and equipment must remain operational. Furthermore, it must be supplied with essential utilities (typically power, water, waste disposal, and communications, but occasionally natural gas and steam). The loss of municipal utilities has prevented some critical facilities from functioning during and immediately after major floods, and in some cases, loss of municipal water and



Figure 1: School elevated on columns

waste disposal has prevented facilities from operating for weeks after an event.

If at all possible, critical facilities should be located outside all high-risk flood hazard areas, including Zones V and A. Some communities do not permit critical or hazardous facilities or uses in the Coastal High Hazard Area (Zone V), the entire Special Flood Hazard Area (SFHA, or 1-percent-annual-chance flood hazard area), or the 0.2-percent-annual-chance flood hazard area (see Figure 2). If a critical facility must be located in a high-risk flood hazard area, it should be designed to higher protection standards and have flood evacuation plans.

Fire prevention, evacuation, and rescue operations are common emergency response activities associated with flooding. The effectiveness and success of these efforts depend on readily available access for emergency vehicles. However, streets and roads are usually the first to be inundated in the event of a flood.

What is Freeboard?

"Freeboard" is a factor of safety usually expressed in feet above a certain flood level, and is often applied to critical facilities. Freeboard (commonly 1-3 additional feet) compensates for the many unknown factors that could contribute to how high flood waters can rise, such as wave action, constricted bridge openings, and the hydrological effect of urbanization in the watershed.

To ensure vehicle access, some communities require all roads and other access to critical facilities be elevated to or above the base flood elevation (BFE), which is the elevation of the 1-percent-annual-chance event. Some require elevation of access routes to 1 foot or more above the BFE so fire and rescue equipment can travel safely during floods.

Federal Regulations and Critical Facilities



Figure 2: Example of a fire station above the 0.2-percent-annual-chance flood elevation that had only minimal cleanup after a storm

According to Executive Order 11988, *Floodplain Management*, Federal agencies must conduct rigorous alternative site evaluations and meet higher design standards before funding, leasing, or building critical facilities in the 0.2-percent-annual-chance flood hazard area.

Flood Insurance Implications

The Community Rating System (CRS) provides credits to communities that prohibit critical facilities in the 0.2-percent-annual-chance flood hazard area or require them to be protected from damage by the 0.2-percent-annual-chance flood in CRS Activity 430. See the *CRS Coordinator's Manual* and the *CRS Application*. See *CRS Credit for Higher Regulatory Standards* for example regulatory language.

Recommendations

Flood effects on essential systems and equipment can destroy a facility's ability to function and can prevent the facility from serving its community when it is needed most. To improve building performance, building owners,

building operators, and key decision makers should assess critical equipment, critical systems, and critical functions of existing critical facilities to identify vulnerabilities and associated possible hazard mitigation measures. Those mitigation measures should be incorporated whenever damaged facilities are repaired or reconstructed.

New construction should abide by the most current standards and should incorporate recommended freeboard if possible. By building or creating robust critical facilities that remain operational during and after a disaster, people's lives and the community's vitality can be better preserved and protected.

FOR MORE INFORMATION

FEMA's Floodplain Management Branch

Defines floodplain management and its role in the NFIP: <http://www.fema.gov/fpm>

Design Guide for Improving Critical Facility Safety from Flooding and High Winds: Providing Protection to People and Buildings (FEMA 543)

This guide provides guidelines for implementing a variety of mitigation measures to reduce the vulnerability to damage and disruption of operations. <http://www.fema.gov/media-library/assets/documents/8811?id=2441>

Design Guide for Improving Hospital Safety in Earthquakes, Floods, and High Winds: Providing Protection to People and Buildings (FEMA 577)

This guide provides state-of-the-art knowledge on the variety of vulnerabilities faced by hospitals, as well as the best ways to mitigate risks. <http://www.fema.gov/media-library/assets/documents/10672?id=2739>

Reducing Flood Effects in Critical Facilities (FEMA, Recovery Advisory 2, April 2013)

http://www.fema.gov/media-library-data/1381404651877-881a2cf70a90ac63b9c067100ffccace/SandyRA2CriticalFacilities_508_FINAL2.pdf

FloodSmart

Information for consumers about flood insurance and the NFIP: www.FloodSmart.gov

Chapter 5 Regional Mitigation Goals and Strategies

5.1 Project Prioritization and Benefit to Cost Consideration

In developing mitigation strategies for the region and each locality, a wide range of activities were considered in order to achieve the goals and to lessen the vulnerability of the area to the impact of natural hazards. All goals, strategies and projects are dependent on the availability and timeliness of non-local funding.

Goals and Strategies were prioritized by each individual locality. Prioritization was completed in order of relative priority – high, medium or low – based on the benefit to cost criteria and the strategy’s potential to mitigate the impact from natural hazards. Consideration was also given to availability of funding, the department/agency responsible for implementation, and the ability of the locality to implement the project. Under each identified pre-disaster, applicable local government departments will be the lead in making sure that each project or action will be implemented in timely manner with other departments, other local government representatives and/or other regional agencies.

The anticipated level of cost effectiveness of each measure was a primary consideration when developing the list of proposed projects. Since the mitigation projects are an investment of public funds to reduce damages, localities have selected, and prioritized projects based on the benefit to cost of each project in hopes of obtaining the maximum benefit. Projects were categorized as high, medium or low benefit to cost based on the available information for each proposed project. Reduced damages over the lifespan of the projects, the benefits, are likely to be greater than the project cost in all cases. Although detailed cost and benefit analysis was not conducted during the mitigation action development process, these factors were of primary concern when prioritizing and selecting the proposed projects.

5.2 Regional Mitigation Goals and Strategies

Regional mitigation goals and strategies are those that could apply to the entire region (e.g., mitigation of the impact of flooding) or can be accomplished in a more efficient manner by two or more localities working cooperatively (e.g., hazard outreach and education campaigns). **Mitigation measures are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan. Localities have also developed locality specific goals and activities that are listed in *Chapter 6 Local Mitigation Strategies* in this document.**

5.2.1 Earthquake

~~Mitigation measures for earthquakes are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Increase public awareness of the probability and potential impact of earthquakes.

Responsible Departments: Building Inspections, Emergency Management, Public Information Office

Strategy:

1. Publish a special section in local newspaper with emergency information on earthquakes. Localize the information by printing the phone numbers of local emergency services offices, the American Red Cross, and hospitals.

Goal: Ensure that structures can adequately resist seismic forces during earthquakes through the adoption and enforcement of up-to-date building codes.

Responsible Departments: Building Inspections

Strategy:

1. Additional training for building code officials and licensed contractors on provisions within the IBC, IRC and IEBC are intended to ensure that structures can adequately resist seismic forces during earthquakes. This should include a review of the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures (FEMA P-750) and FEMA's companion document Earthquake Resistant Design Concepts (FEMA P-749).

5.2.2 Flood

~~Mitigation measures for floods are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan. Localities have also developed locality specific goals and activities for this disaster that are listed in Chapter 6 Local Mitigation Strategies in this document.~~

Goal: Mitigation of loss of life and property from flooding and flood related disasters.

Responsible Departments: Building Inspections, Community Development, Engineering, GIS, Public Information Office, Public Works, Stormwater, Transportation

Strategies:

1. In cooperation with Federal and State governments, support a comprehensive public information and education program on all hazards addressed in the Regional Hazard Mitigation Plan. This can be accomplished through regional workshops and educational materials for citizens, business, local staff, and elected officials.

2. Develop and maintain an inventory of flood prone roadways in cooperation with local governments and the Virginia Department of Transportation.
3. Develop and maintain an inventory of flood prone critical regional facilities such as hospitals, public utility sites, airports, etc.

Goal: Update existing GIS data layers related to natural hazards.

Responsible Departments: Engineering, Public Works

Strategies:

1. Consider seeking funding and support programs that update FEMA's Flood Insurance Rate Maps (FIRM). Consider participation in FEMA's Cooperating Technical Partners (CTP) program that establishes partners with local jurisdictions to develop and maintain up-to-date flood maps.
2. In cooperation with local governments, utilize GIS to inventory at risk infrastructure and public and private structures within flood prone areas.
3. Participate in FEMA's Digital Flood Insurance Rate Maps (DFIRM) program.
4. Support FIRM remapping projects that address areas in the region that have the most serious mapping problems and where flooding is a repetitive problem.

Goal: Provide early warning of flooding.

Responsible Department(s): Emergency Management, Engineering, Public Works, **Stormwater**, Transportation

Strategy:

1. Identify areas with recurring flood problems and request **additional the upgrade and expansion of the IFLOWS and USGS stream and rain gauges** as appropriate to ensure that these areas are adequately covered and monitored.
2. **Develop a maintenance strategy and related funding for the IFLOWS network in the region/state.**

Goal: Identify structural projects that could mitigate the impact of flooding.

Responsible Departments: Engineering, Public Works, Transportation

Strategies:

1. Consider seeking funding to prepare site-specific hydrologic and hydraulic studies that look at areas that have chronic and repetitive flooding problems.
2. Support Virginia Department of Transportation projects that call for improved ditching, replacement of inadequate and undersized culverts, enlargements of bridge openings and drainage piping needed to minimize flooding.
3. **Work with private sector property owners - including railroad and utility companies - to identify and address recurring damage from stormwater runoff and flooding.**

Goal: Maintain an accurate database and map of repetitive loss properties.

Responsible Departments: Emergency Management, Engineering, Public Works

Strategies:

1. Localities will work with RVARC, VDEM and FEMA to update **the** list of repetitive loss properties annually.

2. Localities will obtain updated list of repetitive loss properties annually from VDEM/FEMA.
3. Localities will review property addresses for accuracy and make necessary corrections.
4. Localities will determine if and by what means each property has been mitigated.
5. Localities will map properties to show general site locations (not parcel specific in order to maintain anonymity of the property owners).
6. Localities will determine if properties have been mitigated and inform FEMA/VDEM through submission of an updated list/database and mapping.

5.2.3 Hurricane

~~Mitigation measures for hurricanes are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigate the impact of hurricanes in the Roanoke Valley-Alleghany Region.

Responsible Department: Emergency Management

Strategy:

1. Provide information about the “StormReady” program to each locality.

5.2.4 Karst

~~Mitigation measures for karst are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Improved Hazard Mapping and Assessments for karst areas and sinkholes.

Responsible Departments: Building Inspections, Engineering, Public Works

Strategy:

1. Encourage the delineation of karst areas and areas susceptible to sinkholes through a cooperative effort with the Virginia Karst Mapping Project, Virginia Speleological Survey, and Virginia Department of Conservation and Recreation (Virginia Cave Board).

5.2.5 Landslide

~~Mitigation measures for landslides are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Improved Hazard Mapping and Assessments for landslides.

Responsible Departments: Building Inspections, Engineering, Public Works, Transportation

Strategies:

1. Encourage the delineation of susceptible areas and different types of landslide hazards at a scale useful for planning and decision-making, led by USGS and State geological surveys.
2. Work with state and Federal agencies to develop data that will assist in reducing and eliminating impacts from landslides.

Goal: Mitigate potential damage to new development by landslides.

Responsible Departments: Building Inspections, Engineering, Planning, Public Works

Strategies:

1. Review of site plans to identify steep slopes and soil stability issues and require problem sites to conduct a soil analysis prior to construction.

5.2.6 Straight Line Winds

~~Mitigation measures for straight line winds are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigation of the impact of Straight Line Winds.

Responsible Departments: Emergency Management, Public Information Office

Strategy:

1. In cooperation with Federal and State governments, support a comprehensive public information and education program on Straight Line Winds. This can be accomplished through regional workshops and educational materials for citizens, business, local staff, and elected officials.

~~Goal: Ensure that structures can adequately resist wind damage during straight line wind events caused by hurricanes and severe thunderstorms through the adoption and enforcement of up-to-date building codes.~~

~~Responsible Departments: Building Inspections~~

~~Strategy:~~

- ~~1. Additional training for building code officials and licensed contractors on provisions within the IBC, IRC and IEBC are intended to ensure that structures can adequately resist wind damage during straight line wind events including Wind Provisions in the 2015 International Building Code® and the 2014 Safe Rooms for Tornadoes and Hurricanes: Guidance for Community and Residential Safe Rooms.~~

5.2.7 Tornado

~~Mitigation measures for tornadoes are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigation of the impact of Tornadoes.

Responsible Departments: Emergency Management, Public Information Office

Strategy:

1. In cooperation with Federal and State governments, support a comprehensive public information and education program on Tornadoes. This can be accomplished through regional workshops and educational materials for citizens, business, local staff, and elected officials.

Goal: Ensure that structures can adequately resist wind damage during tornados through the adoption and enforcement of up-to-date building codes.

Responsible Departments: Building Inspections

Strategy:

1. Additional training for building code officials and licensed contractors on provisions within the IBC, IRC and IEBC are intended to ensure that structures can adequately resist wind damage during tornados including Wind Provisions in the 2015 International Building Code® and the 2014 Safe Rooms for Tornados and Hurricanes: Guidance for Community and Residential Safe Rooms.

5.2.8 Wildfire

~~Mitigation measures for wildfires are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigation of the impacts of wildfire to life and property.

Responsible Departments: Community Development, Emergency Management, Engineering, Fire Department

Strategies:

1. Encourage residents and developers to use NFPA Firewise USA® building design, siting, and materials for construction.
2. Encourage VDOF to continue its Community Wildfire Assessments.
3. Identify buildings or locations vital to the emergency response effort and buildings or locations that, if damaged, would create secondary disasters in forested areas.
4. Participate in National Wildfire Preparedness Day activities.

5.2.9 Winter Storms

~~Mitigation measures for winter storms are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Mitigation of the effects of extreme winter weather.

Responsible Departments: Emergency Services, Public Information Office

Strategies:

1. Research and consider participating in the National Weather Service “Storm Ready” program.
2. Participate in special statewide outreach/awareness activities, such as Winter Weather Awareness Week, Flood Awareness Week, etc.

5.2.10 All Hazards

~~Mitigation measures for the all hazards classification are region-wide recommendations for all localities adopting the Regional Pre-Disaster Mitigation Plan.~~

Goal: Improve general preparedness of the local government for all hazards.

Responsible Departments: Emergency Services, Public Information Office

Strategies:

1. In cooperation with Federal and State governments, support a comprehensive public information and education program on ~~Tornadoes~~ natural hazards. This can be accomplished through regional workshops and educational materials for citizens, business, local staff, and elected officials.
2. Participate in statewide disaster mitigation outreach and awareness activities.
3. Develop and sponsor local outreach and awareness activities such as the annual "Preparathon" and National Wildfire Preparedness Day events to better inform the public about natural hazards and mitigation activities.
4. Provide training to all local government staff involved in mitigation activities including those indirectly involved from such departments as transportation, schools, police, and administration.

**Table 72
Regional Hazard Mitigation Projects**

Project	Hazard Mitigated	Benefit	Cost Estimate	Benefit-to-Cost	Priority	Funding Partners	Implementation/Lead Agency	Status	Proposed Schedule
Publish a special section in local newspaper with emergency information on earthquakes	Earthquake	Increased level of knowledge and awareness in citizens	\$5,000	High	Low	FEMA, VDEM Local governments	Local government	Not started; lack of funding	2014 Annually
Training for local building code officials on IBC, IRC and IEBC	All Hazards	Increased level of knowledge and awareness in local government building code officials staff	Unknown	High	High	Local Governments VA DHCD Building Code Academy	Local government	—	Annual
Local government staff training on disaster mitigation – “Mitigation 101” class	All Hazards	Increased level of knowledge and awareness in local government staff, incl. planners, admin., finance, etc.	Unknown	High	High	Local governments, VDEM, FEMA	Local government	—	Annual
Maintain an accurate database and map of repetitive loss properties	Flooding	Identification of repetitive loss properties that should be mitigated	\$5,000	High	High	FEMA, VDEM	Local government RVARC, VDEM, FEMA	Ongoing	Ongoing
Utilize GIS to inventory at risk infrastructure and public and private structures within flood prone areas	Flooding	Available inventory of structures that need additional or unique protection from flooding.	\$30,000	Medium	Medium	FEMA, VDEM Local governments	Local government	Not started; lack of funding	2014-2015 2020-2021
Participate in FEMA’s Digital Flood Insurance Rate Maps (DFIRM) program	Flooding	Increased accuracy of flood hazard areas through sharing of local knowledge.	\$10,000	Medium	Medium	FEMA, Local governments	Local government	In progress; depends on the locality’s ability to provide GIS information	Ongoing

Project	Hazard Mitigated	Benefit	Cost Estimate	Benefit-to-Cost	Priority	Funding Partners	Implementation/Lead Agency	Status	Proposed Schedule
Support FIRM remapping projects in repetitive loss areas	Flooding	Increased accuracy of flood hazard areas through sharing of local knowledge.	unknown	unknown	Medium	FEMA, VDEM Local governments	Local government	In progress; advocating for flood studies by localities	Ongoing
Seek funding to prepare site-specific hydrologic and hydraulic studies of areas that have chronic and repetitive flooding	Flooding	Possible determination of solutions to repetitive loss properties.	Unknown	High	Medium	Local governments	Local government	Ongoing	Ongoing
Support Virginia Department of Transportation projects that minimize flooding	Flooding	Safer transportation system and reduction in flooding of private properties.	Unknown	High	Medium	Local governments, VDOT	Local government	In progress; localities advocating for drainage improvements.	Ongoing
Provide information about the "StormReady" program to each locality	All Hazards	Increased knowledge of local officials about the StormReady program; possible applicants to the program.	\$1,000	High	Medium	FEMA, VDEM, NWS, Local governments	RVARC	Ongoing	Annual reminder to localities that have not applied to the program
Support a comprehensive public information and education program on natural hazards	All Hazards	Increased level of knowledge and awareness in citizens of natural hazards	\$5,000	High	Medium	Local governments	Local government	Not started; lack of funding	2014-2015 Ongoing
Encourage residents and developers to use FireWise building design, siting, and materials for construction	Wildfire	Reduction in wildfire damage.	\$5,000	High	Medium	VA Dept. of Forestry, USFS, Local governments	Local government	Ongoing	Ongoing

Project	Hazard Mitigated	Benefit	Cost Estimate	Benefit-to-Cost	Priority	Funding Partners	Implementation/Lead Agency	Status	Proposed Schedule
Identify buildings or locations vital to the emergency response effort and buildings or locations that, if damaged, would create secondary disasters in forested areas	Wildfire	Available inventory of structures that need additional or unique protection from wildfires.	\$10,000	Medium	Medium	VA Dept. of Forestry, US Forest Service, Local governments	Local government	Not started; lack of funding	2015-2016 2020-2022
Seek funding to prepare site-specific hydrologic and hydraulic studies	Flooding	Inventory areas that have chronic and repetitive flooding problems; determine method to eliminate repetitive loss	\$20,000	Medium	Medium	FEMA, VDEM	Local government	Not started; lack of funding	2014-2016 Ongoing
Develop and maintain an inventory of flood prone critical regional facilities	Flooding	Available inventory of critical structures that need additional or unique protection from flooding.	\$10,000	Medium	Medium	FEMA, VDEM Local governments	Local government	Ongoing	Ongoing Annual Update
Flood prone roadway study / database	Flooding	Inventory of flood prone roadways for planning purposes (road improvements, limitation of development)	\$10,000	Medium	Medium	FEMA, VDEM VDOT	RVARC	In progress	2-year updates
Participate in FEMA's Cooperating Technical Partners (CTP) program and Digital Flood Insurance Rate Maps (DFIRM) program	Flooding	Increased accuracy of flood maps and more effective regulation and enforcement of regulations	\$5,000	High	Medium	FEMA, VDEM	Local government	Ongoing; not all localities participate	Ongoing
Identify streams that need additional IFLOW stream/rain gauges	Flooding	Improved early warning of flooding; ensure that these areas are adequately covered and monitored	\$12,500	High	Medium	FEMA, VDEM	RVARC	In progress	2014 2020

Project	Hazard Mitigated	Benefit	Cost Estimate	Benefit-to-Cost	Priority	Funding Partners	Implementation/Lead Agency	Status	Proposed Schedule
Identify funding and resources for delineating landslide hazards	Landslide	Tool for planning and decision-making; limitation of new development.	\$5,000	Medium	Low	FEMA, VDEM USGS VDOT	Local government VA DCR	Not started; lack of funding	2014 2020
Identify funding and resources for Hazard Mapping and Assessments for karst areas and sinkholes	Karst	Improved Hazard Mapping and Assessments for karst areas and sinkholes	\$5,000	Medium	Low	FEMA, VDEM USGS VA DCR VDOT	VA DCR Online maps available	Not started; lack of funding Complete?	2014
Public information and education program	All Hazards	Increased level of knowledge and awareness in citizens of natural hazards.	\$5,000	Medium	Medium	FEMA, VDEM Local governments	Local government Listed twice	Ongoing local efforts	Ongoing
Community Wildfire Assessments	Wildfire	Identify buildings or locations susceptible to wildfires.	\$5,000	High	High	FEMA, VDEM VA DOF	Local government VDOF	Not started; lack of funding	2015 Ongoing
Participate in special statewide outreach/awareness activities	All Hazards	Increased level of knowledge and awareness in citizens of natural hazards.	\$5,000	Medium	Low	FEMA, VDEM	Local government	Ongoing local efforts	Ongoing



Roanoke Valley-Alleghany Hazard Mitigation Plan Committee
Attendance Form
December 12, 2018 Feb 13, 2019

Name	Agency / Company	Address	Phone	Email
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**Roanoke Valley-Allegheny Hazard Mitigation Plan Committee
Attendance Form
December 12, 2018 Feb 13, 2019**

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Roanoke Valley-Alleghany

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Regional Pre-Disaster Mitigation Plan Committee

Agenda

March 13, 2019

10 a.m.

1. Welcome and Introductions Eddie Wells
2. Critical Facilities Matt Miller
4. Survey Summary (Public Participation Section) Eddie Wells
5. Other Business Eddie Wells

1.7 Public Participation

1.7.1 Public Meetings

The public was invited to attend one or more of ___ meetings that were held to seek input about hazards that have impacted the area. Participants were given the opportunity to review maps, historical hazard data, damage estimates, and information about the Disaster Mitigation Act and the pre-disaster planning requirements. Information gathered at the meetings was used in developing strategies to mitigate natural hazards in the region.

Three public input meetings were held in the early evening ___ p.m. the week of _____. The meetings were advertised as display ads in one regional daily (Roanoke Times reaching 19 counties in southwest Virginia and over 200,000 readers), one local daily and four weekly local newspapers with a combined circulation of over 99,000 as well as through Facebook postings and direct emails. Meeting announcements, sign-in sheets, news articles, brochures, and handout materials were available at the meetings. Documentation is included in Appendix A.

1.7.2 Survey

The Roanoke Valley-Alleghany Regional Commission conducted two online surveys – one for the general public and one for local government staff - with the goal of gauging the level of knowledge and opinions about hazard mitigation. The survey resulted from discussions of the Hazard Mitigation Committee about differing levels of knowledge and familiarity of natural disasters between the public and local government staff. Perception of levels of risk from natural disasters also differs between the public and government. There was also the issue that all local government departments are not familiar with the mitigation of natural disasters and additional training or outreach could be beneficial.

The Committee felt that everyone should have a good basic understanding of natural disaster mitigation activities and the resources that support them (PDM, HMGP, NFIP, etc.). The gaps identified in the survey results of different levels of familiarity and perception of risk, along with outreach preferences, can help guide future education and training activities at the local and regional level.

The surveys were open from August 16, 2018 to October 1, 2018. Press releases were sent out on social media, websites, local newspapers, and local government newsletters. There were 122 responses to the Public Survey and 50 responses to the Local Government Staff Survey.

Survey forms and detailed results can be found in Appendix A.

An example of the differing levels of impact from natural disasters can be seen in Figure 1 below. While the winter storm events seemed to impact the general public and government staff equally, flooding showed a large difference in responses, likely because only certain properties are impacted by any given flood. The local governments however respond to every flood event. This implies that all local governments should provide information about flooding and that it should be focused on properties directly impacted.

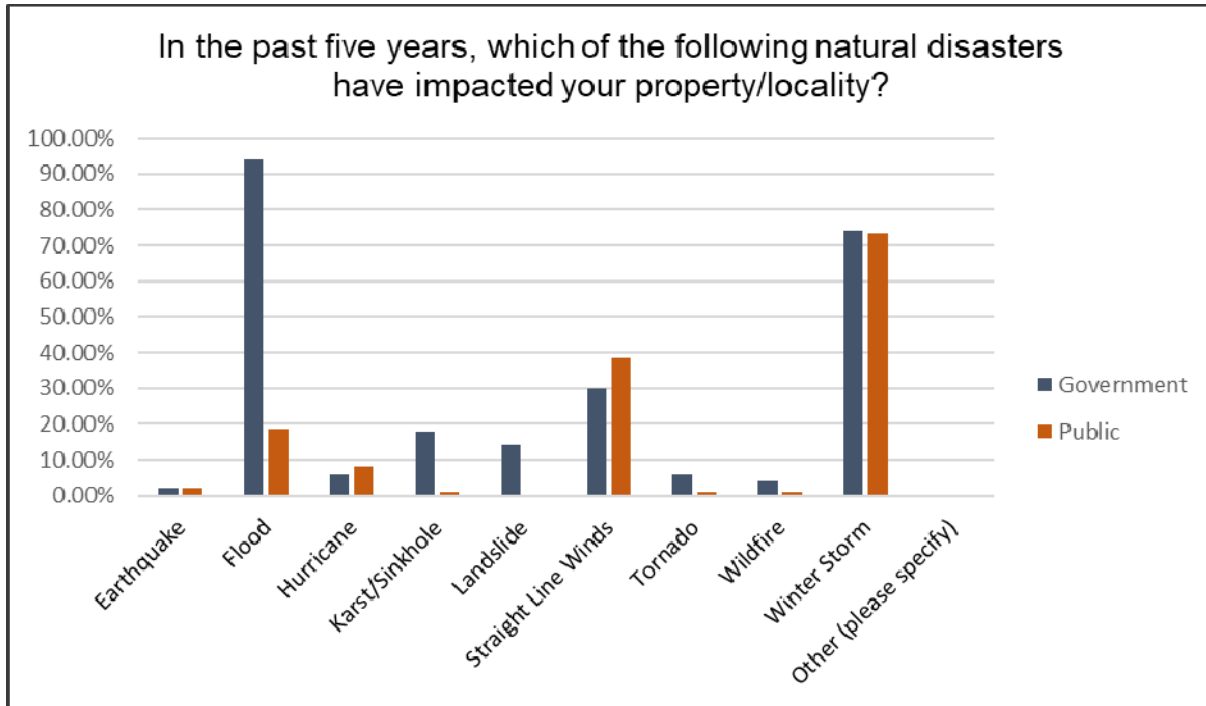


Figure 1

Some questions in the surveys attempt to answer ongoing questions or efforts such as how to motivate property owners to take additional steps to better mitigate the impact of natural disasters. When both survey groups were asked about incentives - tax breaks, insurance discount, etc. – government staff showed more support for incentives than the general public (Figure 2).

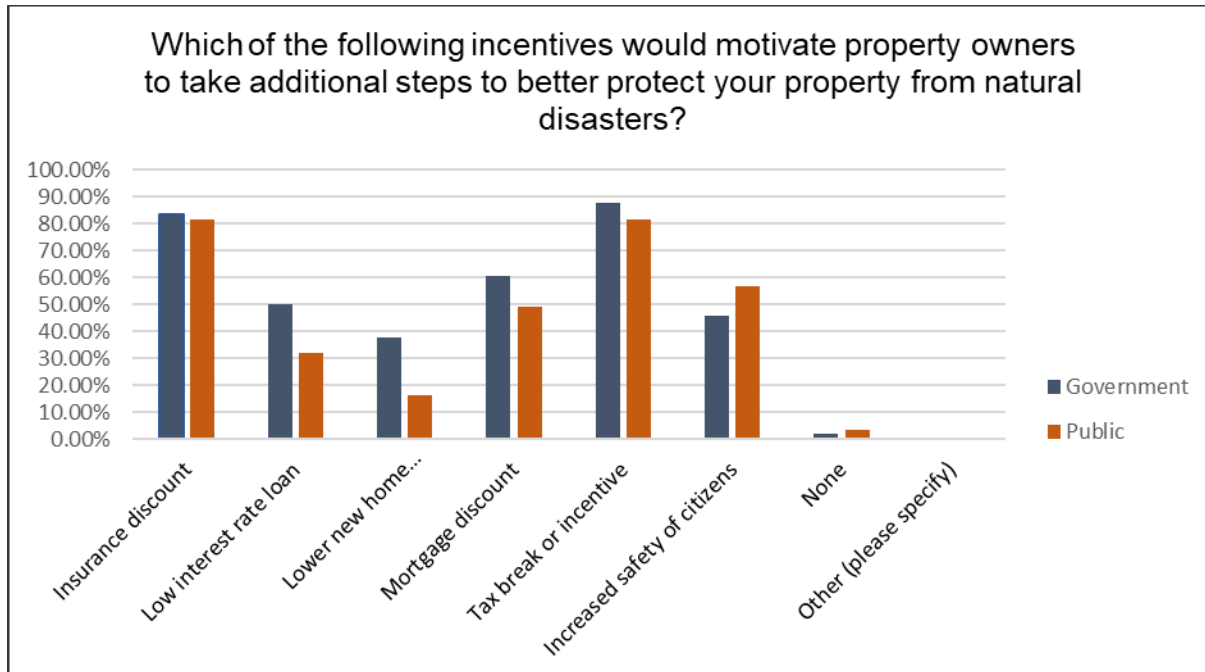


Figure 2

1.7.2.1 Public Survey

This survey is designed to help gauge household preparedness for disasters and knowledge of methods to reduce risk and loss from natural hazards. 20 questions covering a range of items including past events, outreach methodology, willingness to spend additional money – including higher taxes - to mitigate hazards, and flood insurance.

A majority of respondents were from the urban area (62% from City of Roanoke and 23% from Roanoke County) with 97% being residential properties and 19% being rental properties.

The natural disasters that have impacted the largest percentage of respondents were: winter storm at 73%; straight-line winds at 38% and flood at 19%.

When asked if the respondent had ever received information about how to make property safe from natural disasters 43% said yes, with 39% receiving information within the past 6 months. Respondents received disaster mitigation information from a wide variety of sources including: Local Government (51%), VDEM (11%), VA DEQ (2%), FEMA (16%), News media (55%), Insurance agent (38%), Utility company (36%), and American Red Cross (15%).

One of the questions that was important for guiding future outreach efforts was “How do you, as a private property owner, prefer to receive information about how to prepare for natural disasters?” While social media ranked highest at 46%, with mail a close second place at 42%, television, internet, and factsheet/brochure also ranked selected by more than a third of respondents as their preference. This indicates that outreach efforts should utilize a wide variety of media if future efforts.

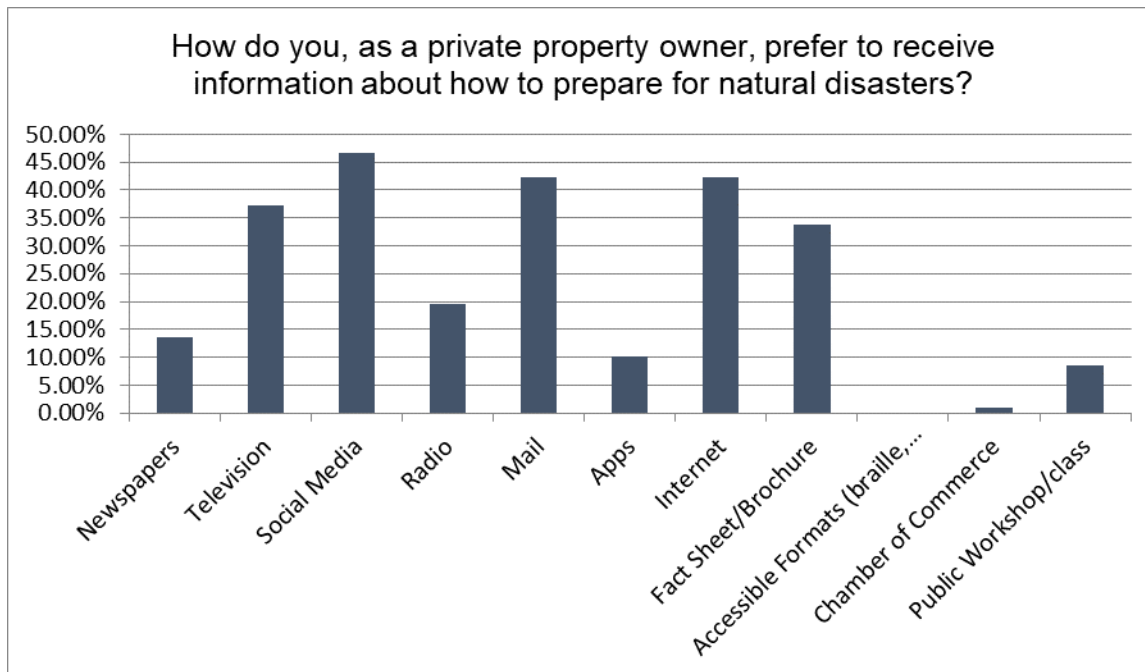


Figure 3

Responses to one question raised concerns about the level of preparedness of the general public. When asked if the respondent had taken any actions to prepare for a disaster the results showed that less than half had taken any action to prepare for a natural disaster – no supply kit, designation of a family meeting place, discussed location of utility shutoff valves, etc. Another concern was that other than emergency services, less than half of the respondents were familiar with natural hazard prevention activities such as property protection, natural resource protection and structural projects.

Looking at some of the questions that gauged the public’s knowledge about natural disaster mitigation programs, 16% of respondents did not know if their property was in the floodplain and 14% did not know if the property had flood insurance. For those in the floodplain that choose not to have flood insurance, the reasons given were that it was too expensive (9%) and the deductibles were too high (4%) or that they had not considered coverage (6%) or they were not familiar with the program (9%). Respondents with flood insurance were either unsure if they received a CRS discount or stated that they did not receive a discount.

Only half of the respondents had considered the possible occurrence of a natural hazard when purchasing their property. Seventy percent of respondents said they would be willing to spend more money on a property to make it more disaster resistant (elevated HVAC, tornado safe room, flood vents, etc., and 13% of those willing to spend more than \$5,000.

Incentives were popular with respondents when asked about taking additional steps to protect property and are shown in Figure 2 along with local government responses on what would motivate property owners to take action.

1.7.2.2 Government Staff Survey

This 16-question survey was designed to help gauge local government staff knowledge and familiarity with preparedness for disasters and of methods to reduce risk and loss from natural hazards. The information provided in the survey responses will help improve public/private coordination of preparedness and risk reduction activities. This survey was more focused on local government staff knowledge and activities related to hazard mitigation including department, familiarity of past hazard events, outreach, hazard plan implementation, NFIP and CRS participation, and incentivizing property owners to take additional actions to mitigation hazard impacts.

Again, a majority of respondents from the urban are: 43% from City of Roanoke, 24% from City of Salem and 18% from Town of Vinton. Responses were from across various departments: 35% from stormwater, 17% from administration, 15% from planning/zoning, 10% from fire & rescue, 10% from transportation, 7.5% from building inspections, and 2.5 % from both water/wastewater and parks and recreation.

Sixty-eight percent said that they had received information about natural disasters, with 37% with the past 6 months and 29% within 6-12 months from a wide variety of sources (Figure 4).

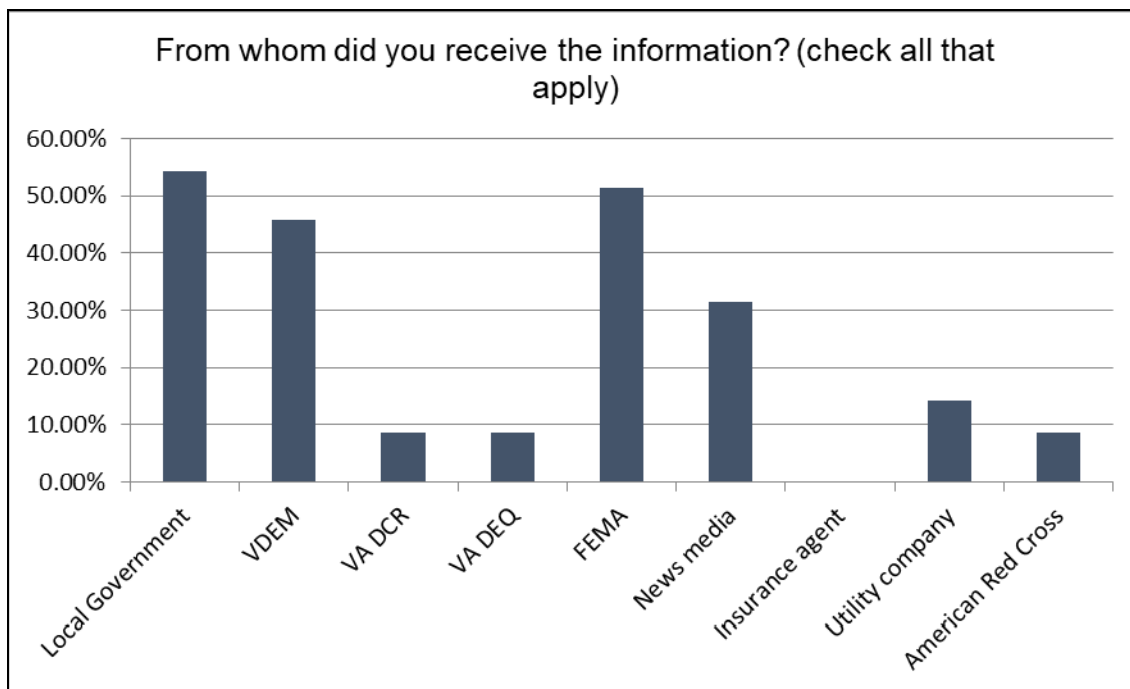


Figure 4

We can contrast graph of government staff's preferred ways to receive information (Figure 5) with that of the general public (Figure 3). The government staff respondents had a clear preference for the internet as a source of information at 80% with social media (42%) and public workshops/classes (36%) a distant second and third preference.

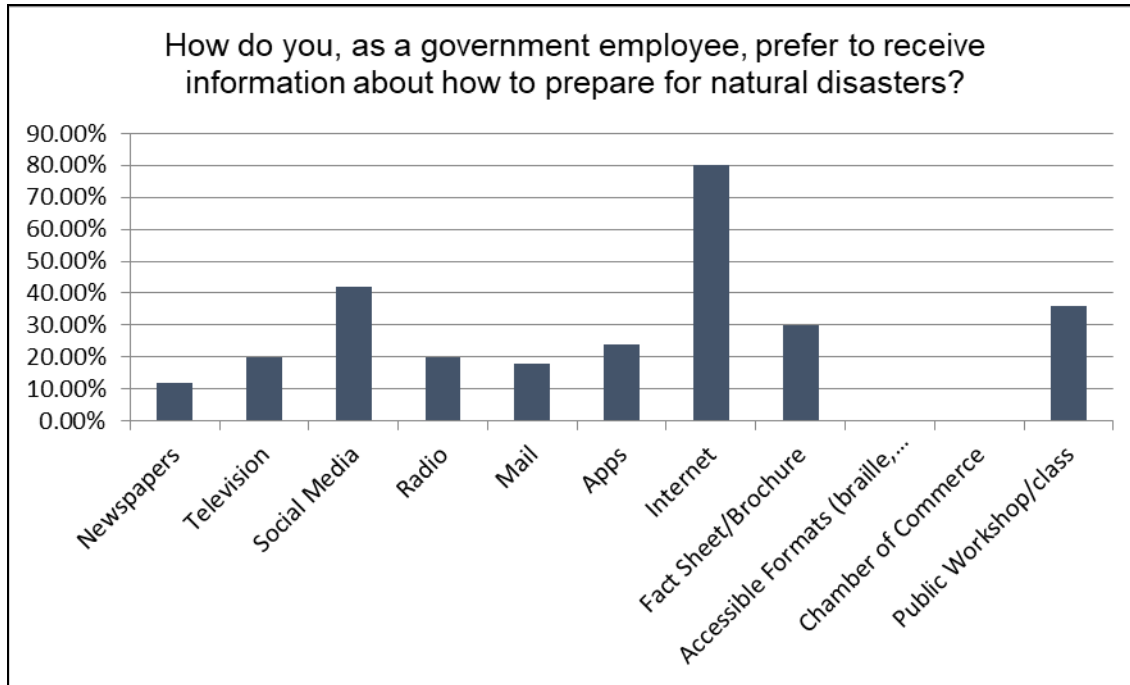


Figure 5

When asked how natural hazard mitigation should be implemented through local government documents and actions, respondents answered the floodplain ordinance (85%), stormwater ordinance (77%) and comprehensive plan (79%).

Looking at existing local government participation in ongoing programs, 36% were not sure if the local government participated in the NFIP, and 52% were not sure if it participated in CRS.

When asked about participation in other programs related to natural disaster mitigation, staff were more aware of programs that required direct participation such as the LEPC than they were of federal government sponsored activities (Figure 6).

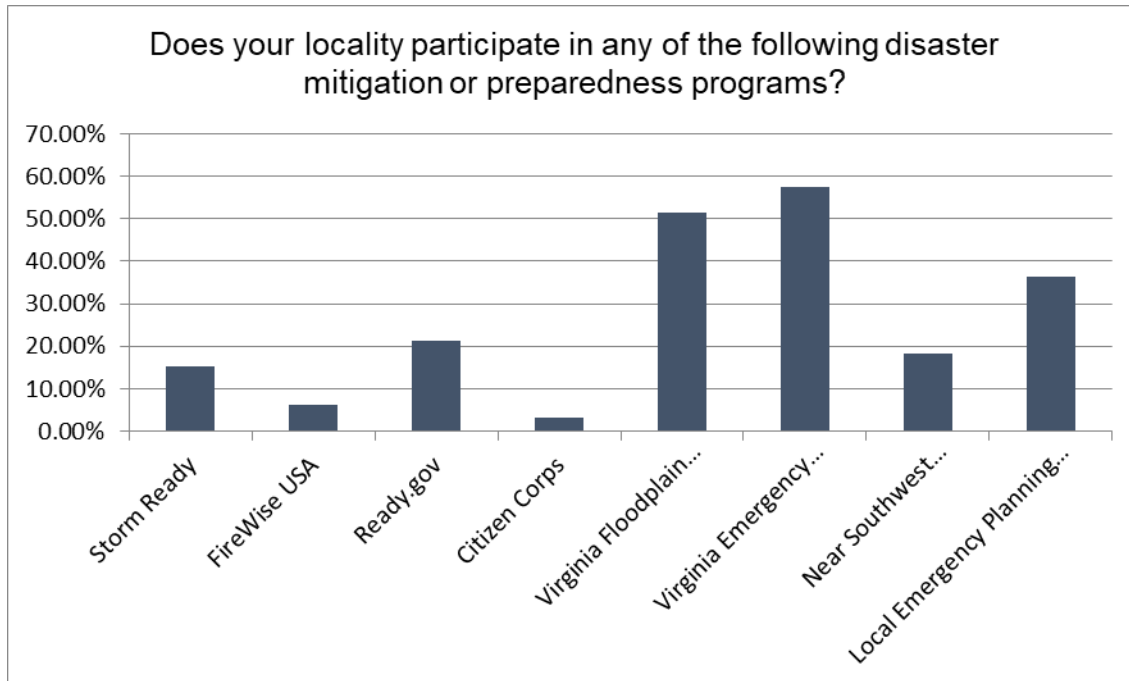


Figure 6

Recommendations

Recommendations based on the survey responses include the following:

1. Outreach for flood mitigation and flood insurance should be undertaken by all local governments and should be targeted at properties directly impacted by flooding
2. Local governments should use multiple media formats for outreach to the general public including television, social media, internet, mail, and factsheets/brochures.
3. Local, state, and Federal government should explore ways to offer additional incentives to property owners to encourage them to take action to protect their property.
4. Local governments should offer training and workshops to staff in all departments that have a role in hazard mitigation.
5. Local, state, and Federal governments should utilize and work with other organization and agencies to improve and expand outreach.



**Roanoke Valley-Alleghany Hazard Mitigation Plan Committee
Attendance Form
March 13, 2019**

Name	Agency / Company	Address	Phone	Email
Ed Wells	RVARC	313 Lancaster Road VA 24015	343 4417	edwells@rvarc.org
Math Miller	"	"	"	mmiller@rvarc.org
Hal Cone	Lichterstein Roanoke Recreators	3621 Manassas Drive Roanoke, VA 24018	759-4766	hal@halcone.com
Chris Linkous	Town of Vinton	311 South Pollard St Vinton, VA 24124	983-0624	Linkous@VintonVA.gov
Jennifer Morris	Town of Clifton Forge	547 Moun St Clifton Forge VA 24112	863-2509	jmorris@cliftonforge.gov
Wendy Biggs	Town of Iron Gate	401 Commerce Ave Iron Gate VA 24448	862-0770	igtownclerk@aol.com
Mary Ellen Wines	City of Salem	21 Spruflly St Salem VA 24153	315-3036	menwines@salemva.gov
CHARLES GRANT	CITY OF SALEM	PO Box 869 SALEM VA 24153 1802 Cantland Rd, NE Roanoke, VA 24012	375-3032	cgrant@salemva.gov danielle.dehart @roanokeva.gov
Danielle DeHart	City of Roanoke	257 Tanning Tree Lane Roanoke VA 24019	853-5915	billotanger@ verizon.net
Bill Tanager	FOFA VA (Friends of the Rivers of VA)		540-266 0237	



Roanoke Valley-Alleghany

REGIONAL
commission

rvarc.org

313 Luck Avenue, SW | Roanoke, Virginia 24016 | P: 540.343.4417 | F: 540.343.4416 | rvarc@rvarc.org

Regional Pre-Disaster Mitigation Plan Committee

Agenda

April 10, 2019

10 a.m.

1. Welcome and Introductions Eddie Wells
2. Draft Plan Review Eddie Wells
4. Organization of Public Meetings Eddie Wells
5. Other Business Eddie Wells

For Immediate Release

March 29, 2019

Contact

Ed Wells, AICP, CZA
Director of Community Development Programs
Roanoke Valley-Alleghany Regional Commission
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Regional Hazard Mitigation Plan Available for Public Comment

Roanoke, VA – The draft Roanoke Valley-Alleghany Hazard Mitigation Plan is available for public comment. The Roanoke Valley-Alleghany Regional Commission (RVARC) will hold public meetings where information about the region's natural hazards, including mapping and plan drafts, will be on display. Citizens are encouraged to review them, ask questions and add their comments to the review process. A short overview presentation will be made at the start of the meeting.

The Disaster Mitigation Act of 2000 requires that local governments, as a condition of receiving federal disaster mitigation funds, have a mitigation plan that; describes the process for identifying hazards, risks, and vulnerabilities, identifies and prioritizes mitigation actions, encourages the development of local mitigation, and provides technical support for those efforts. While the plan does not establish any legal requirements for the localities, it does provide a framework for natural hazard mitigation planning. The plan identifies hazards, establishes community goals/objectives, mitigation activities that are appropriate for the region, and addresses multiple hazards including flooding, severe weather, geologic hazards, and wildfires.

The planning area for the Hazard Mitigation Plan includes the counties of Alleghany, Botetourt, Craig, and Roanoke; the cities of Covington, Roanoke and Salem; and the towns of Buchanan, Clifton Forge, Fincastle, Iron Gate, New Castle, Troutville, and Vinton. These are the same localities that participated in the 2006 and 2013 plans.

The meetings will be held on the following dates and locations. A short overview presentation will be made at the start of the open house and an hour later.

April 22, 5:00 to 7:00 pm, McCarthy Hall Room 509, Dabney S. Lancaster Community College, 1000 Dabney Dr, Clifton Forge, VA 24422

April 24, 5:00 to 7:00 pm, Roanoke Higher Education Center, Room 410, 108 North Jefferson St, Roanoke, VA 24016

More information about the plan is available at <http://rvarc.org/community/hazard-mitigation/> .

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Roanoke Valley-Alleghany Hazard Mitigation Plan Committee Attendance Form

March 13, 2019 April 10, 2019

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Roanoke Valley-Alleghany

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Regional Pre-Disaster Mitigation Plan Committee

Agenda

May 8, 2019

10 a.m.

1. Welcome and Introductions Eddie Wells

2. Final Draft Plan Review Eddie Wells

5. Other Business Eddie Wells



**Roanoke Valley-Alleghany Hazard Mitigation Plan Committee
Attendance Form
May 8, 2019**

Name	Agency / Company	Address	Phone	Email
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