

#### Town of Charlemont



**Municipal Vulnerability Preparedness (MVP) Program** 

## MVP Resiliency Plan

Facilitated by the Franklin Regional Council of Governments
A State-Certified MVP Provider



### **MVP Resiliency Plan**

## including the Summary of Findings from the Community Resilience Building Workshop May 2018

#### **Table of Contents**

Overview:	1
Community Resilience Building Workshop	2
Summary of Findings	2
Top Hazards	3
Areas of Concern	3
Current Concerns & Challenges Presented by Hazards	4
Specific Categories of Concerns and Challenges	5
Top Recommendations to Improve Resilience	7
CRB Workshop Participants: Department/Commission/Representative:	14
CRB Workshop Project Team: Organization and Role	15
Recommended Citation	15
Appendices	16
BASE MAP: Hazards and Infrastructure	17
BASE MAP: Environmental Resources	18
BASE MAP: Tropical Storm Irene Damage	19
EXERCISE OUTPUTS	20
FRCOG WORKSHOP PRESENTATION	24
TIGHE & BOND PRESENTATION	27
PUBLIC INPUT DOCUMENTATION	29

#### Town of Charlemont

## Community Resilience Building Workshop Summary of Findings

#### Overview:

Throughout Franklin County, Massachusetts, communities are experiencing more extreme weather events – especially heavy rains and flooding – along with higher temperatures and other climate-related conditions. These types of conditions are predicted to increase as a result of climate change.

In the face of these and other changes, municipalities have more of a sense of urgency to increase their resilience and adapt to extreme weather events and mounting natural hazards. Relatively recent events in Franklin County, such as Tropical Storm Irene and "Snow-tober", have reinforced this urgency and compelled communities like the Town of Charlemont to proactively plan and mitigate potential risks. This type of planning will reduce the vulnerability of Charlemont's people, infrastructure and natural resources, and will empower Charlemont's officials and citizens alike to take steps to protect themselves and their community.

In the spring of 2018, with funding from the Massachusetts Executive Office of Energy and Environmental Affairs, the Franklin Regional Council of Governments (FRCOG) offered the Town of Charlemont technical assistance in completing their Community Resilience Building Workshop to achieve designation as Municipal Vulnerability Preparedness Community or "MVP" Community. As a State-certified MVP Provider, the FRCOG helped Charlemont engage in a community-driven process that brought together climate change information and local knowledge to conduct the workshop, whose central objectives were to:

- Define top local natural and climate-related hazards of concern;
- Identify existing and future strengthen and vulnerabilities;
- Develop prioritized actions for the town;
- Identify immediate opportunities to collaboratively advance actions to increase resilience.

This report summarizes the findings of the Town of Charlemont's Community Resilience-Building Workshop.

#### **Community Resilience Building Workshop**

#### **Summary of Findings**

The Town of Charlemont, population 1,107, has conducted a number of planning projects in previous years, including its 2015 Hazard Mitigation Plan, which enabled the Town to identify high priority hazards as well as areas, infrastructure and populations vulnerable to a variety of hazards, and action items to potentially address hazards. Other recent Charlemont plans include 2017 Floodplain Action Plan, which was prepared as a deliverable of the Massachusetts Silver Jackets Team Special Projects program, with participation from the US Army Corps of Engineers (USACE), the US Geological Survey (USGS), the Massachusetts Emergency Management Agency (MEMA), and Massachusetts Department of Conservation & Recreation's (DCR) Flood Hazard Management Program. Other relevant FRCOG plans include the 2011 Economic Development Master Plan Chapter and the 2017 Watershed-Based Plan to Maintain the Health and Improve the Resiliency of the Deerfield River Watershed. Some of the recommendations from the Watershed-Based Plan tie in directly with recommendations workshop participants developed.

In spite of Charlemont's diligence in completing these various planning efforts, there was still a need for the community to conduct a hazard assessment across scales – from individual buildings and bridges to rivers and landscapes, and across sectors – infrastructure, society and environment – looking specifically through the lens of climate change and its likely impacts.

A Community Building Resilience Workshop was held at the Federated Church in Charlemont on May 18, 2018. Workshop participants considered climate change impacts most likely to



Participants worked together to determine top hazards, strengths, vulnerabilities and recommendations.

impact Charlemont, including rising and extreme air temperatures, extreme weather events, and increased quantity and intensity of precipitation.

The workshop was critical to enabling participants to think about and engage with people from different sectors.

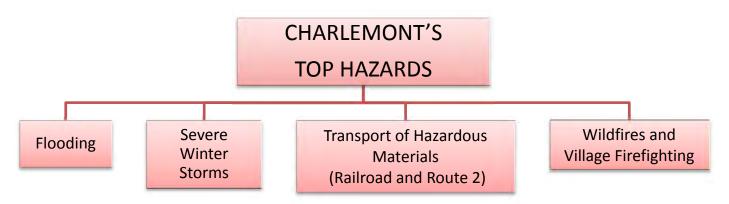
Residents representing public health, planning,

conservation, fire, emergency management, and the faith community came together to determine the most threatening hazards to the Town of Charlemont and to agree upon high

priorities and actions to address them. In addition to FRCOG representatives facilitating the workshop, an Environmental Planner from the engineering firm Tighe & Bond (also working for the Town) was in attendance and shared information on Natural Hazard Planning in Charlemont and recent USGS Flood Inundation mapping. See page 14 below for the sign-in sheet showing the workshop participants, their affiliations, and their positions.

#### Top Hazards

Workshop participants discussed a number of hazards that impact Charlemont, deliberating on how frequent, how intense and how widespread each hazard has been and could potentially be in the future. Hazards discussed included: dam failures, severe winter storms/ice storms, earthquakes, hurricanes, wind storms/microbursts, tornados, ice jams, floods, wild fires, landslides, droughts, manmade hazards, and extreme temperatures. Top hazards identified by the participants are as follows:



In addition to these top hazards, workshop participants said it was important to note that lack of cell phone and/or internet coverage is a hazard in and of itself, and that this issue serves to exacerbate the impacts of Charlemont's top hazards.

#### Areas of Concern

*Infrastructure and buildings:* Key Town infrastructure is located in the 100-year floodplain, including the Fire Department, Highway Department, Police Department, Wastewater Treatment Plant, and the Hawlemont School.

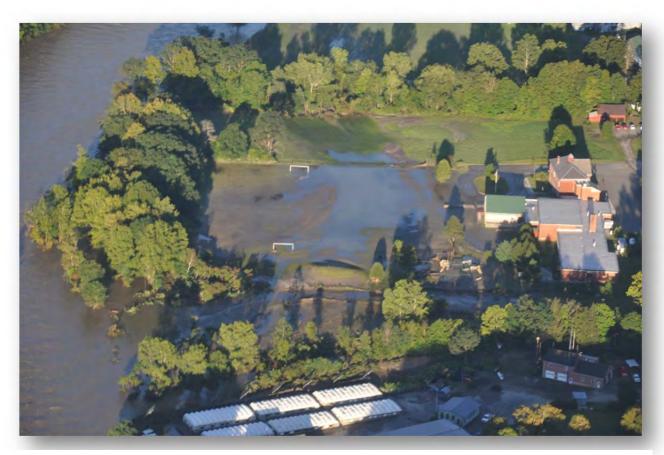
*Transportation:* Transport of hazardous materials on the railroad brings potential for derailments, spills, and fires threatening the Town's main evacuation route (Route 2). Trucks speeding down the hill on Route 2 into Town cause accidents that can result in the release of hazardous materials, damage to the electrical infrastructure, etc. Many bridges throughout town are in need of repairs. Culverts throughout town may not be large enough to pass high flows resulting from more frequent and intense storms.

*Public sanitation and water:* The Town lacks a municipal drinking water source and private wells are subject to flooding and failure during power outages.

*People:* Isolated, hard-to-reach populations are located in areas of Town, particularly in East Charlemont. The list of vulnerable people in Town is not up to date. Transportation for vulnerable people is needed in the event an evacuation is ordered.

*Communication:* Cell phone and internet coverage are spotty, often making it difficult to communicate with residents in an emergency. The Town's Reverse911 system does not include all Town residents and cannot send notifications to tourists in emergencies. Lack of complete coverage for broadband and cell phone service impacts residents and emergency responders.

Ecosystems and natural resources: While 41% of the Town's total acreage is under some level of protection, the vast majority of these properties are only temporarily protected under the Chapter 61 tax exemption program. Just 12% of the Town's land area is permanently protected from development, consisting primarily of the Mohawk Trail State Forest owned by the MA DCR. Workshop participants expressed the need to support climate resilience via land conservation and management. Sedimentation causes significant changes to the flow of the rivers in Town.



Top hazards identified by the workshop participants include the location of key Town infrastructure in the floodplain, shown here during flooding from Tropical Storm Irene.

#### Current Concerns & Challenges Presented by Hazards

Participants in the workshop discussed a number of hazards, both natural and manmade, which have impacted the community in recent years. For many, Tropical Storm Irene in 2011 is a bellwether event, demonstrating the extent and severity of the types of extreme weather and increased rain that is predicted to become more frequent in the coming years.

<sup>&</sup>lt;sup>1</sup> <u>Town of Charlemont, Open Space and Recreation Plan 2004</u>; Prepared by the Charlemont Open Space And Recreation Planning Committee; Table 5-1, p. 5-3.

Flooding in particular, fueled by heavy rains, was widespread in Charlemont after Irene. Flooding washed out a section of Route 2, resulting in the highway being closed for months for repairs. In addition, many properties along Route 2 in Charlemont experienced damage from significant flooding, including businesses and farm fields. Workshop participants expressed concern about heavy rain events and potential future flooding, saying impacts on bridges, culverts, roads, the railroad, and other infrastructure could be significant.

With Route 2 and the railroad following closely along the Deerfield River in town, Charlemont is vulnerable to the potential release of hazardous substances in the event of a derailment or an accident. This could occur as a result of a natural event or of a man-made incident on either of these key transportation routes in town.

Although towns in Franklin County have an abundance of rivers and streams – and worry about droughts has historically been low – the drought of 2016 was a reminder of the widespread impacts droughts can have on our region. In addition to impacting the water quality and quantity of rivers, streams and other waterbodies, drought can fuel wildfires. The Town of Charlemont is particularly vulnerable to wild fires and brush fires, given that 84 percent of land in Town is wooded. Also, some State-owned land, like that in Mohawk Trail State Forest, is hard to get to, especially given the lack of maintenance on State-owned roads. In addition, the village center is vulnerable to fast-moving fires that could have the potential to adversely impact key Town infrastructure and many homes of town residents.

Participants also talked about impacts from severe winter storms and ice storms. Downed trees and power lines, and road closures could be widespread and could tax the capacity of first responders, the highway department and private citizens. Of particular concern are truck accidents on the hill on Route 2 coming down from Savoy caused by road temperatures that typically are lower than the surrounding roadway in cold weather. (See the <u>Hazards and Infrastructure Map</u> on page 19 for the area on Route 2 identified by participants as having a history of truck accidents due to freezing temperatures.)

All told, Charlemont residents and first responders have experienced a number of very serious weather-related calamities over the last decade. Workshop participants acknowledged that the types of storms that have occurred in their towns have the potential to occur more frequently as weather and climate becomes increasingly volatile.

#### Specific Categories of Concerns and Challenges

Vulnerabilities related to the Deerfield, Cold, and Chickley Rivers and their tributaries: There are a number of concerns related to the Deerfield, Cold, and Chickley Rivers and their tributaries that were identified by workshop participants. There are a number of structures, facilities, roads and culverts that are in the Deerfield River's 100-year floodplain and are, therefore, vulnerable to flooding and fluvial erosion. There are riverbanks that need stabilization and habitats that need restoration along the rivers and streams in town. In addition, there are flood mitigation projects that need to be implemented, such as preserving open space to serve as catchment areas for floodwaters and sediment during high water emergencies. The findings and recommendations in the 2017 Watershed-Based Plan address many of these issues.

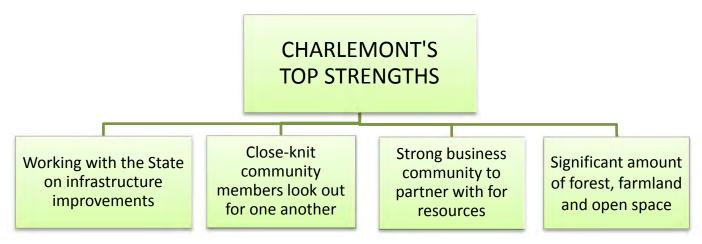
Safety and well-being of Charlemont's residents and visitors: Charlemont is very rural and many residents live in isolated locations. There is unreliable or no cell phone service and internet for some residents. Residents who live alone and who have not opted in to the Reverse911 system do not have reliable access to information concerning emergencies. There is currently no system to notify tourists visiting key recreational areas in Town, such as Berkshire East and rafting companies on the Deerfield River, in the event of an emergency.

Funding for needed projects: Small, rural towns such as Charlemont need funding to implement projects to be more resilient in the face of climate change. Funding for a variety of projects is identified in the Community Resilience Building Risk Matrix, including bridge and culvert repairs or replacement, feasibility studies, design and construction for replacing key infrastructure located in the floodplain. Workshop participants identified the Fire Department facility as the first priority for re-construction or replacement, as the current facility is the oldest of the structures in the floodplain, it is located at the lowest elevation, it is not able to accommodate regularly sized modern fire trucks, and would require expensive OSHA-required upgrades. It was recommended consolidating funds from multiple state and federal sources available to the Town and the Fire Department.

*Protection of natural resources:* Charlemont's large expanses of forest could be vulnerable to drought and wildfires. Farm fields have been subject to flooding and erosion and some farm fields have had debris deposited on them during floods. Crops have been lost to flooding as well. Little of the Town's farmland and open space is permanently protected from development.

#### **Current Strengths and Assets**

Charlemont has a number of strengths and assets, as identified by workshop participants. The top strengths and assets are shown in the following chart:



A detailed list of strengths and assets identified by workshop participants include:

*Infrastructural strengths and assets:* Several bridges and culverts have been or are slated for repair or replacement, and the Town is pursuing additional funding for more repairs. Traffic calming plans to be instituted by MassDOT in the coming year should result in reduced speeds on Route 2 in Town. Reverse911 serves to provide emergency information to Town residents who participate in the service. A siren previously removed from the Town Hall may be available for

re-installation to warn residents and visitors in an emergency. Purchase of a generator for the Emergency Operations Center (EOC) in Town Hall was approved at the 2018 Annual Town Meeting in May.

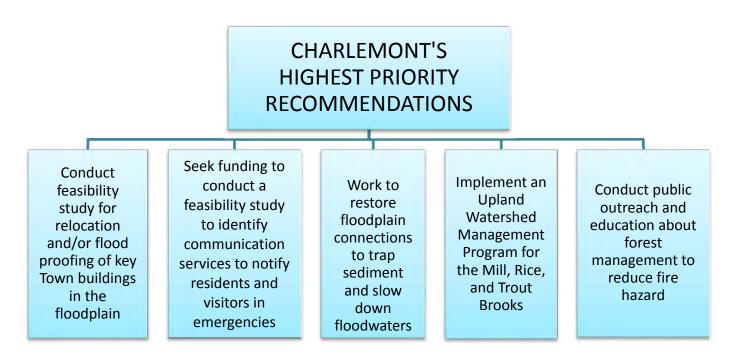
Societal strengths and assets: People in Charlemont are a close-knit community and look out for one another. The Federated Church runs the Good Neighbor Program and a food pantry and served as a shelter during Tropical Storm Irene. The Church is currently in the process of installing a new generator to run the refrigerators/freezers for the Food Pantry. Residents in the Oxbow Road area of East Charlemont have resources for self-sufficiency in an emergency, including generators, a defibrillator, and a trained EMT in the neighborhood.

Business community strengths and assets: Zoar Outdoor, Crab Apple Whitewater Inc., and the Academy at Charlemont have buses and other resources that workshop participants suggested could potentially be useful in an emergency if the Town enters into formal agreements. The Town is working with the State Legislature on finalizing approval of a 3% recreation tax to provide additional revenues that would be helpful to fund ongoing operations and actions to improve resiliency.

Environmental strengths and assets: The Town has a significant amount of forest, farmland, and open space, but only about 12% of the Town's total land area is <u>permanently</u> protected from development. The Town could work with land owners to purchase easements protecting properties from development in key areas such as the floodplain, seek to purchase the properties outright, and/or add to Town funds available to assist local land trusts to purchase land for permanent protection. These efforts should seek to balance the Town's economic and environmental resiliency, and potentially use revenues from the recreation tax if it is approved.

#### Top Recommendations to Improve Resilience

Infrastructure and facilities were common themes in many of the recommendations to emerge from the workshop, including the top five highest priorities shown below.



Study options for Town buildings in the floodplain topped the list of highest priority recommendations, with workshop participants agreeing that the funding for a feasibility study of potential redesigns, flood proofing, and/or relocation of key Town buildings located in the floodplain is of utmost importance to Charlemont's resilience, particularly related to increased rainfall and increased flooding. The feasibility study should include an analysis of the suitability of alternate sites, preferably Town-owned, and can build on the initial assessment being conducted by Tighe & Bond. Workshop participants agreed to prioritize the Fire Department as the building is the oldest and would require expensive upgrades to the existing facility.

*Improved communication services* was another of the highest priority recommendations agreed upon by participants. They recommended seeking funding for a feasibility study of private or state notification systems that would allow visitors to Town to be notified of an emergency with the least amount of effort on their part. Also recommended was to conduct a feasibility study of the costs of re-installing sirens in the Village Center and in key recreational areas to notify Town residents and visitors in an emergency. Partnering with local organizations and businesses (e.g., the Academy at Charlemont, Berkshire East, Zoar Outdoor, Crab Apple Whitewater) to implement these notification systems was identified as a way to help improve emergency communications.

Actions addressing sedimentation and flooding in the Town's rivers and streams were identified as among the highest priority actions recommended by workshop participants. They recommended working with Town boards and with neighboring communities along the Cold and Chickley Rivers to restore floodplain connections to trap sediment and slow down floodwaters. In addition, they recommended working with the NRCS, Trout Unlimited, FRCOG, local land trusts, etc. to implement an Upland Watershed Management Program (e.g., the "chop-n-drop" project in Heath) for the Mill, Rice, and Trout Brooks in Charlemont. This recommendation builds on the 2017 Watershed Based Plan.

Conducting public outreach and education about forest management to reduce fire hazards was another of the highest priority recommendations identified by participants in the MVP process. Best practices that might be encouraged include maintaining logging/fire roads in forested areas and cleaning up dead trees resulting from invasive pests and drought conditions that could serve as fuel in a wildfire.

A number of other recommendations emerged during the workshop. Some recommendations are far-reaching and/or expensive and others are modest or relatively affordable. Following is the Community Resilience Building Risk Matrix, sorted by sector and priority, which illustrates how many of the recommendations are relevant to more than one top priority hazard. In fact, 15 of the 24 recommendations are relevant to all four of the top priority hazards. Because some of the recommendations are similar to ones in the 2017 Watershed Based Plan, the actions in this matrix will also strengthen the Deerfield River's watershed health, in addition to reducing the vulnerability of the communities that live within the watershed. Following the matrix is a complete bulleted list of recommendations, sorted by highest priority, moderate priority and lower priority.

#### Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.org **Top Priority Hazards H-M-L** priority for action over the **S**hort or **L**ong term (and **O**ngoing) Transport of **Priority** Time Severe $\underline{\mathbf{V}}$ = Vulnerability $\underline{\mathbf{S}}$ = Strength Hazardous Wildfires/ Recommendations Flooding Winter Short Long Materials Brushfires H - M - L Storms **O**ngoing **Features** Location Ownership V or S (RR & Rte 2) Infrastructural Residents of certain areas of Town can become isolated Oxbow Rd. Local residents in the Oxbow Rd. area have resources for selfin an emergency due to lack of access to evacuation area/East sufficiency including generators, a debribillator, and a trained Charlemont V/S X X Town or State There is not enough state funding for bridge and culvert Contact legislators or other state officials to encourage repair. Tower Rd. Bridge is currently closed and is on the additional funding of bridge and culvert repairs. X X X X H TIP for reconstruction in 2020. The Long Bridge is also Using MassDOT culvert database and Highway Dept. GPS units, vulnerable and is not included on the TIP. So. River Rd. track ongoing problems and establish need for culvert repairs/ culverts replaced, but may be too small. Townwide reconstruction. X M Everbridge now has a new emergency communications system for a Harriman Dam failure, but the Town needs a better X X system of notifying residents. Regional emergency preparedness planners should identify an A failure of the Harriman Dam poses a catastrophic risk alternative site for an EOC to be located outside of the to Town residents. Franklin County EOC location at GCC Private/ Townwide floodplain, e.g., the recently closed Heath School. X X is in the floodplain. Regional Need better communication between Towns regarding the response to an emergency on the railroad. Participation in the Franklin County Multi-Agency Coordinating Committee (MACC) would provide the needed vehicle for coordinating Transport of hazardous materials on the railroad poses a X X X M communications and responses. significant hazard to Town residents and potential Participate in a regional effort to encourage Pan Am Railways derailments, spills, and fires threaten the Town's main Private/ to clean up discarded railroad ties that pose a fire hazard. evacuation route (Rte 2). Townwide Regional X M Traffic calming plans to be instituted by MassDOT in the coming year should result in reduced speeds on Rte 2 in Town. Accidents on Rte 2 pose a significant hazard to Town The same sections of Rte 2 coming down the hill from Savoy residents. Trucks coming down the hill in to Town are routinely freeze before the rest of the road. Conduct a often travelling at high rates of speed and accidents can feasibility assessment with MassDOT on the installation of result in the release of hazardous materials, damage to temperature sensors and warnings in these critical areas. Townwide X the electrical infrastructure, etc. Town or State Pursue funding for a feasibility study of potential redesigns, flood proofing, and/or relocation of these key infrastructure assets, including an analysis of the suitability of alternate sites. preferably Town-owned. Prioritize the Fire Department as the building is the oldest and would require expensive OSHArequired upgrades at the existing facility. Consolidate funds Key Town infrastructure is located in the floodplain, from sources available to the Town and to the Fire Dept. X X H S

stored in these critical facilities.

Seek funding for off-site storage of important Town documents

X

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including the Fire Department, Highway Department,

Police Department, and the Wastewater Treatment Plant. Townwide

#### Community Resilience Building Risk Matrix 🚆 🚜







#### www.CommunityResilienceBuilding.org

**Top Priority Hazards** 

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<ul> <li>H-M-L priority for action over the Short or Long t</li> <li>Y = Vulnerability S = Strength</li> <li>Features</li> </ul>		oing) Ownership	VorS	Recommendations	Flooding	Severe Winter Storms	Transport of Hazardous Materials (RR & Rte 2)	Wildfires/ Brushfires	Priority H-M-L	Time Short Long Ongoing
reatures	Location	Ownership	A 01 2				(KK & Kte 2)			
				Seek funding for a feasibility study of private or state notification systems that would allow visitors to Town to be notified of an emergency with the least amount of effort on their part. Partner with local organizations and businesses (e.g., the Academy at Charlemont, Berkshire East, Zoar Outdoor, Crab Apple Whitewater) to implement notification system.	X	x	X	X	Н	S
Cell phone and internet coverage are spotty, often				Work with AT&T to upgrade existing cell towers and identify locations to add new ones as needed to provide cell phone coverage to the entire Town.	х	X	X	х	Н	S
making it difficult to communicate with residents in an emergency. The Town has a Reverse911 system to contact residents, but not everyone is signed up and it does not send notifications to tourists travelling through		Town/State/		Conduct a feasibility study of the costs of re-installing sirens in the Village Center and in key recreational areas to notify Town residents and visitors in an emergency. Partner with recreational resources such as Berkshire East to locate and	Α	A	^	A	n	3
and recreating in the area.	Townwide	Private	V/S	fund siren systems.	X	X	X	X	Н	S
				Conduct a feasibility study of the costs of building a municipal					1.2	
				drinking water system in the Village Center. Seek to protect uncontaminated land along Rte 2 below Warfield Mountain as a potential source of public drinking water that was identified as a high yield aquifer in a previous	X	X	X		M	L
				public water supply study.	X	X	X		L	L
The Town lacks a municipal drinking water source, and private wells are subject to flooding and failure during	Townwide	Private / Town	W	Encourage household emergency preparedness.  Work with Eversource to install electrical grid upgrades to reduce the likelihood of power outages during emergencies.	X	X	X	X	M H	L
power outages. Societal	Trownwide	Filvate / Town	V	reduce the fixermood of power outages during emergencies.		Α	Λ		п	ь
Societai	T		_							1
The list of vulnerable people in Town is not up to date.	Townwide	Town	V	Work with the Council on Aging and the Federated Church to maintain list of vulnerable persons with special needs and establish an appropriate mode of communication for emergencies.	X	x	x	x	н	0
Local residents in the Oxbow Rd. area have resources for		TOWIT	V	Resources include generators, a defibrillator, and a trained	A	A	Λ	A		
self-sufficiency in an emergency.	Townwide	Private / Town	S	EMT in the neighborhood.	X	X	X	X		
				Execute a Memorandum of Agreement (MOA) with the bus company serving the public schools to provide buses and drivers in an emergency.	X	X	X	X	M	0
Transportation for vulnerable people needed in the event an evacuation is ordered.	Townwide	Private / Town	V	Execute Memorandums of Agreement (MOAs) with local businesses that have buses (e.g., Academy at Charlemont, Crab Apple Whitewater) to provide buses and drivers in an emergency.	X	x	X	X	M	0
Federated Church runs the Good Neighbor Program and a food pantry and served as a shelter during Tropical Storm Irene. Currently in the process of installing a new generator to run the refrigerators/freezers for the Food Pantry.	Townwide	Private / Town	S	Execute a Memorandum of Agreement (MOA) with the Federated Church to provide food and sheltering services to all Town residents, especially vulnerable populations, during emergencies. Formalizing this relationship will be especially important as the Church undergoes a change in leadership in the coming year.	X	X	X	X	Н	S

Community Resilience Building	Risk Ma	trix 🚆 🚜			- 5	www.Co	mmunityRo	esilienceB	uilding.or	g
	7.00				Top Priority	Hazards				
$\underline{\mathbf{H}}$ - $\underline{\mathbf{M}}$ - $\underline{\mathbf{L}}$ priority for action over the $\underline{\mathbf{S}}$ hort or $\underline{\mathbf{L}}$ ong t $\underline{\mathbf{V}}$ = Vulnerability $\underline{\mathbf{S}}$ = Strength	term (and <u>O</u> r	ngoing)				Severe	Transport of Hazardous	Wildfires/	Priority	Time
Features	Location	Ownership	V or S	Recommendations	Flooding	Winter Storms	Materials (RR & Rte 2)	Brushfires	<u>H</u> - <u>M</u> - <u>L</u>	<b>S</b> hort <b>L</b> ong <b>O</b> ngoing
Acadey at Charlemont has buses that could potentially be used during an evacuation and space suitable for short-term sheltering.		Private / Town	S	Execute a Memorandum of Agreement (MOA) with the Academy at Charlemont to provide buses for transportation and short-term sheltering services during an emergency.	X	X	X	X	L	L
The Town has part-time Fire Dept., Police Dept. and EMS.	Townwide	Town	v	Explore options for establishing full-time first responders.	X	X	X	X		
Environmental										
The Town has many natural resources that serve as economic drivers, including the Deerfield River and Mohawk Trail State Forest.	Townwide	Town	V/S	Continue to work with the MA Legislature to approve a 3% recreation tax.	X	X	X	X		
				Work with land owners to purchase easements protecting properties from development and/or seek to purchase the properties outright for permanent protection.  Add to Town funds available to assist local land trusts to	Х		x		М	0
The Town has a significant amount of forest, farmland and open space temporarily protected under Chapter 61 programs, but only about 12% of Town land is permanently protected from development, consisting primarily of the Mohawk Trail State Forest owned by the MA DCR.	Townwide	Private / Town	V/S	purchase land for permanent protection.  Conduct a corridor study to review the ownership and protection status of properties along Route 2 to determine what land is available for development and which properties should be prioritized for protection, e.g., floodplains.	x		X		M M	O S
Extensive forested areas covering 84% of Town present a significant fire hazard. Village residents are vulnerable				Conduct public outreach and education about forest management to reduce fire hazards. Best practices that might be encouraged include maintaining logging/fire roads in forested areas and cleaning up dead trees resulting from invasive pests and drought conditions that could serve as fuel in a wildfire.				X	н	0
to damage from fast-moving fires due to the lack of fire hydrants.	Townwide	Private / Town	V	Reconstruct a spring-fed water supply for fire hydrants to be located in the Village Center.				X	н	L
				Work with the NRCS, Trout Unlimited, FRCOG, local land trusts, etc. to implement an Upland Watershed Management Program (e.g., the "chop-n-drop" project in Heath) for the Mill, Rice, and Trout Brooks.	X		X		Н	L
Sedimentation causes significant changes to the flow of the rivers in Town.	Townwide	Town/State/ Regional/ Private	v	Work with Town boards and with neighboring communities along the Cold and Chickley Rivers to restore floodplain connections to trap sedimentation and slow down floodwaters.	X		X		н	o

#### Other High Priority Recommendations

- Contact legislators or other state officials to encourage additional funding of bridge and culvert repairs.
- Work with AT&T to upgrade existing cell towers and identify locations to add new ones as needed to provide cell phone coverage to the entire Town.
- Work with Eversource to install electrical grid upgrades to reduce the likelihood of power outages during emergencies.
- Work with the Council on Aging and the Federated Church to maintain list of vulnerable persons with special needs and establish an appropriate mode of communication for emergencies.
- Execute a Memorandum of Agreement (MOA) priority action items. with the Federated Church to provide food and sheltering services to all Town residents, especially vulnerable populations, during emergencies. Formalizing this relationship will be especially important as the Church undergoes a change in leadership in the coming year.



Workshop participants prioritize highest

#### Moderate Priority Recommendations

- Using MassDOT culvert database and Highway Dept. GPS units, track ongoing problems and establish need for culvert repairs/reconstruction.
- Need better communication between Towns regarding the response to an emergency on the railroad. Participation in the Franklin County Multi-Agency Coordinating Committee (MACC) would provide the needed vehicle for coordinating communications and responses. Participate in a regional effort to encourage Pan Am Railways to clean up discarded railroad ties that pose a fire hazard.
- Seek funding for off-site storage of important Town documents stored in these critical facilities.
- Conduct a feasibility study of the costs of building a municipal drinking water system in the Village Center.
- Encourage household emergency preparedness.
- Execute a Memorandum of Agreement (MOA) with the bus company serving the public schools to provide buses and drivers in an emergency.
- Execute Memorandums of Agreement (MOAs) with local businesses that have buses (e.g., Academy at Charlemont, Crab Apple Whitewater) to provide buses and drivers in an emergency.

- Work with land owners to purchase easements protecting properties from development and/or seek to purchase the properties outright for permanent protection.
- Add to Town funds available to assist local land trusts to purchase land for permanent protection.

#### Low Priority Recommendations

- Everbridge now has a new emergency communications system for a Harriman Dam failure, but the Town needs a better system of notifying residents.
- Regional emergency preparedness planners should identify an alternative site for and EOC to be located outside of the floodplain, e.g., the recently closed Heath School.
- The same sections of Route 2 coming down the hill from Savoy routinely freeze before the rest of the road. Conduct a feasibility assessment with MassDOT on the installation of temperature sensors and warnings in these critical areas.
- Seek to protect uncontaminated land along Route 2 below Warfield Mountain as a potential source of public drinking water that was identified as a high yield aquifer in a previous public water supply study.
- Execute a Memorandum of Agreement (MOA) with the Academy at Charlemont to provide buses for transportation and short-term sheltering services during an emergency.

#### CRB Workshop Participants: Department/Commission/Representative:

**Charlemont Community Resilience Building Workshop** 

Friday, May 18, 2018

**Charlemont Federated Church** 

Name	Affiliation	Position	Contact
Gisela Walker	Plug. Bd.	Klember	G 25 2401 denns annexe town of charlesons,
Dennis Annead	Charument time (280)		dennis. announce town of charlemand,
Per Dean	Charlement Tam Hall	Tour Administrator	administratore tempohorlent.
Kimberly Mac Pher		Land Use + Nat Res Program Mer	kmacphecafreg.org
Emily Tully	Tighe + Band	Environmental Planner	etrly@tighebond.com
Mogan Rhoder		Transp. + LU planner	n-hadesafrag.org
RAT SMITM	FACOL	SR. LAND USE RAYMEN	psmith@ Goog.org
Cara Hochhelter	2		
Dor Tellin		cocheir / Chair	hochhalter. cara egwail.com
) hun		/	o.

#### CRB Workshop Project Team: Organization and Role

#### Franklin Regional Council of Governments:

Patricia A. Smith, Project Lead, Principal Contact and Scribe Kimberly Noake MacPhee, Lead Presenter and Co-facilitator

#### Town of Charlemont Project Lead:

Peg Dean, Town Administrator

#### Tighe & Bond Representative:

Emily R. Tully, Environmental Planner, Engineering Consultant

#### Recommended Citation

Smith P., Noake MacPhee K. (2018) Town of Charlemont Community Resilience Building Workshop Summary of Findings. Franklin Regional Council of Governments.

#### Photo credits:

Cover Cover	Top left: Rafting the Deerfield River by Zoar Outdoor Bottom left: Berkshire East, Town of Charlemont
Cover	Top right: Route 2, Tropical Storm Irene 2011, photographer unknown
Cover	Middle right: Route 2, Tropical Storm Irene 2011, Charlemont Peak Oil Blues.org
Cover	Bottom right: Route 2, Tropical Storm Irene 2011, the Principal Undergardner
Page 2	Charlemont Workshop Participants, Peg Dean
Page 4	Aerial photo of Tropical Storm Irene damage 2011, Town of Greenfield
Page 12	Charlemont Workshop Participants Voting Priorities, Peg Dean

All other photos not cited above were taken by the FRCOG

#### **Appendices**

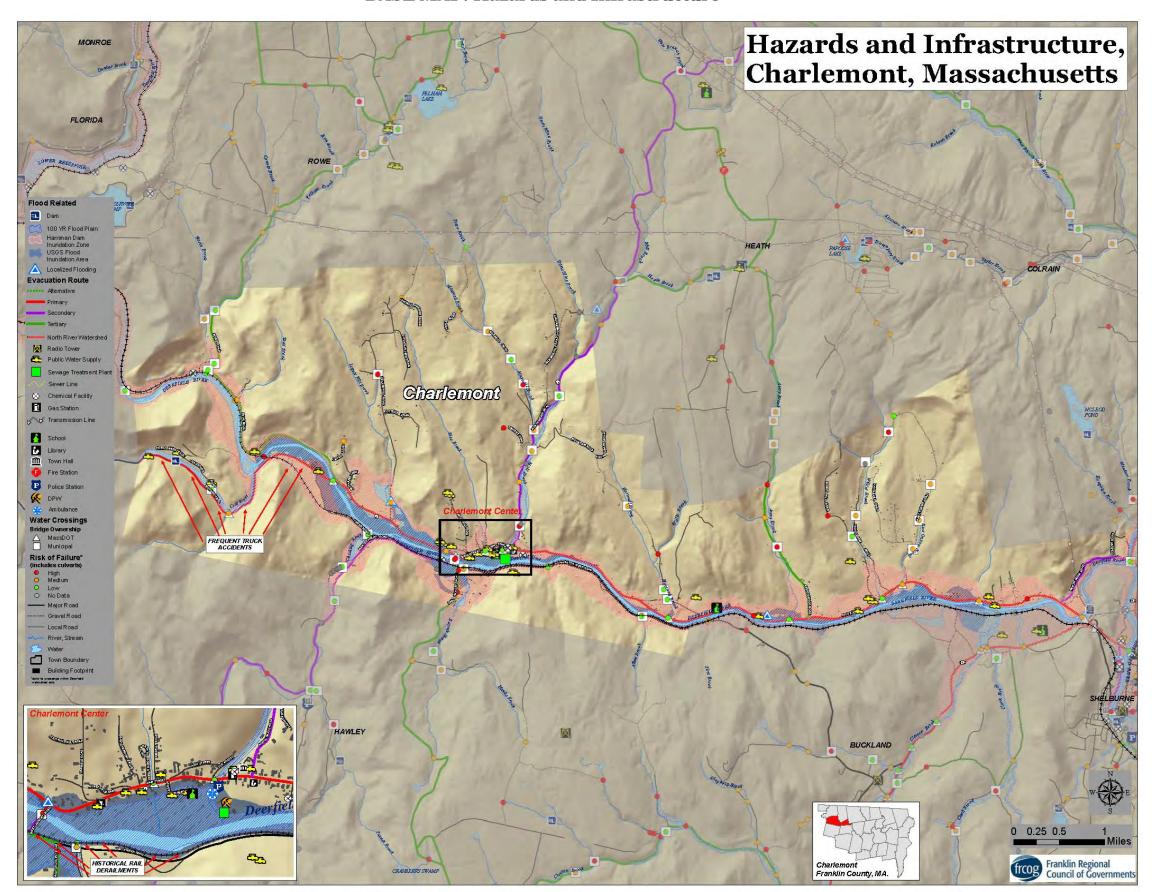
Maps

**Exercise Outputs** 

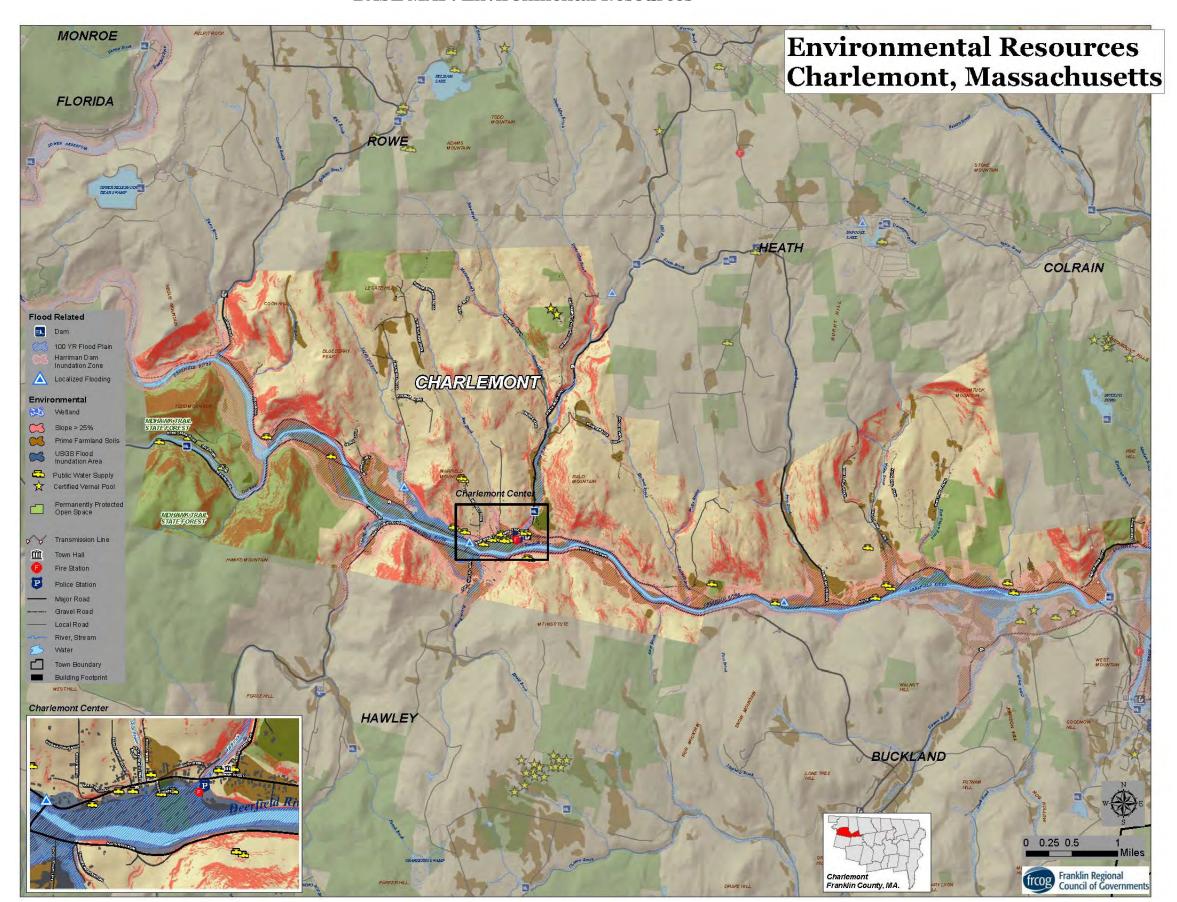
Workshop Presentations

Public Input Documentation

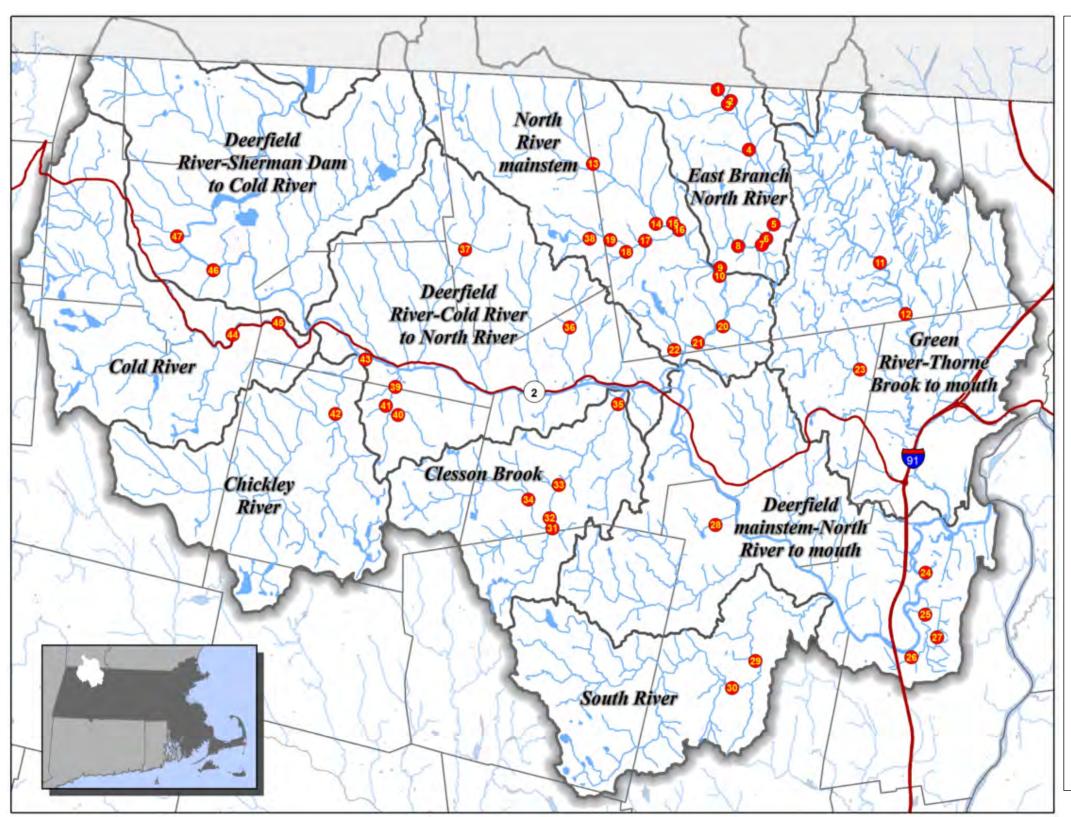
**BASE MAP: Hazards and Infrastructure** 



**BASE MAP: Environmental Resources** 



**BASE MAP: Tropical Storm Irene Damage** 



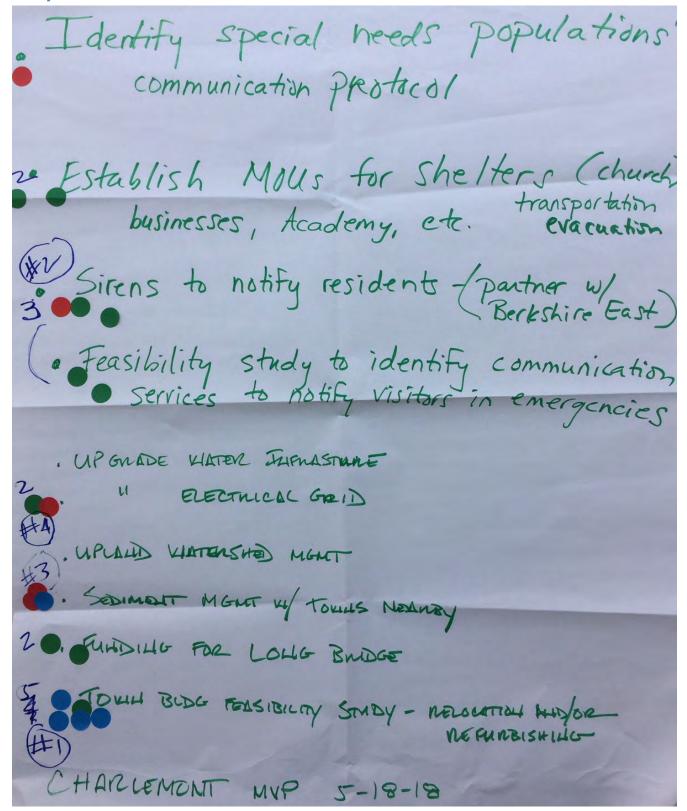
Number	Issue
1	Road washouts
2	Washouts at Green Bridge
3	Road washouts; bridge footing undermined
4	Ag fields eroded; bridge footings eroded
5	E Branch North R. erosion
6	Erosion, rip-rap repeat, homes damaged
7	Sediment & erosion, rip-rap bank armoring
8	Highway Dept saltshed; bank erosion
9	Ag fields, dam at BBC damaged
10	Ag fields damaged; landslide
11	Repeated road washouts
12	Bank erosion, armored banks, dam & bridged damaged
13	Bridge footings undermined
14	Bank, stream erosion by bridge
15	Stream bank armored repeatedly
16	Bridge/stream channel erosion
17	Landslide
18	Perched culvert; gabions failing
19	Gabions failing
20	Bridge footings undermined
21	Bank erosion old bridge abutment
22	Bridge footings undermined
23	Stream erosion, repeatedly
24	Failing culverts
25	Failing culvert
26	Failing culvert
27	Ag fields severly damaged by TS Irene
28	Schneck Brook bridge abutments failing
29	River banks armored repeatedly
30	Armored river banks upstream of bridge
31	Armored stream bank
32	Bridge damaged
33	Stream armored w/rip-rap
34	Stream bank armoring post TS Irene, repeat
35	Stream bank erosion at bridge
36	Gabions failing
37	Dam failed
38	Rip-rap in stream post TS Irene
39	Stream banks armored repeatedly
40	3 sites post TS Irene rip-rap, repeat
41	Rd closed; landslide, stream bank erosion
42	Extensive problems post TS Irene
43	Ag fields damaged; excessive storm debris
44	Rip-rip along Cold River post TS Irene
45	Rip-rap along Cold River post TS Irene
46	Bank failures armored w/rip-rap post flood
47	Bank failures armored w/rip-rap post flood

#### **EXERCISE OUTPUTS**

Top Hazards

Ice Jams, Flooding v Flooding -Dam Failure Severe Winter Storms / Rt. 2 accidents tanker trucks Truncards Wildfires / brush fires V Land Slides - springs, trailer paule near graver pit Notifying visitors about haz. Situations Unscheduled releases on Deerfield Emergency communications - need help-CHARLEMONT MYP 5-18-18

Top Recommendations

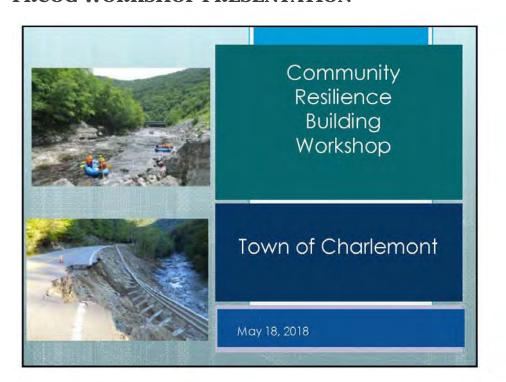


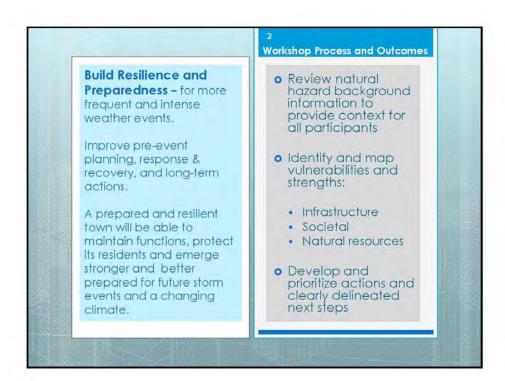
(	Community Resilience Building R	isk Matrix	- 18: Q	)		www.Communi	tyResilienceBu	ilding.co	om
1	1-M-L priority for action over the Short or Long ter ✓ = Vulnerability S = Strength	m (and <u>O</u> ngoing		Top Priority Hazards				rise, heat wa	ave, etc.)
L	Ceatures	Location	Numanahim V C	Flooding	Severe Winter	RR derail Rtc 2 accidents	Wildfires/ Brush fires	H-M-L	Short Long Ongoing
T	Infrastructural	Location	Ownership V or S	3	Storms	Haz Materials	DIOSK HES		Digoing
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5	Generators, defib, EMT			MARE TEXALE					
	Communications/Rev. 911	T	V	How to notify people-	SEE STEIR	nc §			
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-	Societal					Utility now by	<b>c</b> 0		
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	trucks coming down mt		its - Action H	cms Similar +	ORR. Sign	is to Slow dow	In - Masoil	OT	
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7	Delastic stora		A STATE OF THE PARTY OF THE PAR			CONSPIDER S	From Toxell	- I	10
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7	Pregional is	sues to				//	, 8,	an	Tone
	,		OSHA rea	buired / upgr	ades heeded	at existing	facility		
	LOODED WELLS & SOPPIL SYSTE								

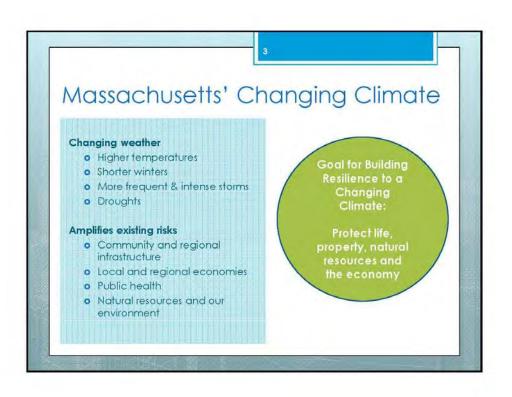
Community Resilience Building F	isk Matri	x 📑	385 (A			www.Commun	ityResilienceBu	ilding.co	om
H-M-L priority for action over the Short or Long te	rm (and <u>U</u> ngon	ng)		Top Priority Hazard	ls (tornado, floods, wildfire	hurricanes, earthqua	ike, drought, sea level	rise, heat w	ave, etc.)
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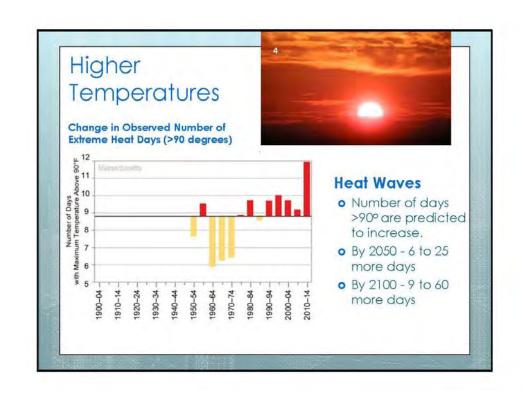
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$1-M-L$ priority for action over the $\underline{S}$ hort or $\underline{L}$ = Vulnerability $\underline{S}$ = Strength	he Short or Long term (and Ungoing)		Top Priority Hazards	(tornado, floods, wildfire,		ake, drought, sea leve			
Features				FLOODING	SEVENE WILLTON	na/naez	BUNSHFIRE	Priority	Short Lo
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#### FRCOG WORKSHOP PRESENTATION

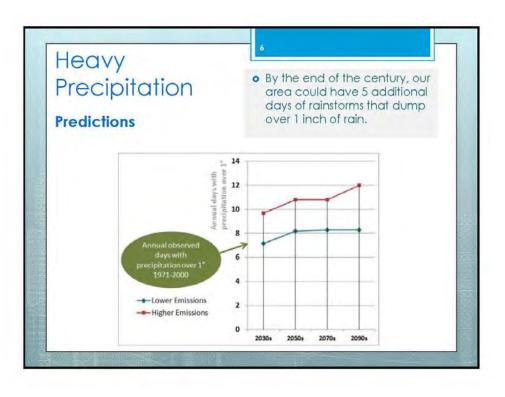




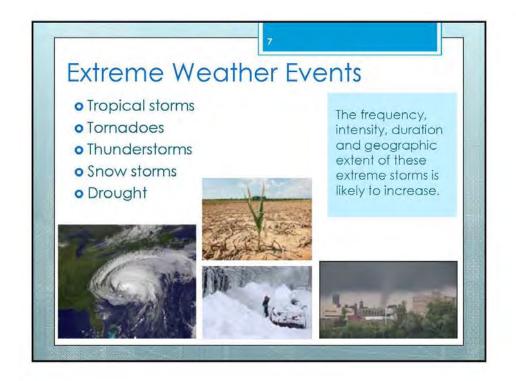


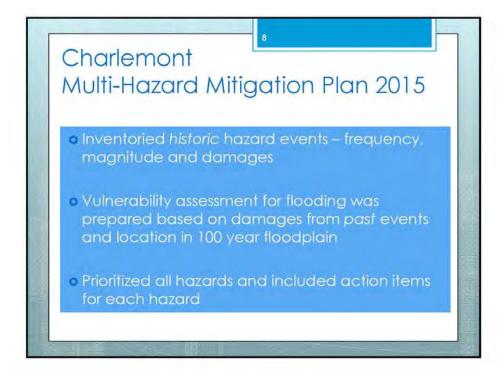


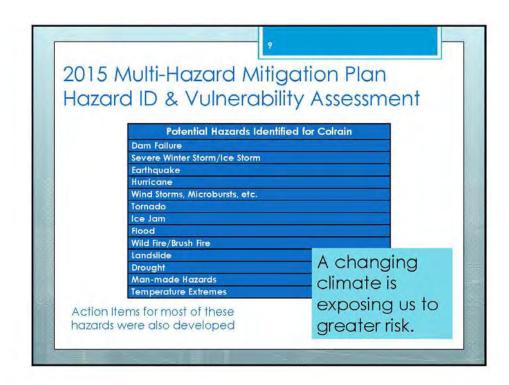




#### FRCOG WORKSHOP PRESENTATION (CONT.)

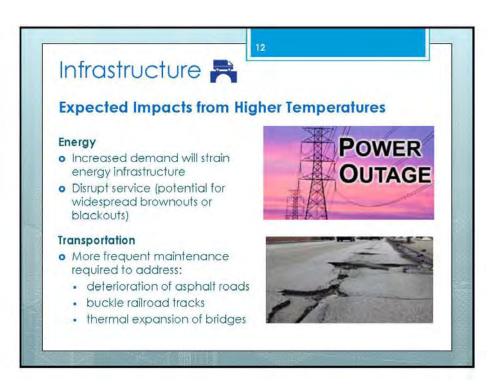




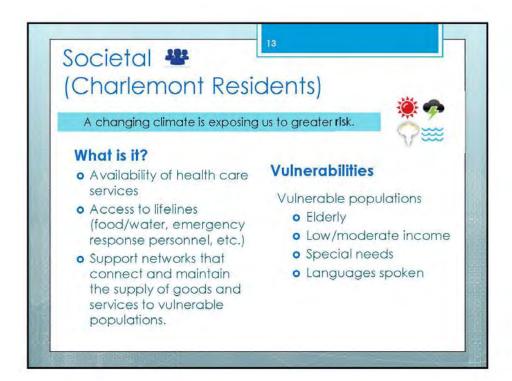


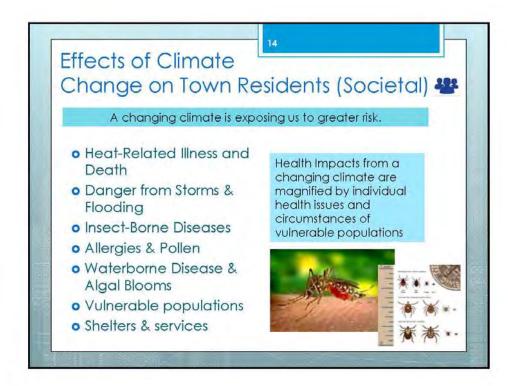




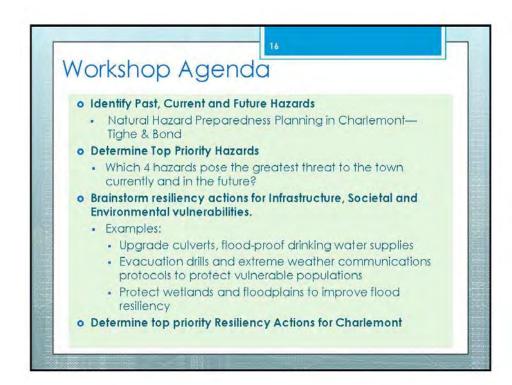


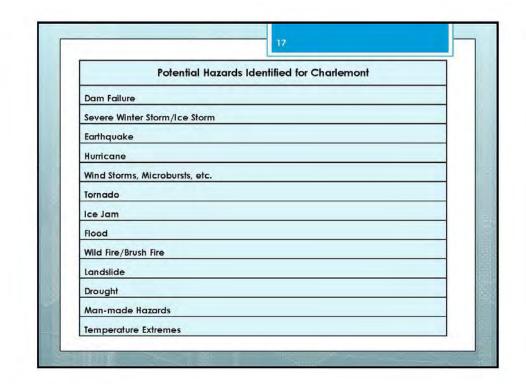
#### FRCOG WORKSHOP PRESENTATION (CONT.)







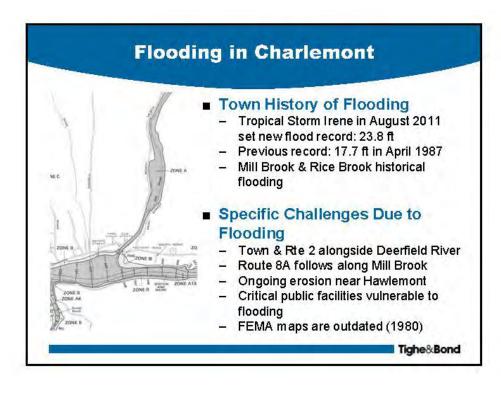






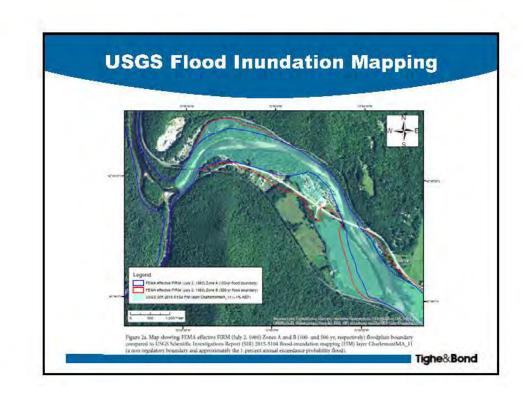
#### **TIGHE & BOND PRESENTATION**

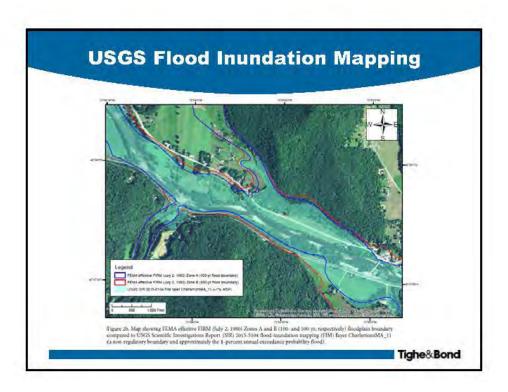




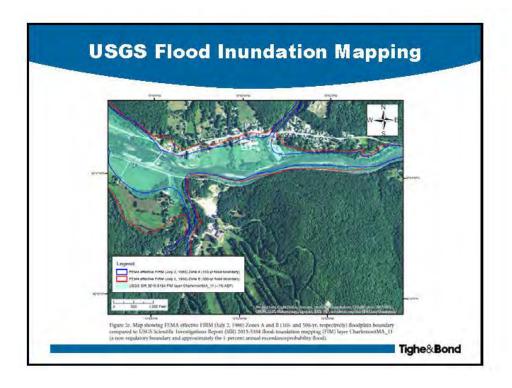


# 2017 Floodplain Action Plan Recommendations Clarify flood-prone areas in planning documents, ensure consistent approach Update emergency flood evacuation plan Use USGS floodplain & Deerfield inundation maps to modify Floodplain Overlay District Update Subdivision Rules & Regulations Evaluate options for adding flood prevention and/or mitigation to Special Permit review criteria





#### **TIGHE & BOND PRESENTATION (CONT.)**



#### 2017 Floodplain Action Plan Recommendations

- Work with MassDEP to develop policies to prohibit permanent alterations of specific water courses
- Investigate alternatives to increase open space preservation for floodplain functionality
- Assess flood vulnerability of Town-owned structures, develop critical facilities master plan
- Assess vulnerability of privately owned structures and facilities, hold flood risk reduction workshop with property owners

Tighe&Bond

### 2017 Floodplain Action Plan Recommendations

- Investigate feasibility & cost of structural mitigation measures to prevent further erosion of Rice Brook on property adjacent to Hawlemont
- Move potential sources of contamination of flood waters out of the floodplain
- Not recommended at this time: becoming part of FEMA's Community Rating System

Tighe&Bond

#### PUBLIC INPUT DOCUMENTATION

#### Public Listening Session and Public Comment Period

A public listening session and public comment period were provided to ensure adequate opportunities were available Charlemont residents and Town Officials to review and comment upon the draft Charlemont MVP Resiliency Plan.

The public listening session was held on June 25 at 10:00 a.m. in the Charlemont Town Hall, located at 157 Main Street in Charlemont. Staff from the FRCOG who were in attendance at the earlier workshop attended the meeting and provided a presentation on the MVP program as well as findings from the workshop. The PowerPoint slides are available on pages 35 through 37.

Following is the sign in sheet from the public listening session:

#### Town of Charlemont MVP Resiliency Plan Public Meeting

June 25, 2018 at 10:00 a.m. Charlemont Town Hall

#### SIGN IN PLEASE

Affiliation	Email
CIC	TARPACHOMENEGMA: Co
FRCOG	kmacphee a freog.or
	administrator a trust charlement or
Plus Board	char (enout of
BUS	Marie and a
Fucos	PSMith @ freeg erg
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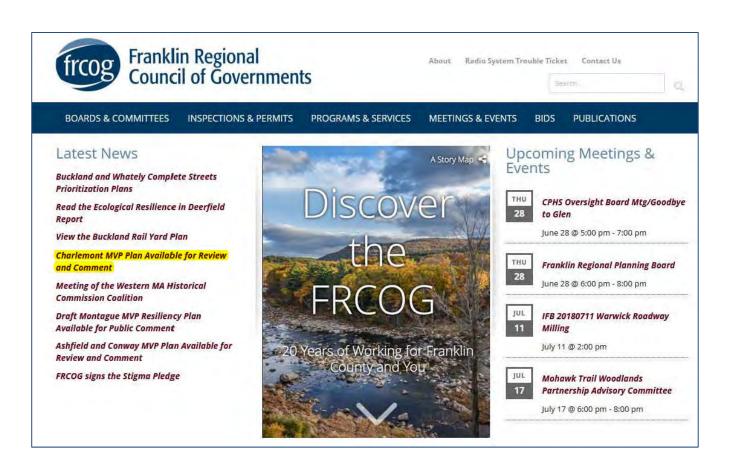
The public comment period was held from June 13 through June 27, 2018 during which the public was invited to submit comments via email or regular mail. The following comments were received and incorporated into the plan as was appropriate:

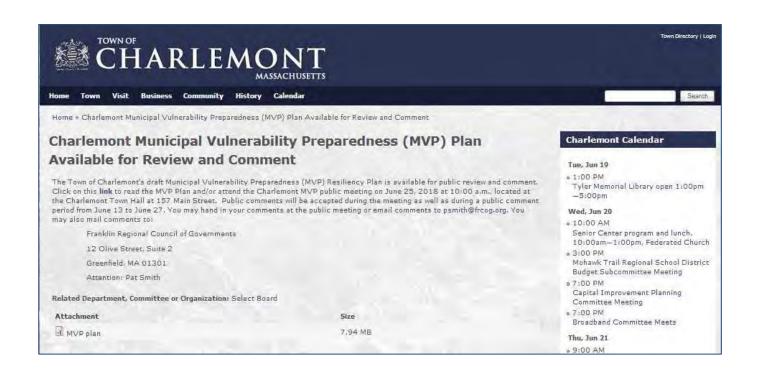
- Village Center also vulnerable to damage from fire;
- Public outreach and education on forest management best practices needed to reduce fire hazard in forested areas:
- Mohawk Trail corridor study to review the ownership and protection status of properties along Route 2 to determine what land is available for development and which properties should be prioritized for protection, e.g., floodplains, would be helpful in balancing environmental and economic resiliency; and
- Proposal to look into reconstructing a spring-fed water supply feeding into hydrants in the Village Center like the Town used to have years ago.

#### Additional comments included:

- Concerns regarding the potential for overtopping of earthen dams upstream on the Deerfield River in Rowe at the Bear Swamp Upper and Lower Reservoirs and potential mitigation actions that could be taken to prevent a disastrous inundation in the event of dam failure;
- Planning efforts that might be undertaken to protect the Mohawk Trail, create a recreation zoning district along the river, etc.; and
- Potential for reconstructing and expanding the earthen embankments that are located along the river near the "Hail to the Sunrise" Statue and at the Hawlemont School.

The public listening session and public comment period were advertised on the Town of Charlemont's website as well as on the FRCOG's website. The press release, shown below as published, was provided to the local newspaper and the event was also advertised via a flyer that was posted in Town Hall, also shown on the following pages.





#### CHARLEMONT

## Monday public meeting will review 'MVP' plan

Public comment period runs through June 27

CHARLEMONT — The town will hold a public meeting to review the findings of the recent "Municipal Vulnerability Preparedness (MVP) Community Resilience Building Workshop," along with a draft MVP resiliency plan. This meeting takes place on Monday, June 25, at 10 a.m. in Town Hall.

According to Senior Land Use Planner Pat Smith of the Franklin Regional Council of Governments, the workshop included the town's fire chief and emergency management director, the town administrator, a planning board member and others, who discussed natural and climate-related hazards, strengths and vulnerabilities. They came up with a list of actions and projects the town could take to increase its climate change resistance. Once the Selectboard adopts this action plan, the town could apply for state funding for projects it has identified as most important to the town.

A public comment period runs through June 27. The plan and comment information can be seen on the town website: www.charlemont-ma.us, under the "announcement" section.

Saturday, 06/23/2018 Pag.B01

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## Charlemont Municipal Vulnerability Assessment (MVP) Public Meeting



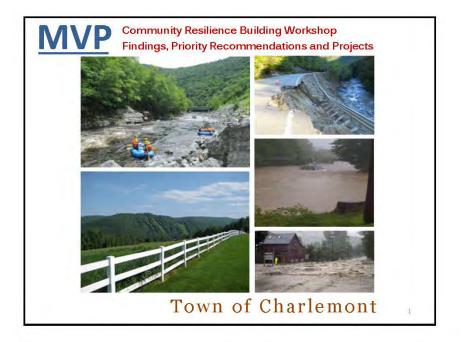
The Town of Charlemont and the Franklin Regional Council of Governments invite Charlemont residents to hear about and comment on the MVP Plan:

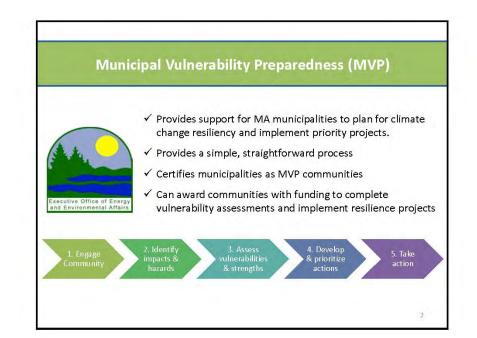
- ✓ Attend the public meeting: June 25 at 10:00 a.m. at the Charlemont Town Hall
- ✓ Provide public comment June 13 June 27: MVP Plan and public comment instructions are at <a href="http://www.charlemont-ma.us">http://www.charlemont-ma.us</a> or at the Charlemont Town Hall

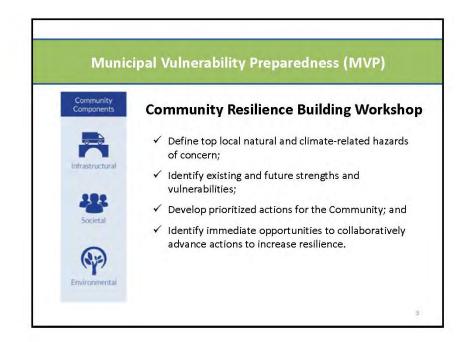
#### **WE WANT YOUR FEEDBACK!**

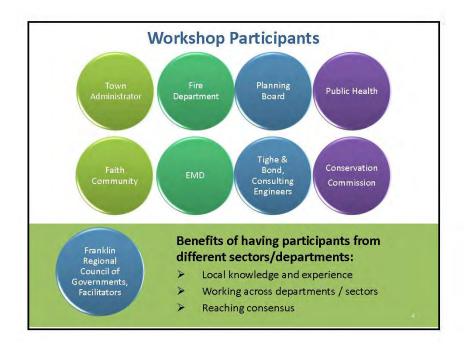
Monday, June 25, 10:00 a.m.
Charlemont Town Hall
More info:
Pat Smith, FRCOG
psmith@frcog.org OR 413-774-3167 x134

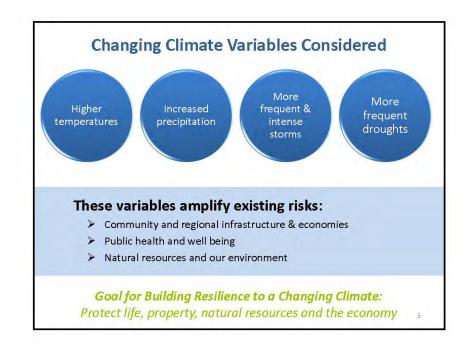
#### PUBLIC LISTENING SESSION PRESENTATION







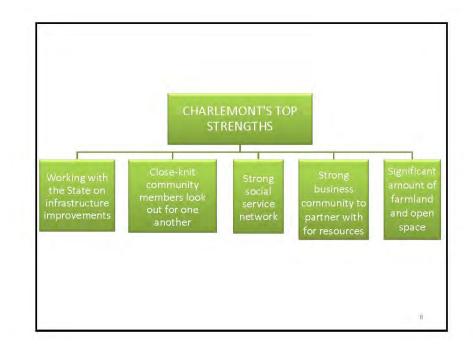




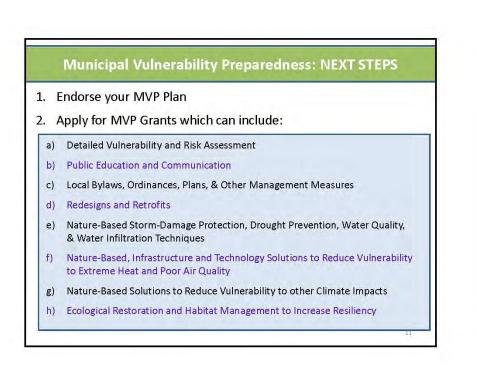


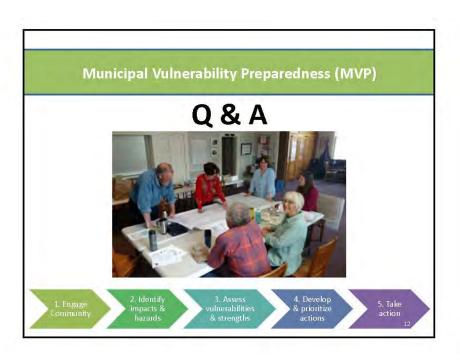
#### PUBLIC LISTENING SESSION PRESENTATION (CONT.)

#### CHARLEMONT'S TOP HAZARDS: Areas of Concern Vulnerabilities related to the Deerfield, Cold, and Chickley Rivers and their tributaries: Town buildings and infrastructure located in in Deerfield River 100-year floodplain; riverbanks need stabilization; habitats need restoration; flood mitigation projects need to be implemented, such as preserving open space to serve as catchment areas for floodwaters and sediment during high water emergencies Safety and well-being of Charlemont's residents and visitors: Many residents live in isolated locations; unreliable or no cell phone service and internet for some residents; no system to notify tourists visiting key recreational areas in Town in the event of an emergency Funding for needed projects: Funding needed for a variety of projects, including bridge and culvert repairs or replacement, feasibility studies, design and construction for replacing key infrastructure located in the floodplain; Fire Department facility is the first priority for reconstruction or replacement Protection of natural resources: Charlemont's large expanses of forest are vulnerable to drought and wildfires; farm fields are subject to flooding, erosion, and debris deposits; crops subject to loss from flooding; little farmland and open space is permanently protected from development



# Conduct feasibility study for reformed buildings in the flood plain Seek funding to conduct a feasibility study for reformed buildings in the flood plain Seek funding to conduct a feasibility study to identify communication services to notify residents and visitors in emergencies Work with neighboring communities to restore flood plain connections to trap sediment and slow down floodwaters Implement an Upland Watershed Management Program for the Mill, Rice, and Trout Brooks





Infrastructural strengths and assets: Several bridges and culverts slated for repair or

generator for Fire Dept. approved at 2017 Annual Town Meeting

replacement; MassDOT traffic calming plans on Route 2 should result in reduced speeds;

Reverse911 provides emergency information to Town residents who participate in the service;

Societal strengths and assets: Federated Church runs the Good Neighbor Program and a food

pantry, served as a shelter during Tropical Storm Irene; and is installing a new generator to

run the refrigerators/freezers; residents in the Oxbow Road area of East Charlemont have

Business community strengths and assets: Zoar Outdoor, Crab Apple Whitewater Inc., and

Environmental strengths and assets: Town has a significant amount of farmland and open

space that could be protected from development using easements, purchasing outright, etc.

the Academy at Charlemont have buses and other resources that could be useful in an

emergency; Town is working with the State Legislature on finalizing approval of a 3%

resources for self-sufficiency in an emergency, including generators, a defibrillator, and a

**Areas of Strength** 

trained EMT in the neighborhood.

recreation tax

#### PUBLIC LISTENING SESSION PRESENTATION (CONT.)

