



TOWN of ERVING



Municipal Vulnerability Preparedness (MVP) Program

MVP RESILIENCY PLAN

DRAFT: February 2019

Facilitated by the Franklin Regional Council of Governments

A State-Certified MVP Provider



CRB Workshop Project Team

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Megan Rhodes, Co-Facilitator

Town of Erving:

Bryan Smith, Administrative Coordinator

Philip Wonkka, Fire Chief and Emergency Management Director

Recommended Citation

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Cover photographs courtesy Matt Burkhardt/The Recorder (top) and the Franklin Regional Council of Governments (bottom).

TOWN of ERVING

MVP RESILIENCY PLAN

Including the Summary of Findings from the Community Resilience Building Workshop held in October 2018

Table of Contents

Overview:.....	4
Summary of Findings.....	5
Top Hazards.....	5
Areas of Concern.....	6
Current Concerns & Challenges Presented by Hazards.....	7
Specific Categories of Concerns and Challenges.....	8
Current Strengths and Assets.....	11
Top Recommendations to Improve Resilience.....	12
Appendices.....	17
MAPS.....	19
CRB WORKSHOP DOCUMENTATION.....	21
CRB WORKSHOP PRESENTATION (FRCOG).....	25
PUBLIC INPUT DOCUMENTATION.....	30
PUBLIC LISTENING SESSION PRESENTATION (FRCOG).....	33
CERTIFICATE OF ADOPTION.....	35

DRAFT

TOWN of ERVING 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 changes, municipalities have more of a sense of urgency to increase their resilience by adapting to extreme weather events and mounting natural hazards. Relatively recent events such as Tropical Storm Irene and “Snow-tober,” both in 2011, have reinforced this urgency and compelled communities like the Town of Erving to proactively plan and mitigate potential risks. This type of planning will reduce the vulnerability of Erving's people, infrastructure, and natural resources, and will empower Erving’s officials and citizens alike, to take steps to protect themselves and their community.

In the fall of 2018, the Town of Erving was awarded an MVP Planning Grant from the Massachusetts Executive Office of Energy and Environmental Affairs. The Franklin Regional Council of Governments (FRCOG) offered the Town of Erving technical assistance in completing their Community Resilience Building Workshop, in order to achieve designation as a Municipal Vulnerability Preparedness Community, or “MVP Community.” As a state-certified MVP provider, the FRCOG helped Erving engage in a community-driven process that brought together regionally specific climate change information and local knowledge, in order to inform and guide the workshop, whose central objectives were to:

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

This report summarizes the findings of the Town of Erving’s Community Resilience Building Workshop.

COMMUNITY RESILIENCE BUILDING WORKSHOP

Summary of Findings

The Town of Erving has conducted a number of planning projects in previous years, including its 2013 Hazard Mitigation Plan, which enabled the Town to identify high priority hazards, areas, infrastructure, and populations vulnerable to a variety of hazards. The Hazard Mitigation Plan also identified several action items to address hazards in the future. Other recent Erving plans include the 2018 Erving Open Space & Recreation Plan (FRCOG), the 2013 Economic Development Chapter (FRCOG), the 2010 Design Alternatives for the Reuse of Usher Mills (Conway School of Landscape Design), the 2003 Erving Community Development Plan (UMass Donahue Institute), the 2003 Usher Mill Complex & Housing Plan (UMass Donahue Institute), and the 2002 Erving Master Plan (FRCOG).

In spite of Erving's diligence in completing these planning efforts, there was still a need for the community to conduct an 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.

Workshop participants considered climate change impacts most likely to affect Erving, including flooding, rising temperatures, drought, storms and extreme weather events, and increased precipitation – both in amount and intensity.

The workshop was critical to enabling participants to think about and engage across different sectors. The Fire Chief/Emergency Management Director, Water Superintendent, Highway Foreman, Town Administrative Coordinator, a Planning Board member, and two employees of Firstlight Power Resources hydroelectric company, all came together to determine the most threatening hazards to the Town of Erving and to agree upon high priorities and actions to address them.

Top Hazards

Workshop participants discussed a number of hazards that impact Erving, 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, flooding, severe winter storms, ice jams, hurricanes, wind storms/microbursts/tornados, wildfires, landslides, droughts, manmade hazards including train derailments, tractor-trailer accidents, and factory fires, as well as extreme temperatures. Top hazards identified by the participants are as follows:



Areas of Concern

The following list contains general areas that are of concern to Erving as well as specific concerns within each area.

Railroad/Route 2: Both the Pan Am freight railway line and Route 2 pass through the center of Erving. Train derailments occur at times, and hazardous materials are often on board. Route 2 is a heavily traveled state highway, and accidents on the road can cut off the Town from nearby hospitals and other communities.

Wastewater Treatment Facility: Located in the floodplain of the Millers River; could benefit from diking/floodproofing. Otherwise, few structures in Erving are in the FEMA 100-year floodplain.



Train derailments such as this 2016 incident in Buckland is a concern for Erving, leading workshop participants to identify railroad/roadway hazardous spills as their top hazard. Photograph courtesy The Recorder.

Millers and Connecticut Rivers: Ice jams are frequent; Farley Flats has sustained damage over the past year.

Town Hall: No redundancy or digital backup for public records. If building was flooded or somehow compromised, all records would be lost.

Public Water Supply: Could benefit from a generator in order to function during power outages.

Erving Paper Mill: Compressed natural gas storage and on-site power generation; high risk of fire and explosion. Methane gas shipped in by truck: one of only two “virtual pipelines” in the county.

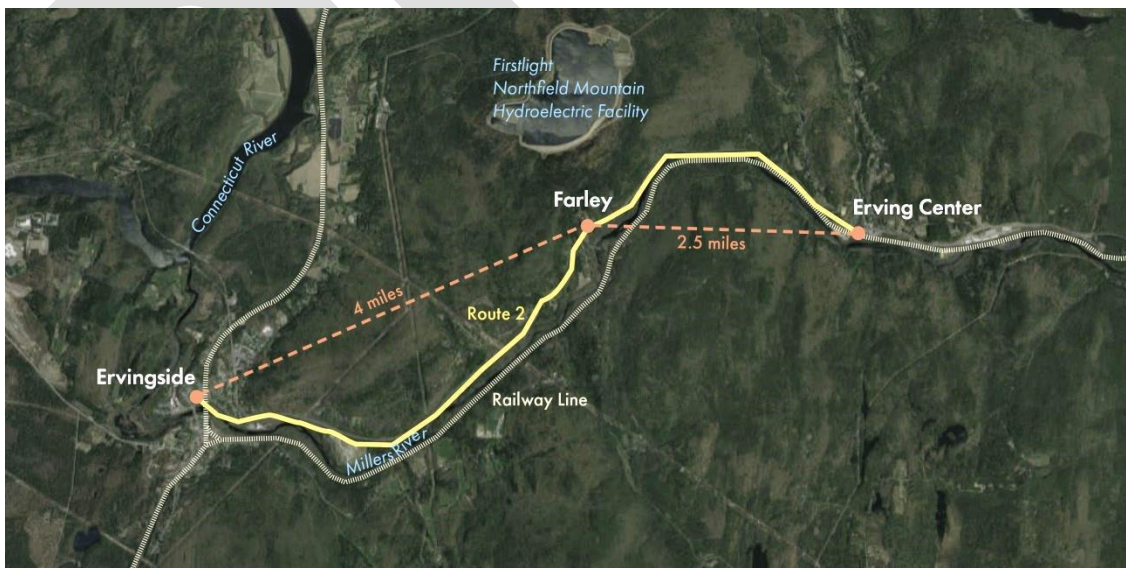
Firstlight Northfield Mountain Pumped Storage Hydroelectric Facility: While the chance is low, the potential risk of devastating floods to many parts of Erving, including the entire village of Farley, is high. Residents would have only 37 seconds of warning if the dam were to break.

Beaver Dams: Swamp Road, North and Church Streets, as well as Jacks Brook, are all affected by localized flooding due to beaver activity.

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. The railroad, whose tracks run through Erving, emerged as the top concern. Participants recalled recent derailments and spillages of hazardous materials in Town. This is an ongoing risk, especially as the regional impacts of climate change include rising temperatures and increased flooding, both of which may make washouts and buckling of tracks more common.

Flooding and extreme weather events were also a concern, particularly how these events can delay emergency responders and impact the community during moments of emergency. The Town of Erving is divided into three villages – Ervingside, Farley, and Erving Center – each of which is located along Route 2, with the distance of 6.5 miles between Ervingside and Erving Center being the furthest separation of the three. Travel between the three villages can be disrupted by accidents along Route 2 and the railway line, which runs parallel to Route 2. Extreme weather can also disrupt transport and communication between the three villages, and cell/radio coverage is lacking in some parts of Town, including North Street. The fact that the Town’s DPW stores all of its fuel in Ervingside, in a facility that appears to be within the 100-year floodplain as well as the inundation zone of the Moore Dam on the Connecticut River, and does not have a backup supply elsewhere, was noted as one of the Town’s top challenges. As well, the fact that Town Hall, located in Erving Center, has no redundancy or digital backup of sensitive and crucial public files, was noted. It was also mentioned that the Town’s Public Water Supply pump house was without a generator or alternative power source to function during outages. Additionally, the question of where to house Erving’s residents, as well as those from neighboring communities, during emergencies was discussed at length, as the Town does not have a formal public shelter with adequate installations, such as showers. In the past, residents have been encouraged to shelter in place, or to go to shelters in the nearby communities of Greenfield, Turner’s Falls, or Orange.



The Town of Erving’s reliance on Route 2 as a means of connectivity between its three villages, and the susceptibility of Route 2 to closures due to traffic accidents and its proximity to a freight railroad line, was highlighted by workshop participants as a primary vulnerability for the Town.

Specific Categories of Concerns and Challenges

Vulnerability of Town Infrastructure & Resources: As discussed earlier, no redundancy or digital backup exists for Town Hall documents. If anything was to happen to the building, all public records and sensitive GIS data would be destroyed. While most town-owned buildings in Erving have generators, the old library and well house do not. Additionally, the well house is located close to the Millers River in the 100-year floodplain. The Town's wastewater treatment plant is in the 100-year floodplain as well, and the Town processes sludge not only from Erving and surrounding communities, but from the Erving Paper Mill as well. Dams and flood control measures upstream on both the Millers and Connecticut Rivers, especially the Army Corps of Engineers' flood control projects on the Millers River, provide some level of protection to the town during high flow events.

In the event of a storm or emergency, the DPW highway garage and fuel supply, as well as the DPW's vehicles, are stored at the Town's wastewater treatment plant in Erving. No backup supply exists for Farley or Erving Center, and if Route 2 is blocked due to a train derailment or accident, getting support to other parts of town can be difficult.

Because the Town of Erving is split in electrical service (half the town is serviced by National Grid and the other half is serviced by Eversource, and the split occurs on Old State Road), some residents may have power while others do not. This can be strength to the Town during extensive power outages.

Sheltering of Erving and Neighboring Residents: Although Erving's Senior & Community Center is a designated shelter, the Town prefers to send people to regional shelters in the event of a storm or emergency, as there are no personnel to staff the shelter. The Fire Department has been expected to staff the shelter in the past, but this is not a practical option going forward. The Town would prefer to participate in a regionally-based shelter plan. At the moment, some residents go east to Orange, and others go west to Turner's Falls or Greenfield, but there is no consistency in this approach so it is difficult for the town to track where residents might have gone during a hazard event. The Town would appreciate clearer guidance and policies about sheltering from regional and state entities.

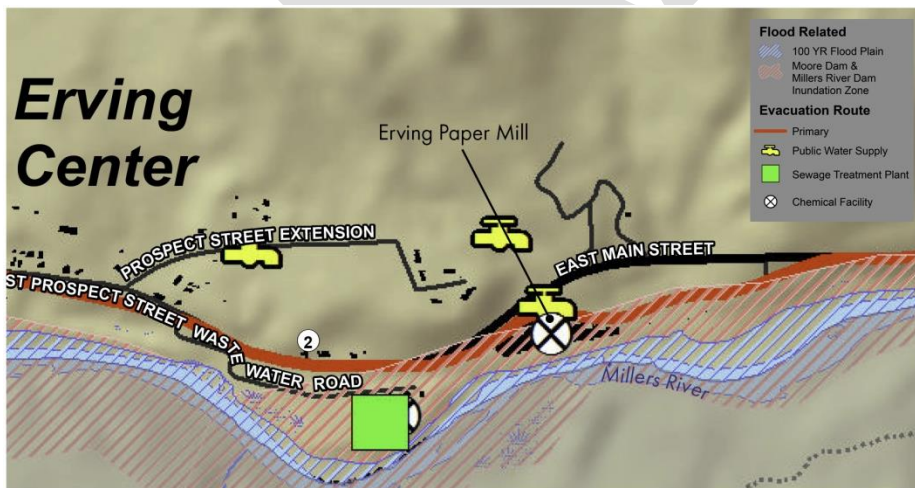
Isolation of Other Residents: The Town of Erving participates in the TRIAD Program of the Franklin County Sheriff's Office, a crime-prevention and wellness initiative aimed at protecting the safety and welfare of senior citizens throughout the county. Even so, the elderly and disabled are still vulnerable in the event of an emergency, particularly due to the geographic separation of Erving's three villages and potential vulnerability of Route 2. Homeless and transient people, in town as well as on Firstlight's property around the Northfield Mountain Pumped Storage reservoir, may also be difficult to reach in the event of an emergency.

Some residents are without landlines, and poor or no cell phone coverage exists in several parts of Erving, including the North Street area.

High Fire Risk at Erving Paper Mill: The Erving Paper Mill uses compressed natural gas delivered by truck to generate its own power supply, with a 5 megawatt generator on site. Large quantities of methane gas are stored there, and the mill is within the Moore Dam (Connecticut River)/Millers River Dam inundation zones, and possibly, the 100-year floodplain¹. There is a limited water supply in Erving Center, where the paper mill is located. In the event of a fire, which has happened as recently as 2015, the paper mill maintains a 200,000 gallon water storage tank, and the Fire Department has a 100,000 gallon storage tank, plus 12 dry hydrants. Workshop participants noted, however, that “it only takes about 20 minutes to go through 300,000 gallons.” Water would subsequently have to be pumped out of the Millers River. During drought conditions, if water level in the Millers River were low, the ability of the Fire Department to pump adequate water could be compromised.



In 2015, a three alarm fire at the Erving Paper Mill required 16 local fire departments and about 100 firefighters in order to be extinguished. Photograph courtesy Matt Burkhardt/The Recorder.



This detail from a map used at the Community Resilience Building Workshop shows how close the Erving Paper Mill and the Sewage Treatment Plant are to the Millers River. FEMA 100-year floodplain maps have not been updated since 1980 for Franklin County.

¹ Flood maps for Franklin County, Massachusetts have not been updated by FEMA since the 1980s.

Vulnerability of Residents to Flooding from Northfield Mountain Reservoir: Firstlight's Northfield Mountain Pumped Storage Hydroelectric Facility is directly uphill from the village of Farley in Erving. In the rare event that a compromise of the facility's dam should occur, residents would have 37 seconds warning time to evacuate their homes. Firstlight currently has a "one call system" in place for Farley. Representatives from Firstlight participating in the MVP workshop also noted that the existing Emergency Action Plan (EAP) inundation map data for the Northfield Mountain Reservoir needs to be updated on the basemaps used in the MVP workshop, to reflect areas in Erving that would be subject to flooding. **The Town can coordinate with FirstLight to get this data and FRCOG can update the maps.**

Drought: As previously mentioned, a significant portion of Erving's residents are dependent on private wells for all their water needs, as the only section of the Town which is on public water is Erving'side. Periods of prolonged drought can affect residents, as wells have run dry in the past. At the workshop, Water Superintendent Peter Sanders expressed a concern regarding the water quality of residential wells, in the event that aquifers are running dry.

Vulnerability of Roads, Bridges and Culverts: Erosion and culvert issues plague the Church and North Street intersection, and the bridge there is highly eroded. On Keyup Brook, erosion is causing the rip rap supporting the bank to break down. On Jacks Brook, a beaver dam is causing flooding on North Street. Culvert maintenance is continuously needed on Mountain Road, and is done so on an annual basis. Highway Foreman Glenn McCrory spoke of the work he has done to map all of the Town's culverts. As of now, that data has not been digitized, and the Town would like to share this data with the FRCOG so that it can be brought into GIS.

Vulnerability of Town Residents to Railroad Accidents: As discussed earlier, the commercial freight line that passes through Erving is high on participants' list of concerns. Given the history of train derailments in Town, there are concerns about the proximity of homes and structures to the rail lines, as well as Route 2, the Town's main artery and physical connection between its three villages. Workshop participants discussed "banding together" with neighboring towns that are affected by the Pan Am railway line and communicating with state legislators about the frequency of derailments and accidents and the need for better communication between the railroad and the towns.

Uncertainty of Water Supplies During Hazards or Outages: Many of Erving's residents rely upon private wells for their drinking water. In the event of a prolonged power outage, these residents would be without water, unless an emergency water supply or backup power system was established. Only residents in the village of Erving'side have access to public water, and that water supply does not presently have a generator back up. During the October 29, 2011 snow storm **(other events?)**, the water department in Erving'side experienced a power outage. In anticipation of the storm, they had filled their 600,000 gallon water storage tank, but after about five days, tank levels were getting low enough that the Erving Water Department was becoming concerned about their fire protection capabilities. Erving'side then connected to the Montague Water Department's water supply in neighboring Millers Falls, per their Emergency Response Plan (ERP). Because Montague has a generator backup, this allowed Erving'side to maintain a continuity of drinking water service until their power supply was back up. **This is a major point of**

strength for both towns, as Erving can also provide water to Millers Falls if their supply were to become compromised. IS THIS CORRECT?

Ice Jams on Millers River: Workshop participants observed that the water temperature of rivers appears to be changing as a result of climate change, and ice jams on the Millers River were recognized as a major hazard for Erving’s residents. Ice jams have caused damage to riverbanks and trees in Farley Flats, and between the Millers River and Route 2. Tree scarring is apparent in these areas, where blocks of ice have gouged and damaged riparian trees, which could have effects on riverbank stability and riparian habitat if ice jams become a more frequent occurrence. Ice Jams upstream in the Town of Athol in 2018 had a big impact on the town as well as downstream in Erving. Erving had to closely monitor the ice jams. Ice jams also threaten Erving’s wastewater treatment plant.



The proximity of the Millers River to the Town of Erving makes residents and infrastructure vulnerable to ice jams, and possibly, future flooding. Photograph courtesy Dominic Poli/The Recorder.

Current Strengths and Assets

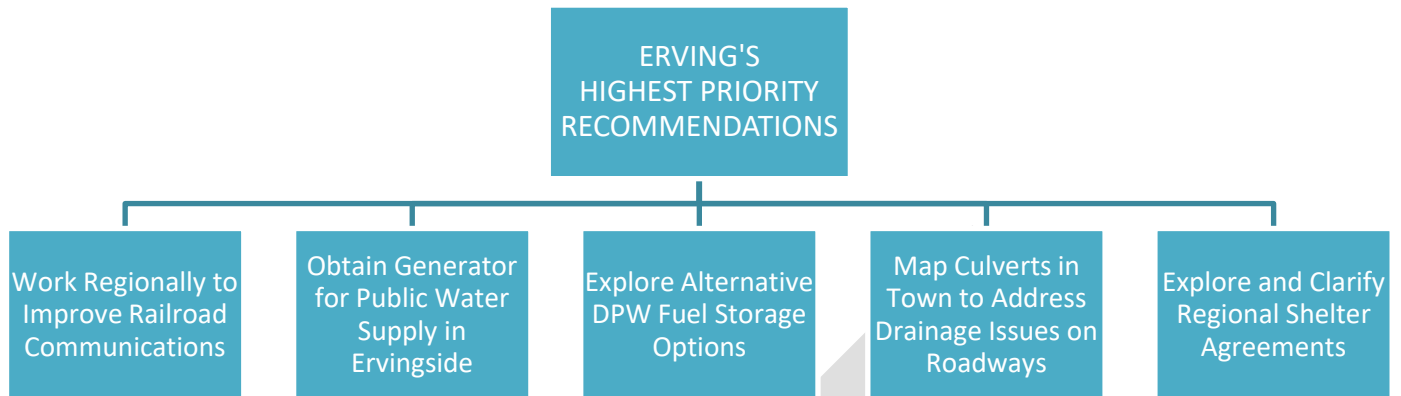
Erving residents, for the most part, know how to take care of themselves during routine snow storms, power outages and other such conditions. Participants expressed pride that people who have lived in Erving for a long time are accustomed to weathering storms, “sheltering in place,” and helping out neighbors. Many families in town know each other and know the first responders and Town staff who help run the Town. Participants sited several strengths and assets that help keep their community resilient in the face of climate change and other challenges. They include:



- *On High Ground:* Few structures in Erving are in the 100-year floodplain.
- *Roads and Culverts Maintained:* The Town’s DPW has ample resources to keep roads, bridges and culverts clear and well-maintained in the event of a storm or accident.
- *Town Buildings Have Backup:* Although the Pump House and Old Library do not have generators, all other town buildings do. In the event of a storm, power outage or heat wave, the Town of Erving has the necessary facilities to shelter residents and keep them out of harm’s way.
- *Millers Falls Can Provide Water:* During times of power outage, the neighboring village of Millers Falls in Montague allows Erving to tap into their public water supply.
- *Good Relationship with Firstlight:* The Town of Erving maintains good communication with Firstlight and are in constant communication about potential hazards.
- *Council of Aging Has a Van:* The Town’s Council on Aging has their own van to transport the elderly in the event of a hazard or emergency.

Top Recommendations to Improve Resilience

The railroad was a common topic of conversation during the workshop. Just as the railroad was rated as a top hazard by participants, it was also rated as the highest priority recommendation for the Town of Erving to work regionally to improve communications with the railroad company.



Addressing concerns about a railroad derailment or other disasters led the participants to determine that enlisting State Representatives and neighboring towns to develop a regional plan for communication among towns that are affected by the Pan Am freight line is the Town’s highest priority. Participants acknowledged significant challenges working with the private railroad entity, but are determined to improve communication with the railroad.

Tied for second highest priority were: a) obtaining a generator for the pump house, which provides the public water supply for the village of Ervingside, and b) finding an alternative place for the DPW to store their fuel, both outside of the 100-year floodplain and strategically located throughout town so that there would not be disruptions of supply if Route 2 is not passable.

Tied for third highest priority were: a) Transforming the DPW’s paper records of all the Town’s culverts into a digital GIS layer which could then be mapped, and b) clarifying regional shelter agreements, so that residents of Erving and neighboring towns know exactly where to go to find shelter, in the event of a storm, natural hazard, or emergency.

A number of other recommendations emerged during the workshop. Following is the Community Resilience Building Risk Matrix, sorted by priority, which illustrates how many of the recommendations are relevant to more than one top priority hazard. In fact, nine of the 19 recommendations are relevant to all three of the top priority hazards. Following the matrix is a complete bulleted list of recommendations, sorted by highest priority, moderate priority and lower priority.

Community Resilience Building Risk Matrix



H-M-L priority for action over the **Short** or **Long** term (and **Ongoing**)
V = Vulnerability **S** = Strength

Top Priority Hazards

Features	Location	Ownership	V or S	Recommendations	Railroad Derailments/ Hazardous Materials	Flooding/ Dam Failure	Ice Jams	Priority	Time
								H - M - L	Short Long Ongoing
Infrastructural									
Railroad	Town-wide	Private	V	Improve communication with the railroad company by organizing with other communities on the freight line and talking to state representatives.	X	X	X	H	O
Route 2	Town-wide	MassDOT	V	Develop town-wide communication and evacuation plan in the event that Route 2 is closed due to disaster/accident.	X	X	X	H	O
Wastewater Facility & Pumping Station	Erving	Town	V	Protect wastewater facility from flooding by exploring floodproofing options; obtain generator for pump house in the event of a power outage.		X	X	H	L
Town Hall	Erving Center	Town	V	Create redundancy/digital backup of important documents, public records, and GIS data.		X	X	H	S
DPW Highway Garage	Erving	Town	V	Create alternative site for fuel storage in one of Erving's other villages, and out of the floodplain.	X	X	X	H	S
Drinking Water Infrastructure	Erving Center	Town	V	Secure a public drinking water supply in Erving Center, in the event that wells dry up or groundwater supplies are somehow compromised.				H	S
Communication System	Town-wide	Private	V	Identify areas in Town where there are gaps in communications systems if landlines do not work (i.e., where are there holes in broadband and cell coverage).	X	X	X	M	S
Firstlight	Town-wide	Firstlight	V/S	Improve communication with residents in the EAP zone; ensure that homeless/transient people are able to be reached in the event of a disaster.		X		M	O
Erving Paper Mill	Erving Center	Private	V	Determine if fuel storage at the Paper Mill warrants more protection in the event of a fire, flood or accident.	X	X	X	M	S
Societal									
Regional Sheltering Plan	Town-wide	Regional	V	Obtain help from state in developing a regional sheltering plan so that residents know where to go in the event of a disaster, and adequate staff is on hand.	X	X	X	H	O
Homeless/Transient Camps	Town-wide	Town/ Firstlight	V	Improve outreach out to transient population to ensure that they are notified in the event of an emergency.	X	X	X	H	O
TRIAD List of Vulnerable Population	Town-wide	Town	V/S	Continue outreach out to elders and vulnerable, to ensure that they are signed up for Reverse 911 program.	X	X	X	M	S
Council on Aging Van	Town-wide	Town	S	Ensure that town is not liable in the event that COA van is used to transport residents during an emergency.	X	X	X	L	S
Environmental									
Public Drinking Water Supply	Erving	Town	V	Obtain generator for pump house in the event of a power outage, so that public water supply is not interrupted.		X	X	H	S
Millers River Floodplain	Town-wide	Town/Private	V/S	While few structures exist in the floodplain, those that are vulnerable to flooding (WW Treatment Plant, DPW Highway Garage, Erving Paper Mill) should be floodproofed/have a backup supply elsewhere.		X	X	H	S-L
Keyup Brook	Farley	Town/Private	V	Repair retaining wall rip rap and improve resiliency of stream banks from future erosion.		X	X	M	S
Beaver Dams	Town-wide	Town/Private	V	Investigate resources, funding, info for town and landowners.		X		M	L
Ice Jams	Farley	Town/State/Private	V	Investigate resources, funding, info for town and landowners to prevent future bank, road and tree damage from ice jams.		X	X	M	O
Culvert Maps	Town-wide	Town	S	Digitize DPW's culvert data so that it can be mapped.		X	X	M	S

Highest Priority Recommendations

- Improve communication with the railroad company by organizing with other communities on the freight line and talking to state representatives.
- Develop town-wide communication and evacuation plan in the event that Route 2 is closed due to disaster/accident.
- Protect wastewater facility from flooding by exploring floodproofing options; obtain generator for pump house in the event of a power outage.
- Create redundancy/digital backup of important documents, public records, and GIS data.
- Create alternative site for fuel storage in one of Erving's other villages, and out of the floodplain.
- Secure a public drinking water supply in Erving Center, in the event that wells dry up or groundwater supplies are somehow compromised.
- Obtain help from state in developing a regional sheltering plan so that residents know where to go in the event of a disaster, and adequate staff is on hand.
- Improve outreach out to transient populations to ensure that they are notified in the event of an emergency.
- Floodproof town-owned structures that are vulnerable to flooding and/or have a backup supply located elsewhere
- Learn more about the Army Corps of Engineers' system for managing dams on the Millers and Connecticut Rivers, in order to ensure that future flooding of Erving does not occur.

Moderate Priority Recommendations

- Identify areas in Town where there are gaps in communications systems if landlines do not work (i.e., where are there holes in broadband and cell coverage).
- Improve communication with residents in the EAP zone; ensure that homeless/transient people are able to be reached in the event of a disaster.
- Determine if fuel storage at the Paper Mill warrants more protection in the event of a fire, flood or accident.
- Continue outreach out to elders and vulnerable, to ensure that they are signed up for Reverse 911 program.
- Repair retaining wall rip rap on Keyup Brook and improve resiliency of stream banks from future erosion.
- Investigate resources, funding and info for Town and landowners to prevent future bank, road and tree damage from ice jams.
- Investigate resources, funding and info for Town and landowners to coexist with beaver dams.
- Digitize DPW's culvert data so that it can be mapped in GIS.

Lower Priority Recommendations

- Ensure that Town is not liable in the event that COA van is used to transport residents during an emergency.

CRB Workshop Participants

Name	Affiliation	Position
Bryan Smith*	Town of Erving	Administrative Coordinator
Glenn McCrory*	Town of Erving	Highway Foreman
Peter Sanders*	Town of Erving	Water Superintendent & Conservation Commission
Mike Shaffer*	Town of Erving	Planning Board
Neal Slocombe*	Firstlight Power	Operations Manager
Douglas Bennett*	Firstlight Power	Director of MA Hydro
Philip Wonkka*	Town of Erving	Fire Chief & Emergency Management Director
Kimberly Noake MacPhee*	FRCOG	Land Use & Natural Resources Program Manager
Megan Rhodes*	FRCOG	Senior Transportation & Land Use Planner
Evan Abramson*	FRCOG	Land Use & Natural Resources Planner

*Attendee

CRB Workshop Project Team

Franklin Regional Council of Governments:

Evan Abramson, Project Lead

Kimberly Noake MacPhee, Lead Presenter and Co-Facilitator

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Photo credits:

Cover (top)	Erving Paper Mill Fire, 2015	Matt Burkhartt/The Recorder
Cover (bottom)	Erving CRB Workshop, 2018	FRCOG
Page 6	Buckland train derailment, 2016	The Recorder
Page 9	Erving Paper Mill Fire, 2015	Matt Burkhartt/The Recorder
Page 11	Ice Jams in Millers River, Athol	Dominic Poli/The Recorder

All other photographs are courtesy of the Franklin Regional Council of Governments.

Appendices

Maps

CRB Workshop Documentation

CRB Workshop Presentation

Public Input Documentation

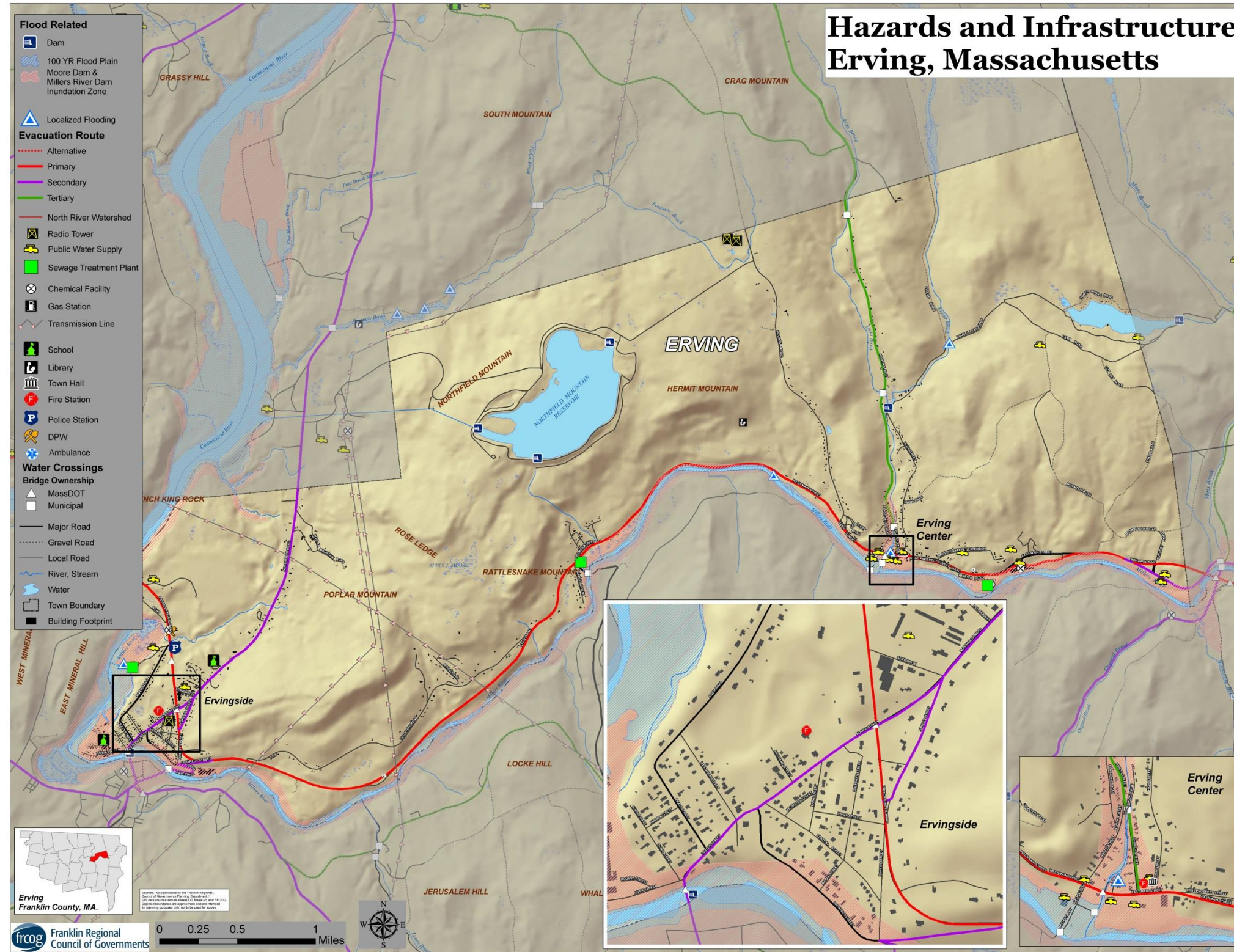
Public Input Presentation

Certificate of Adoption

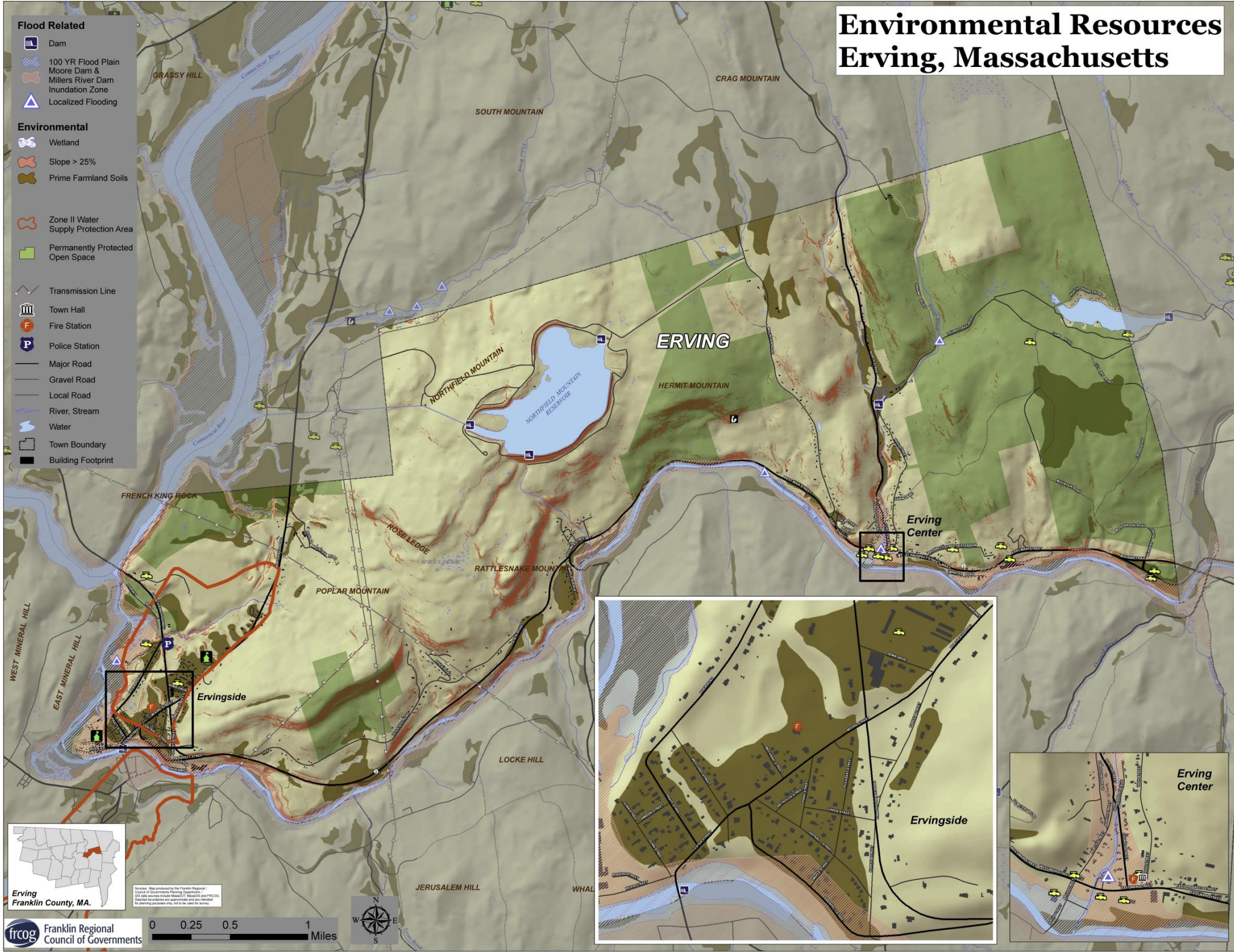
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MAPS



Environmental Resources Erving, Massachusetts



CRB WORKSHOP DOCUMENTATION

CRB Workshop Flyer

October 3rd 8:30am-1:30pm Erving Senior & Community Center
1 Care Drive, Erving

ERVING CLIMATE CHANGE RESILIENCE WORKSHOP

The Town of Erving and the Franklin Regional Council of Governments invite town officials and members of the public to discuss:

- Connections between natural hazards and local/regional planning and mitigation efforts
- Strengths and vulnerabilities of residents, infrastructure, and natural resources
- Specific actions that can reduce the impact of hazards and increase Erving's resilience

RSVP to Bryan Smith at (413) 422-2800 x102 or admin@erving-ma.org
Lunch will be provided

Photograph by Dan Little/The Recorder

CRB Workshop Sign In Sheet

Erving Community Resilience Building Workshop
Wednesday, October 3, 2018
Erving Senior & Community Center

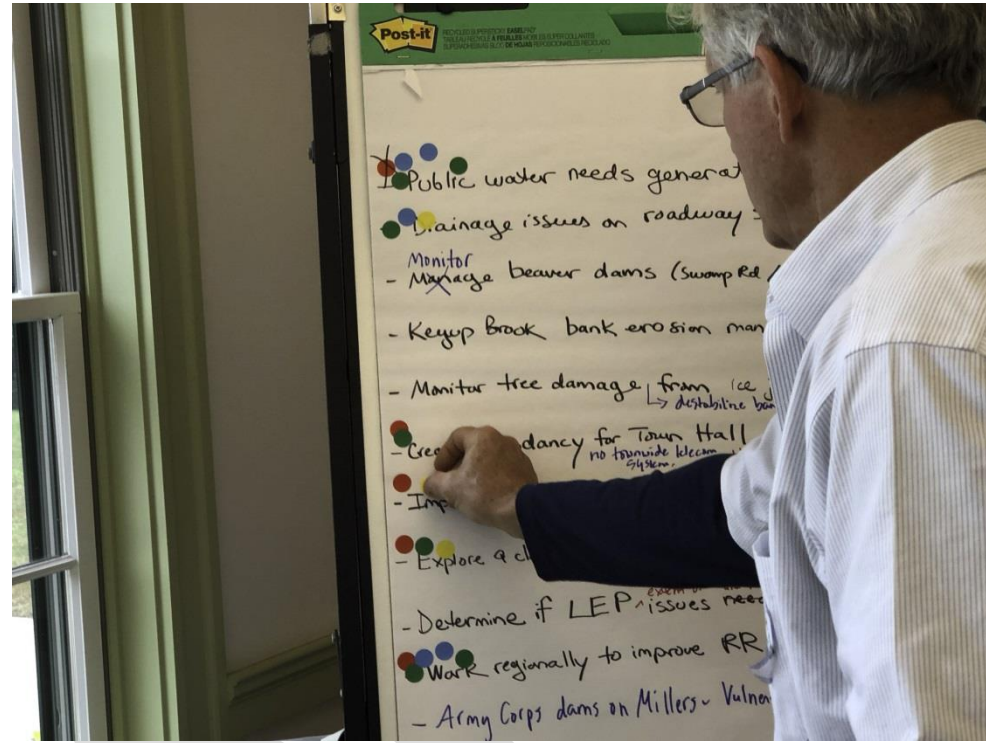
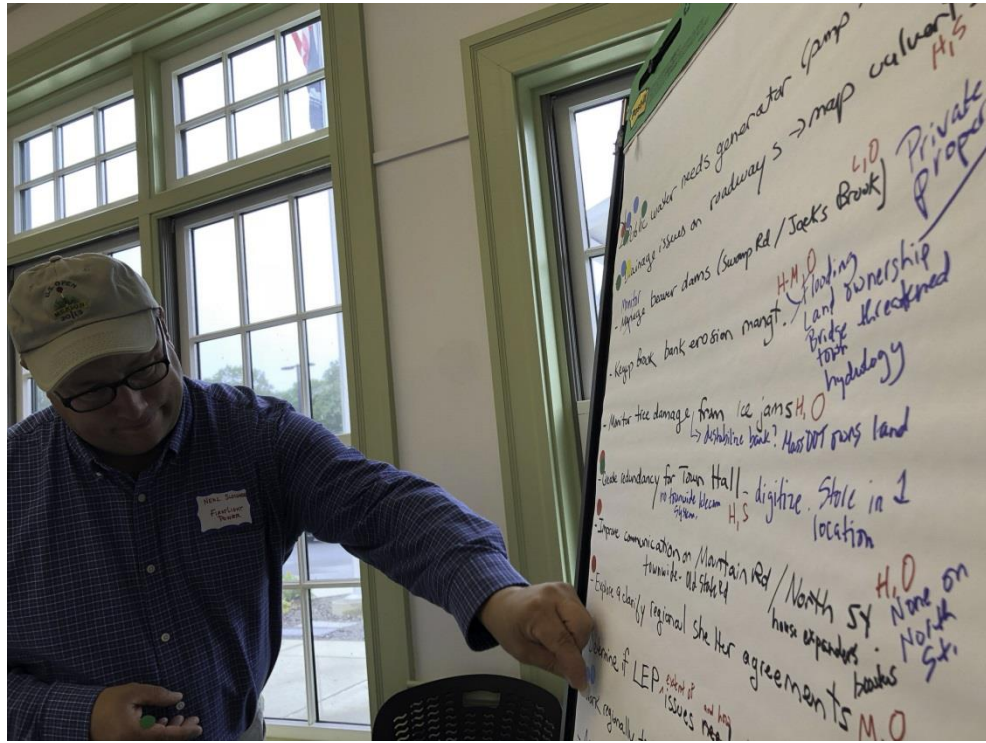
Name	Affiliation	Position	Contact
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Philip Wontka	EMD / Fire	Fire chief / EMD	Firedept@Erving-ma.org
Kimberly MacPhee	FRCOG	Land Use + Nat Res Program manager	kmacphee@frcog.org
Megan Rhodes	FRCOG	Transp. + LU planner	mrhodes@frcog.org
Evan Abramson	FRCOG	Land Use + Nat Res. planner	eabramson@frcog.org

- Compressed Natural Gas @ Erving Paper Mill
- ✓ - railroad / roadway (hazmat)
- ✓ - ice jams on Millers / CT
- ✓ - Flooding (small storms - Drainage) general
- Dam failure (manmade + natural)
- Tornadoes

- 2 Public water needs generator (pump House) H, S
- Drainage issues on roadways → map culverts H, S
- 3 Monitor Manage beaver dams (Swamp Rd / Joek's Brook) Private Property L, D
- Keyup Brook bank erosion mangt. H, M, D Flooding Land ownership Bridge destroyed top hydrology
- Monitor tree damage from ice jams H, O destabilize bank? MassDOT owns land
- Create redundancy for Town Hall - digitize. Store in 1 location no townwide telecom system H, S
- Improve communication on Mountain Rd / North St H, D None on North St. house expansion basis
- 3 Explore & clarify regional shelter agreements M, O
- Determine if LEP^{extent of and how} issues need to be addressed H, S
- 1 Work regionally to improve RR communications H, O M, L
- Army Corps dams on Millers - Vulnerability of infrastr. in floodpln gather info
- 2 Fuel storage options outside floodpln H, S

CRB Workshop Photos

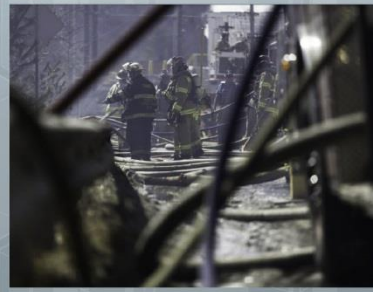




CRB WORKSHOP PRESENTATION (FRCOG)



Community Resilience Building Workshop



Town of Erving

October 3, 2018

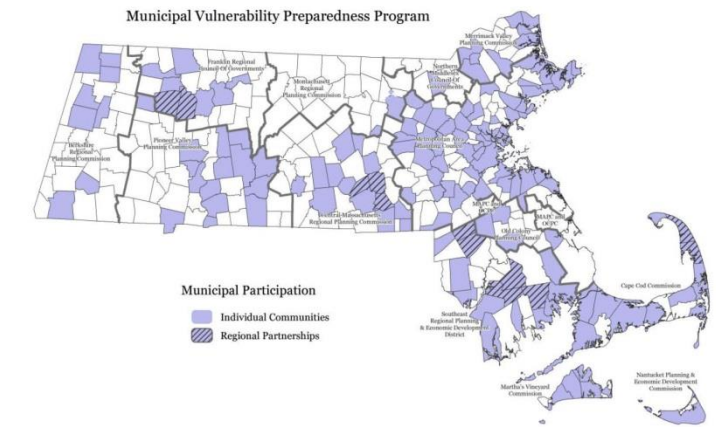
Photo courtesy The Recorder, Matt Burkhart

Agenda



- Welcome and Introductions
- Municipal Vulnerability Preparedness Grant Program
- Discuss Impacts of a Changing Climate
- Workshop Agenda (see hand-out)
- Next Steps

MVP Program Launched 2017 \$1.1M Awarded



Workshop Process and Outcomes

Build Resilience and Preparedness - to more frequent and intense weather events.

Improve pre-event planning, response & recovery, and long-term actions.

A prepared and resilient town will be able to maintain functions, protect its residents and emerge stronger and better prepared for future storm events and a changing climate.

- Review natural hazard background information to provide context for all participants
- Identify and map vulnerabilities and strengths:
 - Infrastructure
 - Societal
 - Natural resources
- Develop and prioritize actions and clearly delineated next steps

Massachusetts' Changing Climate

- **Changing weather**
 - Higher temperatures
 - Shorter winters
 - More frequent & intense storms
 - Droughts
- **Amplifies existing risks**
 - Community and regional infrastructure
 - Local and regional economies
 - Public health
 - Natural resources and our environment

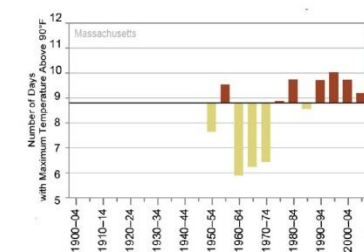
Goal for Building Resilience to a Changing Climate:

Protect life, property, natural resources and the economy

Higher Temperatures



Change in Observed Number of Extreme Heat Days (>90 degrees)



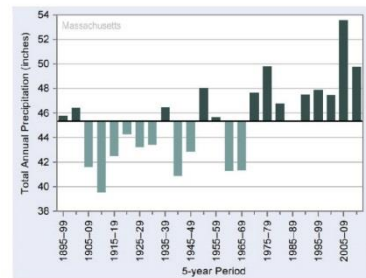
Heat Waves

- Number of days >90° are predicted to increase.
- By 2050 - 6 to 25 more days
- By 2100 - 9 to 60 more days

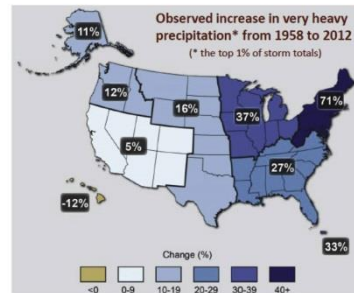
Heavy Precipitation



Observed Annual Precipitation



Observed Increase in Heavy Precipitation

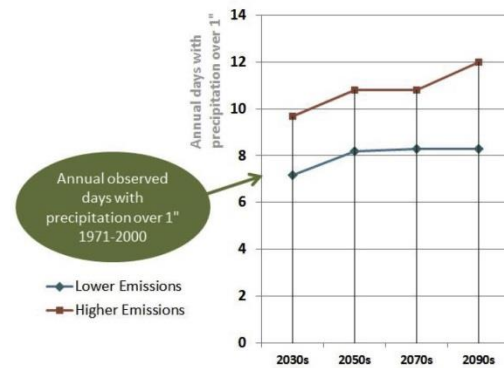


Heavy Precipitation



Predictions

- By the end of the century, our area could have 5 additional days of rainstorms that dump over 1 inch of rain.



Extreme Weather Events

- Tropical storms
- Tornadoes
- Thunderstorms
- Snow storms
- Drought

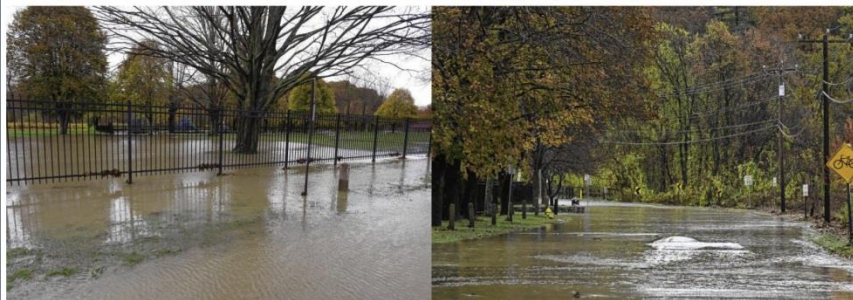
The frequency, intensity, duration and geographic extent of these extreme storms is likely to increase.



Greenfield: 2.59"
Orange: 2.78"

News Flash! October 30, 2017

Heavy rains bring flash flood warnings and high winds knock out power to thousands. Roads flood



Pictures by Recorder Staff/Paul Franz

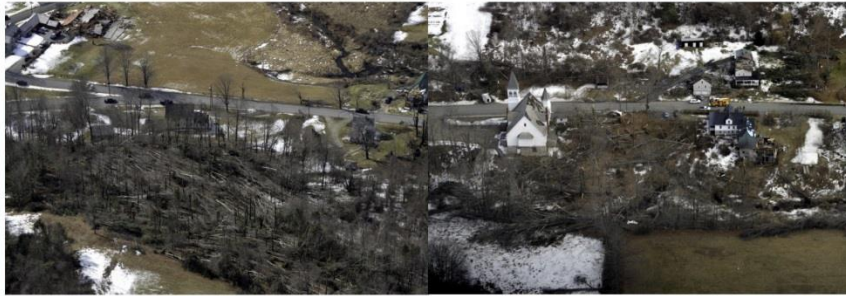
Recent Severe Storms 2008 Whately Microburst



Recent Severe Storms 2008 Ice Storm



2017 Conway Tornado



Recent Severe Storms 2011 Tropical Storm Irene



Snowtober!!! 2011 Historic Nor'easter

THE RECORDER
WEDNESDAY NOVEMBER 2, 2011

Storm recovery slow
Widespread tree damage hampers line repairs

Snowstorm slams region
Thousands without power

THE RECORDER LOCAL
MONDAY NOVEMBER 11, 2011

100 percent of Gill still without power

Storm
Area cold seek shelter
Residents flock to Turners high school

Shelter: People get warm, charge devices

TOWN OF ERVING LOCAL NATURAL HAZARD MITIGATION PLAN 2012

- Inventoried *historic* hazard events – frequency, magnitude and damages
- Vulnerability assessment for flooding was prepared based on damages from *past* events and location in 100 year floodplain
- Prioritized all hazards and included action items for each hazard

2012 Natural Hazard Mitigation Plan Hazard ID & Vulnerability Assessment



Potential Hazards Identified for Erving

- Flood
- Severe Winter Storms
- Hurricane and Tropical Storms
- Tornados

A changing climate is exposing us to greater risk

- Ice Jam

Action Items for most of these hazards were also developed

Workshop Agenda

- Identify Past, Current and Future Hazards
- Determine Top Priority Hazards
 - Which 4 hazards pose the greatest threat to the town currently and in the future?
- Brainstorm resiliency actions for Infrastructure, Societal and Environmental vulnerabilities.
 - Examples:
 - Upgrade culverts, flood-proof drinking water supplies
 - Evacuation drills and extreme weather communications protocols to protect vulnerable populations
 - Protect wetlands and floodplains to improve flood resiliency
- Determine top priority Resiliency Actions for Erving

Infrastructure



A changing climate is exposing us to greater risk.

What is it?

- Roads
- Power grid
- Drinking Water
- Wastewater Treatment
- Communications
- Housing
- Emergency Response
- Schools

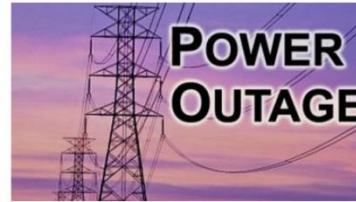
Vulnerabilities

- Increase in Precipitation and Extreme Storm Events
- Damages from Flooding, Wind Storms, Snow/Ice Storms

Expected Impacts from Higher Temperatures

Infrastructure

- Energy
 - Increased demand will strain energy infrastructure
 - Disrupt service (potential for widespread brownouts or blackouts)
- Transportation
 - More frequent maintenance required to address:
 - deterioration of asphalt roads
 - buckle railroad tracks
 - thermal expansion of bridges



Societal (Erving Residents)



A changing climate is exposing us to greater risk.

What is it?

- Availability of health care services
- Access to lifelines (food/water, emergency response personnel, etc.)
- Support networks that connect and maintain the supply of goods and services to vulnerable populations.

Vulnerabilities

- Vulnerable populations
 - Elderly
 - Low/moderate income
 - Special needs
 - Languages spoken

Effects of Climate Change on Town Residents (societal)

A changing climate is exposing us to greater risk.

- Heat-Related Illness and Death
- Danger from Storms & Flooding
- Insect-Borne Diseases
- Allergies & Pollen
- Waterborne Disease & Algal Blooms
- Vulnerable populations
- Shelters & services

Health Impacts from a changing climate are magnified by individual health issues and circumstances of vulnerable populations



Environment

A changing climate is exposing us to greater risk.

Natural Resources

- Millers River
- Coldwater streams
- Forests
- Floodplains
- Habitat
- Wetlands
- Aquifers

Vulnerabilities?

- Flooding
- Erosion
- Impacts to water quality and quantity
- Loss of species diversity
- Invasive pests and plants
- Wetland soils become less absorptive
- More stormwater runoff, less groundwater recharge

Let's Get Started!

- Complete Workshop
- Compile Information in a Summary Report
- Follow-up Meeting with the Town
- Use MVP work to update Erving's Hazard Mitigation Plan

Let's Get Started!

Identify past, current, and future hazards

- o What hazards have impacted your community?
- o Where and how often have the hazards occurred?
- o What effects will these hazards have on your community in the future (5, 10, 25 years)?
- o What is exposed to hazards and climate threats within your community? For example, roads, elderly, natural resources.
- o What have been the impacts to the town's operations and budgets, planning and mitigation efforts?
- o Other concerns?

DRAFT

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 Erving residents and town officials to review and comment upon the draft Erving MVP Resiliency Plan.

The public listening session was held **insert date/location here** (see Agenda below). 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 **xx through xx**. The agenda for the meeting is shown below.

insert

meeting

agenda

here

The public comment period was held from **insert dates here**, 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:

- insert public comments here

The public listening session and public comment period were advertised on the Town of Erving’s website as well as on the FRCOG’s website. The event was also advertised via a flyer, shown below.

Public Listening Session Flyer



Public Listening Session Sign-in Sheet

insert

sign-in

sheet

here

DRAFT

DRAFT

insert

powerpoint

here

DRAFT

insert

powerpoint

here

CERTIFICATE OF ADOPTION

insert

certificate

of

adoption

here

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