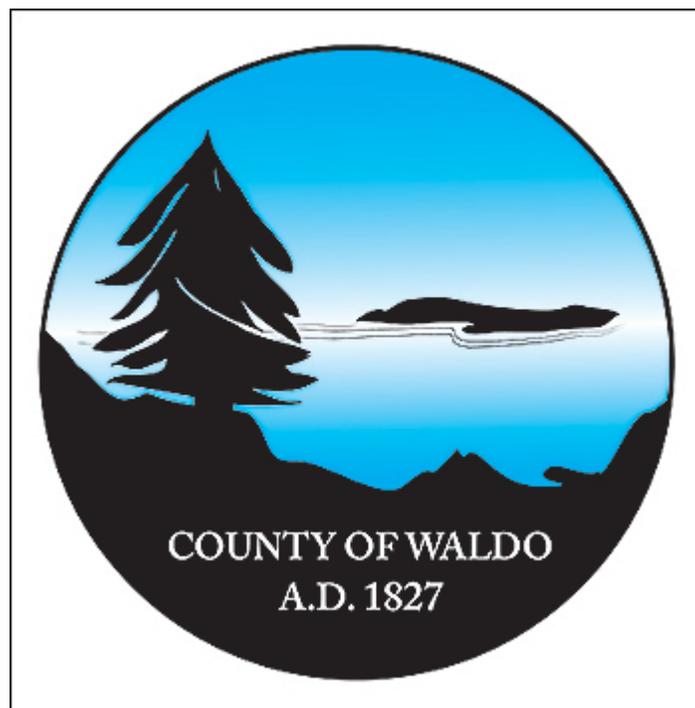


**2017**  
***Multi-Jurisdictional***  
**HAZARD MITIGATION PLAN**  
***For Select Municipalities in***  
**WALDO COUNTY, MAINE**



January 2017

Waldo County Emergency Management Agency  
4 Public Safety Way, Belfast, ME 04915



# WALDO COUNTY HAZARD MITIGATION PLAN

## TABLE OF CONTENTS

<b>Section 1. Introduction .....</b>	<b>1-1</b>
<b>Municipal Populations (2010) .....</b>	<b>1-2</b>
<b>County Demographic Profile .....</b>	<b>1-3</b>
<b>County Map .....</b>	<b>1-4</b>
<b>Section 2. Prerequisites .....</b>	<b>2-1</b>
<b>Multi –Jurisdictional Plan Adoption .....</b>	<b>2-1</b>
<b>Section 3. Planning Process .....</b>	<b>3-1</b>
<b>Multi-Jurisdictional Planning Participation .....</b>	<b>3-1</b>
<b>Documentation of the Planning Process .....</b>	<b>3-3</b>
<b>Section 4. Risk Assessment .....</b>	<b>4-1</b>
<b>Identifying Hazards .....</b>	<b>4-2</b>
<b>Profiling Hazards .....</b>	<b>4-6</b>
<b>County Base Maps .....</b>	<b>4-8</b>
<b>Municipal Base Maps .....</b>	<b>4-10</b>
<b>Assessing Vulnerability: Overview .....</b>	<b>4-11</b>
<b>Assessing Vulnerability: Addressing Repetitive Loss Prop .....</b>	<b>4-12</b>
<b>Assessing Vulnerability: Identifying Structures .....</b>	<b>4-13</b>
<b>Assessing Vulnerability: Estimating Potential Losses .....</b>	<b>4-15</b>
<b>Assessing Vulnerability: Analyzing Development Trends .....</b>	<b>4-21</b>
<b>Multi-Jurisdictional Risk Assessment .....</b>	<b>4-23</b>

# WALDO COUNTY HAZARD MITIGATION PLAN

<b>Section 5. Mitigation Strategy .....</b>	<b>5-1</b>
<b>Local Hazard Mitigation Goals .....</b>	<b>5-2</b>
<b>Identification and Analysis of Mitigation Actions .....</b>	<b>5-4</b>
<b>Implementation and Administration .....</b>	<b>5-6</b>
<b>Status of Mitigation Actions from the 2011 Plan .....</b>	<b>5-8</b>
<b>Section 6. Plan Maintenance Process .....</b>	<b>6-1</b>
<b>Monitoring, Evaluating, and Updating the Plan .....</b>	<b>6-2</b>
<b>Incorporation into Existing Planning Mechanisms .....</b>	<b>6-3</b>
<b>Continued Public Involvement .....</b>	<b>6-4</b>
<b>Appendix</b>	
<b>Rosters of Mitigation Planning Meetings</b>	

# WALDO COUNTY HAZARD MITIGATION PLAN

## SECTION 1 - INTRODUCTION

Understanding that the Local Mitigation Plan requirements in §201.6 of the Interim Final Rule applies to local jurisdictions, the County of Waldo, State of Maine decided to complete a multi-jurisdictional mitigation plan, beginning in 2002, to include and incorporate each of its member towns. This was due to the majority of these communities being too small to complete such an undertaking on their own. The county-wide mitigation planning effort encouraged agencies at all levels, local residents, businesses, and the non-profit sector to participate in the mitigation planning and implementation process. This broader public participation enabled the development of mitigation measures that are supported by these various stakeholders and reflects the needs of the county-wide community.

The Disaster Mitigation Act (DMA) of 2000 specifically required mitigation planning for natural hazards. It does not require mitigation planning for man-made hazards. The prior versions of the Waldo County Hazard Mitigation Plan were developed solely for natural hazards. The current Waldo County Hazard Mitigation Planning Team decided to continue to assess only natural hazards for this version of the Plan.

The Waldo County Hazard Mitigation Plan includes the following sections:

- Prerequisites
- Planning Process
- Risk Assessment
- Mitigation Strategy
- Plan Maintenance Process

Waldo County in the State of Maine, combines the scenic beauty of the rugged Maine coast with the lush forests and farmlands of the inland hills, yielding harvests both cultivated and wild.

The County consists of 39,051 residents (Census 2014 population estimate) living in 21,566 households (Census 2000). The County contains 852.76 square miles, 729.92 square miles of land and 122.84 square miles of water. This derives a population density of 53.1 people per square mile. There are no U.S. Census designated Metropolitan areas in the County. 16.4% of residents are considered below poverty. Age distribution from the census indicate that 5.6% of residents are under 5 years of age; 24.2% are under 18 years of age; and 13.6% are over 65 years of age.

There are twenty-five incorporated towns and one incorporated city, which is the county seat of Waldo County. The County government contains the County Sheriff's Office, County Jail, County Clerk's Office, County Treasurer's Office, Registrar of Deeds, Probate Judge, Assistant District Attorney, and the Emergency Management Office. The municipalities are responsible for Tax Collection, Clerk's Office, Road Maintenance and Snow Removal, Refuse Collection, Land Use Planning, Code Enforcement, Animal Control, Fire Protection, and Cemetery Maintenance.

The ten largest employers in the County are Athenahealth, Bank of America, Waldo County General Hospital, Sweetser, Unity College, Penobscot-McCrum Frozen Foods, Hannaford, Pride Manufacturing, Duck Trap River Fish Farm, and Matthews Brothers.

# WALDO COUNTY HAZARD MITIGATION PLAN

## MUNICIPAL POPULATIONS (2010 CENSUS)

Town/City	Year Round Population	Median Age	Density	Total Homes	Occup Homes	House hold Density
Belfast	6,668	46.9	194.0	3,582	3,049	2.19
Belmont	942	44.8	66.4	462	405	2.32
Brooks	1,078	38.6	42.5	562	446	2.42
Burnham	1,164	43.3	28.3	714	502	2.32
Frankfort	1,124	41.6	45.2	537	452	2.49
Freedom	719	44.7	32.4	343	292	2.46
Islesboro	566	52.1	39.6	850	270	2.09
Jackson	546	44.6	21.5	272	237	2.30
Knox	806	39.6	27.7	382	313	2.57
Liberty	913	47.2	32.2	718	395	2.28
Lincolnton	2,164	47.5	55.1	1,465	959	2.26
Monroe	890	47.5	22.8	461	402	2.21
Montville	1,032	43.6	23.9	553	433	2.38
Morrill	884	40.9	51.9	379	337	2.62
Northport	1,520	47.8	62.7	1,162	681	2.23
Palermo	1,535	43.8	35.3	975	623	2.46
Prospect	709	44.3	39.0	357	291	2.43
Searsmont	1,392	41.0	35.6	741	577	2.41
Searsport	2,615	46.9	89.0	1,510	1,186	2.20
Stockton Springs	1,591	49.9	81.1	939	694	2.29
Swanville	1,388	40.2	64.2	793	558	2.49
Thorndike	890	38.0	35.3	396	330	2.69
Troy	1,030	43.1	28.7	476	414	2.48
Unity	2,099	31.2	50.8	939	750	2.80
Waldo	762	42.9	39.5	373	332	2.30
Winterport	3,757	41.5	105.7	1,645	1,503	2.50
<b>TOTAL</b>	<b>38,786</b>	<b>44.1</b>	<b>51.7</b>	<b>21,566</b>	<b>16,431</b>	<b>2.36</b>

The overall 10-year census trend for Waldo County is a slow population growth of 6.9%, with the median age increasing 12.2%. The household density decreased by 4.19%. The number of total homes increased by 11.6%, however much of this was due to the increase of seasonal homes which increased by 19.6%.

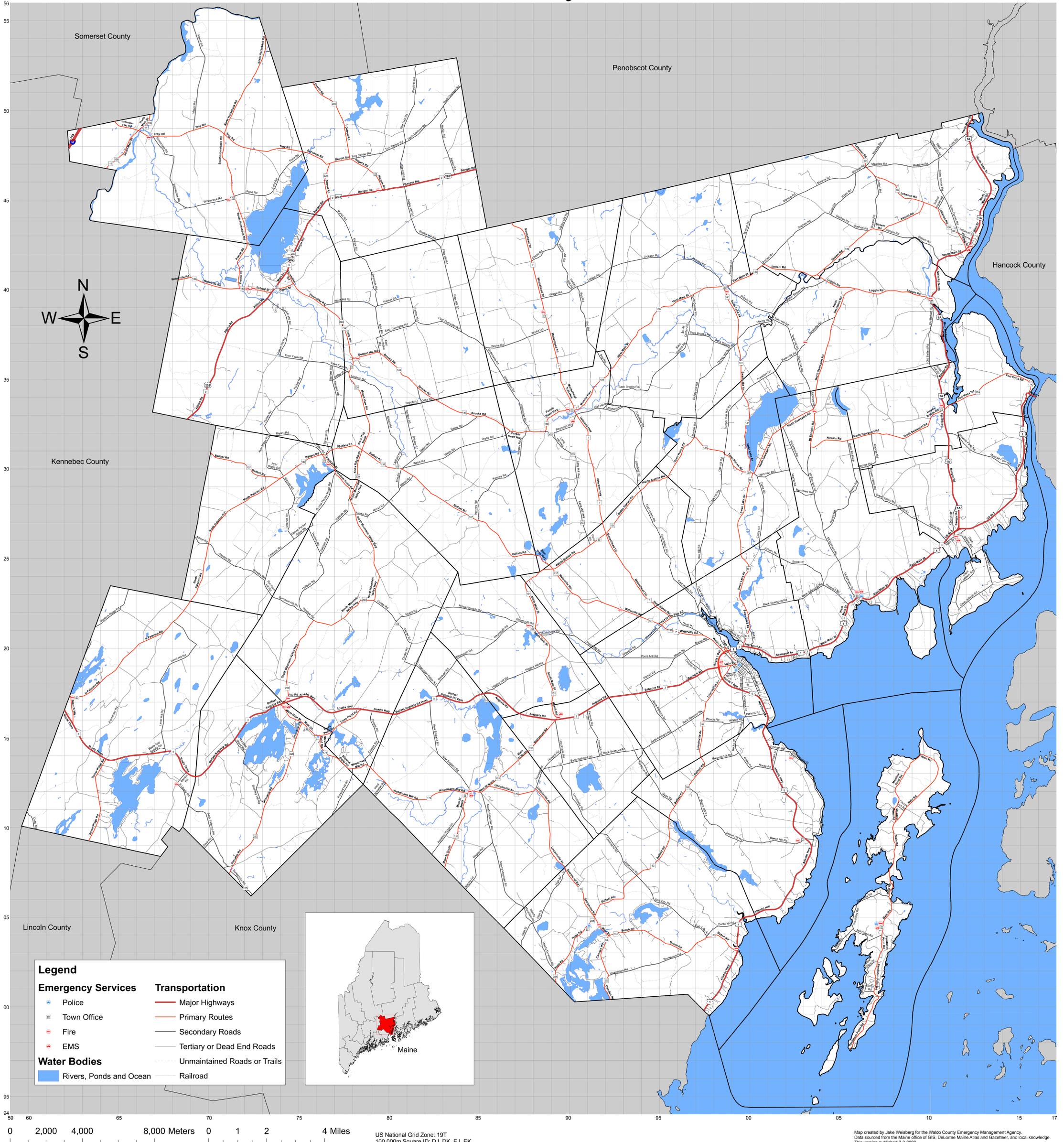
In general, the residents of Waldo County are getting older and the households are getting smaller. The percentage of children as a whole is shrinking, however, the poverty rate among households with children is increasing.

# WALDO COUNTY HAZARD MITIGATION PLAN

## COUNTY DEMOGRAPHIC PROFILE - Waldo County, State of Maine

Measure	2010 Waldo	2000 Waldo	2010 Maine	2010 USA
<b>Population</b>				
Total Population	38,786	36,280	1,328,361	308,745,538
% White	97.1	97.9	95.2	72.4
% of Hispanic Origin	0.9	0.6	1.3	16.3
% Black	0.4	0.2	1.2	12.6
% American Indian	0.4	0.4	0.6	0.9
% Asian	0.4	0.2	1.0	4.8
<b>Households</b>				
Total Households	16,431	14,726	557,219	116,716,292
Household Units	21,566	18,904	721,830	131,704,730
Avg. Household Size	2.36	2.43	2.32	2.58
<b>Income</b>				
Median Household Income (\$)	41,312	33,986	46,933	51,914
Persons below poverty, %	14.6	13.9	12.6	13.8
Children below poverty, %	20.9	18.6	17.0	19.2
<b>Sex and Age</b>				
Median Age, Total Population	44.1	39.3	42.7	37.2
% Female	51.0	50.9	51.1	50.8
% Male	49.0	49.1	48.9	49.2
% Under 5 Years	5.3	5.6	5.2	6.5
% 18 Years and over	79.0	75.8	79.3	76.0
% 65 Years and over	16.2	13.6	15.9	13.0
Population Density (sq. mi.)	51.7	49.7	41.3	84

# Road Map Waldo County, Maine



US National Grid Zone: 19T  
100,000m Square ID: DJ, DK, EJ, EK

Map created by Jake Weisberg for the Waldo County Emergency Management Agency.  
Data sourced from the Maine office of GIS, DeLorme Maine Atlas and Gazetteer, and local knowledge.  
This version published 7-3-2009

# WALDO COUNTY HAZARD MITIGATION PLAN

## SECTION 2 - PREREQUISITES MULTI-JURISDICTIONAL PLAN ADOPTION

<b>Requirement §201.6(c)(5):</b>	<b>For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.</b>
<b>Elements</b>	<b>A. The updated plan indicates the specific jurisdictions represented in the plan.</b>
	<b>B. The local governing body of each jurisdiction has adopted the updated plan.</b>
	<b>C. Supporting documentation (resolution) is included for each participating jurisdiction.</b>

Note: Not all municipalities decided to participate in this 2017 version of the multi-jurisdictional plan.

### RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Waldo County Commissioners hereby adopt the 2017 Waldo County Hazard Mitigation Plan.

### AUTHORIZING SIGNATURES

\_\_\_\_\_  
Commissioner, Waldo County      Date

\_\_\_\_\_  
Commissioner, Waldo County      Date

\_\_\_\_\_  
Commissioner, Waldo County      Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Freedom hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Freedom                      Date

\_\_\_\_\_  
Selectman, Freedom                      Date

\_\_\_\_\_  
Selectman, Freedom                      Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Knox hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Knox                      \_\_\_\_\_  
Date

\_\_\_\_\_  
Selectman, Knox                      \_\_\_\_\_  
Date

\_\_\_\_\_  
Selectman, Knox                      \_\_\_\_\_  
Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Liberty hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Liberty                      Date

\_\_\_\_\_  
Selectman, Liberty                      Date

\_\_\_\_\_  
Selectman, Liberty                      Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Lincolnville hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Lincolnville                      \_\_\_\_\_  
Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Montville hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Montville                      Date

\_\_\_\_\_  
Selectman, Montville                      Date

\_\_\_\_\_  
Selectman, Montville                      Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Northport hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Northport                      \_\_\_\_\_  
Date

\_\_\_\_\_  
Selectman, Northport                      \_\_\_\_\_  
Date

\_\_\_\_\_  
Selectman, Northport                      \_\_\_\_\_  
Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Palermo hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Palermo                      Date

\_\_\_\_\_  
Selectman, Palermo                      Date

\_\_\_\_\_  
Selectman, Palermo                      Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Prospect hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Prospect                      \_\_\_\_\_  
Date

\_\_\_\_\_  
Selectman, Prospect                      \_\_\_\_\_  
Date

\_\_\_\_\_  
Selectman, Prospect                      \_\_\_\_\_  
Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Searsmont hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Searsmont                      \_\_\_\_\_  
Date

\_\_\_\_\_  
Selectman, Searsmont                      \_\_\_\_\_  
Date

\_\_\_\_\_  
Selectman, Searsmont                      \_\_\_\_\_  
Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Searsport hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Searsport                      \_\_\_\_\_  
Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Selectmen of the Town of Unity hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Selectman, Unity                      Date

\_\_\_\_\_  
Selectman, Unity                      Date

\_\_\_\_\_  
Selectman, Unity                      Date

# WALDO COUNTY HAZARD MITIGATION PLAN

## RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment in Waldo County;

And whereas the revision of the County Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the municipalities of Waldo County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Board of Councilors of the Town of Winterport hereby adopts the 2017 Waldo County Hazard Mitigation Plan.

## AUTHORIZING SIGNATURES

\_\_\_\_\_  
Councilor, Winterport                      Date

# WALDO COUNTY HAZARD MITIGATION PLAN

This Page Left Blank

# WALDO COUNTY HAZARD MITIGATION PLAN

## SECTION 3 - PLANNING PROCESS

### MULTI-JURISDICTIONAL PLANNING PARTICIPATION

<b>Requirement §201.6(a)(3)</b>	<b>Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan.</b>
---------------------------------	--

The Waldo County Hazard Mitigation Plan is a multi-jurisdictional plan and has been prepared by a Hazard Mitigation Planning Team hosted by the Waldo County Emergency Management Agency with representatives from the county and municipal governments. The Planning Team also met or spoke with representatives of each of the 26 municipalities, the private sector, and individual residents to collect their comments and recommendations on the identification of hazards, assessment of vulnerabilities and risks, and the determination of mitigation goals and measures.

#### The Hazard Mitigation Planning Team consisted of the following representatives:

Dale Rowley	County of Waldo	EMA Director
Christine Spaulding	Town of Freedom	EMA Director
Matthew Shaw	Town of Knox	EMA Director, Fire Chief, EMS Officer
Galen Larrabee	Town of Knox	Selectperson
Elise Brown	Town of Liberty	EMA Director
Warren Steeves	Town of Liberty	Selectperson
Hank Lang	Town of Lincolnville	EMA Director
John York	Town of Montville	EMA Director, Fire Chief
Robert Price	Town of Montville	Selectperson
Peter Simpson	Town of Northport	EMA Director, Deputy Fire Chief
Barbara Ashley	Town of Northport	Town Administrator
Cheryl York	Town of Palermo	EMA Director
Tim Terry	Town of Prospect	EMA Director, Fire Chief
Diane Terry	Town of Prospect	Selectperson
James Ames	Town of Searsmont	EMA Director, Fire Chief
Almon Rivers	Town of Searsport	EMA Director
Nicholas Brancato	Town of Unity	EMA Director
Emily Newell	Town of Unity	Selectperson
Thomas Doe	Town of Winterport	EMA Director, Fire Chief

## **WALDO COUNTY HAZARD MITIGATION PLAN**

Every municipality in Waldo County, who were included in the Plan, had at least one member who attended at least one of the County Hazard Mitigation Planning Team meetings. Additionally, other county and municipal officials participated through the collection of data involving land use planning, capitol improvement plans, roadway information, and damage information from past disaster events. Every municipality, included in the Plan, participated in the development and selection of their community's Mitigation Measures.

### **Documentation of local participation**

Waldo County held all its planning meetings as open forums. Notices were sent to municipal town offices; press releases sent to the local newspaper; and updates to the County EMA website were utilized to advertise and explain the mitigation planning process to the public. The Team included opportunities for the public and our neighboring counties to comment on the plan during all stages of its formation. The Planning Team reviewed the existing County Hazard Mitigation Plan, existing county and municipal emergency plans and incorporated information, as appropriate. Sign in sheets were completed for all meetings.

### **Status of Local Participation**

In 2004, all 26 municipalities in Waldo County participated and approved the original County Hazard Mitigation Plan. All 26 municipalities in Waldo County participated and approved the revised County Hazard Mitigation Plan completed in 2009. However, not all 26 municipalities decided to participate in the update for 2016. The County EMA office attempted to communicate with all town officials through e-mails, telephone calls, and faxes and with each municipal EMA office regarding the Hazard Mitigation planning efforts. The County EMA office assumes that the towns who decided no longer saw any benefit in the Hazard Mitigation Planning process. No reasons were given for the noninvolvement. The Planning Team decided to continue on with the planning process for those municipalities who did decide to be involved.

# WALDO COUNTY HAZARD MITIGATION PLAN

## DOCUMENTATION OF THE PLANNING PROCES

<b>Requirement §201.6(b)</b>	<b>In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:</b> <b>(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;</b> <b>(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and</b> <b>(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.</b>
<b>§201.6(c)(1)</b>	<b>The plan shall document the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.</b>

### A. Narrative Description

The planning process included a series of meetings for local officials, augmented by follow-up e-mail messaging and various phone calls.

On Tuesday, August 26, 2014, the Waldo County Hazard Mitigation Planning Team met for the first time to review the steps for the revision of the County Hazard Mitigation Plan.

On Thursday, April 9, 2015 Waldo County EMA hosted a public officials workshop to explain the Hazard Mitigation Planning process.

On Thursday, June 11, 2015, the Waldo County Hazard Mitigation Planning Team met to review the 2011 version of the Plan.

On Thursday, August 13, 2015, the Waldo County Hazard Mitigation Planning Team met to update the County Hazard Identification and Risk Analysis. The Planning Team determined that for the revision of the plan, they would continue with the originally identified hazards of flooding, severe summer storms and severe winter storms. The Team also identified changes in public facilities and discussed new vulnerabilities.

On Thursday, September 10, 2015, the Waldo County Hazard Mitigation Planning Team met to provide updated data for the plan revision.

On Friday, November 6, 2015, the Waldo County EMA Director met with officials from the Town of Palermo to explain the Hazard Mitigation Planning process, review the sections of the 2011 version and to discuss what data will be needed for the updated plan. This information was then e-mailed to the County EMA Director.

On Wednesday, February 24, 2016, the Waldo County Hazard Mitigation Planning Team met to update the mitigation strategy and projects.

## **WALDO COUNTY HAZARD MITIGATION PLAN**

On Wednesday, June 22, 2016, the Waldo County EMA office held a public hearing to present the plan to the general public and to encourage comments. The meeting was advertised through local newspapers; e-mails were sent to every Town Office, emergency management director, fire department, public health entity, and local social service organizations' posted on the County EMA website; posted on Facebook and links on Twitter. Several members of the planning team were in attendance, however, no one from the general public attended.

After incorporating the final comments, the plan was then sent off for review by the State Mitigation Officer and by FEMA prior to the plan being formally adopted by the elected Municipal Officers and County Commissioners.

### **B. People who were involved in the planning process**

Waldo County created its existing County Hazard Mitigation Plan in 2004 and updated it in 2011. The Waldo County Commissioners assigned the responsibility for the development of the original and revised hazard mitigation plans to the Waldo County Emergency Management Agency. The County EMA office formed a local hazard mitigation planning team composed of representatives from county government and from the municipal governments. This Team met on several occasions over the course of 2 years. See page 19 for the list of members.

### **C. How the public was given an opportunity to be heard**

A general public meeting was held in the County EMA office on June 22, 2016 to receive comments on the final draft. These meetings were advertised in local newspapers, e-mails sent to various groups and by posting online and social media.

However, we must admit that there was very little participation from the general public, non-profits and local businesses, who basically and repeatedly expressed that they had little or no interest in the mitigation process, this project or the plan.

### **D. Opportunities for additional comments**

A press release was released to the local newspaper, the Republican Journal, to advertise and explain the mitigation planning process to county residents. The Press Release included the phone number, postal address, e-mail address, and website address of the County EMA office, so that those who could not attend public forums would have a chance to voice concerns or to provide input during the planning process. See the Press Release that follows this section.

### **E. Review and incorporation of existing plans and studies**

The Hazard Mitigation Planning Team was assisted in the revision of the 2011 version of the Plan by the County Emergency Management Director, who facilitated the meetings, assisted in research and outreach programs, completed GIS mapping, completed the loss estimates, and consolidated the information and comments provided by the planning team and the public. The 2013 version of the State Plan was also reviewed. The Risk Assessment portion of this plan provides a more detailed summary of plans, studies, and other materials that were used identify and document various hazards. The Hazard Identification and Risk Assessment has been incorporated into the latest version of the County Emergency Operations Plan (EOP). All information from the 2011 version of the Hazard Mitigation Plan is available for inclusion into municipal comprehensive plans.

## WALDO COUNTY HAZARD MITIGATION PLAN

### **F. How the Planning Team reviewed and analyzed each section of the Plan and whether each section was revised**

All sections of the 2011 County Hazard Mitigation Plan were reviewed and analyzed during the development of the 2017 version of the Plan. The Maine Emergency Management Agency's "Guidelines for Preparing County Hazard Mitigation Plans" and FEMA's 2013 version of the "Local Mitigation Planning Handbook" were both consulted during the revision process.

Section 1 – Introduction: Revisions incorporated new census data.

Section 2 – Prerequisites: The date 2011 was changed to 2017 on each jurisdiction's signature page.

Section 3 - Dates were updated. Information related to meeting dates and what occurred was updated.

Section 4 – Risk Assessment: A new risk assessment was completed. The hazard maps were redeveloped using updated GIS information.

Section 5 – Mitigation Strategy: The status of the original mitigation measures and new mitigation measures were included. The costs estimates were re-calculated. New Mitigation measures/projects were determined and added.

Section 6 – Plan Maintenance Process: New dates were identified for plan maintenance.

# WALDO COUNTY HAZARD MITIGATION PLAN

## PRESS RELEASE

*(Belfast, Maine) -- The Waldo County Emergency Management Agency (EMA) has initiated an effort to update the County Hazard Mitigation Plan using the guidelines as provided by the Federal Emergency Management Agency.*

*The purpose of a Hazard Mitigation Plan is to assess the County's risk to likely disasters, inventory critical infrastructure and special need populations, and develop goals and strategies to lessen the impacts of a potential disaster. Examples of disaster mitigation include floodplain management, whereby new construction in floodplains is limited, and the upgrading of storm water management systems along our roadways.*

*"An important aspect of the Hazard Mitigation Planning process is the involvement of the public in the revision of the County Plan," stressed Dale Rowley, Director of the Waldo County EMA program. "Inputs from all municipalities and all interested citizens are vital in order to make this plan work."*

*County residents, businesses, non-profit groups, and municipal officials with knowledge of past disaster events, repetitive areas of repair after storms and floods, and locations of critical facilities and utilities and special needs populations that could be impacted by a disaster are strongly encouraged to provide that information to the Hazard Mitigation Planning Team hosted by the Waldo County EMA office.*

*A Public Hearing is scheduled for Wednesday, June 22, 2016 at 6:00 pm in the County EMA office.*

*For more information, contact Dale Rowley at phone 338-3870 or by e-mail at [emadirector@waldocountyme.gov](mailto:emadirector@waldocountyme.gov) . You may also visit the Waldo County Emergency Management Agency website at <http://www.waldocountyme.gov/ema> or write or visit the office at 4 Public Safety Way, Belfast, ME 04915.*

# WALDO COUNTY HAZARD MITIGATION PLAN

## SECTION 4. RISK ASSESSMENT

§201.6(c)(2) of the Rule outlines specific information that Waldo County must consider when completing the risk assessment portion of this mitigation plan. Our local risk assessments provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. This plan includes detailed descriptions of all the potential hazards that could affect the jurisdiction along with an analysis of the jurisdiction's vulnerability to those identified hazards. Specific information about numbers and types of structures, potential dollar losses, and an overall description of land use trends in the jurisdiction are included in this analysis. Because this is a multi-jurisdictional plan, the risks that affect only certain regions of the County were assessed separately in the context of the affected region.

This section includes the following seven subsections as follows:

- Identifying Hazards
- Profiling Hazards
- Assessing Vulnerability: Overview
- Assessing Vulnerability: Identifying Structures
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Multi-jurisdictional Risk Assessment

# WALDO COUNTY HAZARD MITIGATION PLAN

## IDENTIFYING HAZARDS

<b>Requirement §201.6(c)(2)(i):</b>	<b>The risk assessment shall include a description of the type ... of all natural hazards that can affect the jurisdiction...</b>
-------------------------------------	---

The Waldo County Hazard Mitigation Planning Team reviewed the various natural hazards that could impact Waldo County. These hazards were identified through an extensive process that utilized input from the Hazard Mitigation Planning Team members, public input, researching past disaster declarations in the County, a review of current maps, climatology and geologic data, and a hazard identification and risk assessment completed by the Waldo County Emergency Management Agency and the Hazard Mitigation Planning Team.

The following table identifies the natural hazards to be profiled.

Hazard	How identified	Why identified
Flooding	Review of FIRM Maps Review of SLOSH Maps Input from residents Review of past disaster declarations Identification of repetitive losses	Associated with the effects of spring runoff and coastal storms. Several repetitive loss properties and roadways are located in the County. The County contains one major river and many streams and lakes, and is located along the coast. Several coastal communities experience coastal flooding during major storm events-winter and summer.
Severe Winter Storm Events	Review of past disaster declarations Inputs from residents	Maine is frequently hit with blizzards, “Northeaster” storms, and ice storms.
Hurricanes, Tropical Storms and Microbursts	Review of past disaster declarations Review of library historical data Input from residents	The County is hit about every two decades by a hurricane or tropical storm. They are typically no greater than a Category 1. There have been 3 microbursts in 10 years. Flooding from these events will be discussed under the Flooding hazard.

The primary hazard events profiled in this plan are flooding, severe summer storms/hurricanes and severe winter storm events. The results of these events are coastal and inland flooding and high winds. These three hazards (flooding, winter storms, and hurricanes) are also in line with the top three hazards identified in the 2013 State of Maine Hazard Mitigation Plan.

## WALDO COUNTY HAZARD MITIGATION PLAN

The following table identifies the hazards that were eliminated from further consideration in the plan, due to a lack of historical evidence, lack of overall county-wide severity or a low likelihood for the event to occur. However, although these disaster events were not profiled in the hazard mitigation plan, it does not “guarantee” that any of these events will not or could not occur and cause great damage. It was decided by the Waldo County Hazard Mitigation Planning Team to keep our plan simple by only profiling the top three hazards.

Avalanche	Review of USGS Maps	There are no mountains in the county that hold large amounts of snow which would create avalanches.
Blight/ Infestation	Review of State Entomological Office historical records Inputs from residents Risk Assessments	Though the County is heavily dependent on its agricultural production, to include forestry, farming and fishing, there are no historical records of major damage to these industries that have caused serious economic conditions.
Coastal Erosion	Input from State Planning Office Input from NRCS Input from Maine DEP Input from Maine Geologic Svs	The County is undergoing residential development pressure along the coast. Coastline stabilization measures have been implemented in the past years.
Drought	Review of State EMA records Review of NOAA records	Rainfall data doesn't show a serious problem. The drought effects have never been sufficient enough to create disaster conditions.
Earthquake	Review of Maine Geological Survey records	Although small Earthquakes are common in Maine, no significant damaging movement has occurred in 20,000 years.
Landslide	Review of Maine Geological Survey records	Landslides are not common and very little damages have occurred in Waldo County. There are some coastal erosion issues.
Severe Thunderstorm	Review of NWS records Review of Maine EMA records	Although we frequently get severe thunderstorms, they rarely cause major widespread damage. Thunderstorms have not caused situations greater than the residential structure fire threat or local power outage.
Subsidence	Review of Maine Geological Survey records	There has been one known cases of subsidence in Waldo County. (Stockton Springs affecting 2 homes.)
Tornado	Review of NWS records	On average, 1-2 tornadoes occur in the State of Maine each year, yet there have been no loss of life or major damages in many years.
Wildfire	Review of Maine Forest Service records.	Much of the County is covered with forests. However, Waldo County does not have a history of large wildfires. Overall, wildfire acres burned per year have been reduced dramatically in the past 40 years.

# WALDO COUNTY HAZARD MITIGATION PLAN

## HISTORICAL CHART OF HAZARD EVENTS IN WALDO COUNTY

The following chart is a compilation of the Waldo County Hazard Mitigation Team's research efforts to determine what disaster events have occurred in Waldo County in the last century. We found few disasters during the first half of the 20<sup>th</sup> Century. This is due in part from the poor records that were kept; the fact that there was very little development in the County before 1950; and the fact that the residents mostly lived in homes built in the 19<sup>th</sup> Century which were built to withstand winter storms and were built out of known flood areas. After 1950, people started moving in from outside the State and these people began to build in flood-prone areas and in less hardy structures.

YEAR	MONTH	DAY	WALDO DAMAGE ESTIMATE	STATEWIDE DAMAGE ESTIMATE	TYPE OF DAMAGE	DECLARATION
1954	August	31	Unknown	\$10,000,000	Hurricane Carol	SBA
1954	September	11	Unknown	\$15,000,000	Hurricane Edna	Disaster #24
1963	October	29	Unknown	Unknown	Hurricane Ginny	
1969			\$198,479	Unknown	Flooding	
1973	April	24	Unknown	\$908,404	Flooding	Prez Denied
1973	July	1	Unknown	Unknown	Flooding	SBA
1973	December		Unknown	\$3,000,000	Flooding	
1974	May	29	\$240,110	\$3,000,000	Flooding	SBA
1978	January	10	Unknown	Unknown	Snow	
1978	February	8	Unknown	\$20,693,181	Flooding	Disaster
1979	September	6	Unknown	Unknown	Tropical Storm David	
1980	October	25	Unknown	\$715,350	Coastal Storm	SBA
1985	September	27	Unknown	Unknown	Hurricane Gloria	
1987	April	1	\$180,149	\$100,000,000	Flood of '87	DR 788
1991	August	20	Unknown	\$42,000,000	Hurricane Bob	DR 915
1992	March	11	\$551,479	\$3,462,787	Flooding	DR 940
1993	March	14	\$85,823	Unknown	Winter Storm	EM 3099
1993	April		Unknown	\$3,476,507	Flooding	DR 988
1996	January		\$202,253	\$2,181,170	Flooding	DR 1106
1998	January	13	\$2,530,680	\$47,748,466	Ice Storm	DR 1198
2003	December	31	Unknown	\$2,411,750	Flooding	DR 1508
2005	August	10	\$645,441	\$6,969,403	Flooding	DR 1591
2007	March	17	\$322,864	\$1,241,633	Flooding	DR 1691
2007	April	16	\$934,650	\$25,954,650	Flooding	DR 1693
2008	April	29	\$296,550	\$3,854,077	Flooding	DR 1755
2008	December	11	\$210,000	Unknown	Ice Storm	EM 3298
2009	January	9	\$225,125	\$9,781,024	Winter Storm	DR 1815
2009	June	18	\$424,660	\$2,915,456	Severe Summer Storm	DR 1852
2013	December	24-27	\$525,912	~\$2M	Ice Storm	

The team decided to concentrate on the top three prioritized hazards for profiling. These included Severe Winter Storms, Hurricanes and Flooding. Historical disaster event information bears this out.

# WALDO COUNTY HAZARD MITIGATION PLAN

## Impacts of Climate Change Theory on Hazard Risk in Waldo County

According to the data provided by Maine Geological Service, Maine could experience three feet of sea level rise by the year 2100. This amounts to a linear calculation of about 4 inches in the next 10 years. Because this Plan must be reevaluated every five years and because Federally-funded mitigation projects can take 2-3 years to implement, it was decided to evaluate the possible impacts to the hazard risk assessment over the next decade (4 inches of potential sea level rise).

Hazard	Possible Impact	Reasoning
Flooding	Potentially less washed out gravels roads in hilly areas.	Sea level rise would have to be much greater than current predictions to impact the coast in Waldo County. If the result was more rain in the late winter instead of snow, then this would lessen the storm water runoff due to less snowpack to melt all at once.
Severe Winter Storm Events	Less severe snowstorms, but potentially more ice storms.	Current climate change predictions could change Maine's climate to more resemble Southern New England's climate, which typically has less snowfall and more rain and ice.
Hurricanes, Tropical Storms and Microbursts	Uncertain. There could be more or less in number and severity depending on how the climate were to change.	Maine has not been impacted by a hurricane since 1991 and the worst was in 1954. The number of tropical storms to impact Maine has also lessened in the last 25 years. There are no historical records to speak of to determine if microbursts are happening more or less often.
Avalanche	None	There are no terrain features in Waldo County that could cause avalanches, no matter what the climate is doing.
Blight/ Infestation	Potentially more infestation of pests.	Current climate change predictions could change Maine's climate to more resemble Southern New England's climate, which has more pests like ticks, but agriculture has not shown to be worse in southern Maine then in northern Maine. If anything, there would be a longer growing season.
Coastal Erosion	More erosion in areas near Stockton Springs	Much of the Waldo coast is rocky, but the area near Stockton springs is very sandy. If coastal waters rise, they could potentially impact coastal areas there. However, development in that area is very sparse, so there is little impact.
Drought	Unknown	There has been no evidence of less rainfall in Waldo County resulting from potential climate change.
Earthquake	None	Earthquakes are not connected to a warming of the climate. Earthquakes are geologic phenomenon.
Landslide	Potentially more	See Coastal erosion above.
Severe Thunderstorm	Unknown	There hasn't been any evidence thunderstorms becoming more severe and more often in Waldo County resulting from potential climate change.
Subsidence	None	See coastal erosion above.
Tornado	No	Waldo's last tornado occurred in 1954. The probability is so low that even a modest increase in probability due to climate change will still have a low probability.
Wildfire	Fewer wildfires	There has been no evidence of less rainfall in Waldo County resulting from potential climate change.

# WALDO COUNTY HAZARD MITIGATION PLAN

## PROFILING HAZARDS

<b>Requirement §201.6(c)(2)(i):</b>	<b>The risk assessment shall include ... a description of the location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.</b>
-------------------------------------	--

### Severe Winter Storm Events

**LOCATION & EXTENT:** Waldo County is subject to severe winter storm events. The entire county is subject to major snowfall events; however, the northern half of the county typically will receive slightly greater snowfall amounts. The entire County can experience a major ice storm, as it did in January 1998 and December 2013; however, the coastal communities on the mainland and on the islands, which contain the vast majority of the population, experience ice in their snow storms slightly more frequently. Finally, the entire County is very susceptible to “Northeaster” storms, especially from the very high winds that are involved in such a storm. The Gulf Stream follows a path up the eastern seaboard bringing major storms with it to the Gulf of Maine. Much colder air flows down from Canada and collides with the Gulf Stream over the New England region.

**PREVIOUS OCCURRENCES:** There have been three Federally-declared winter storm disaster events in the last 18 years. The worst storm in the past 18 years was an ice storm that occurred in January 1998 and caused \$2,530,680 in damage throughout the entire County. Three inches of ice resulted. This storm, which severely damaged the electrical transmission system in the State of Maine, caused major damage to the forests, covered many roadways with debris and ice, and caused some limited building damages. In December 2013, the County was hit with an ice storm which accumulated 1-1/2 inches of ice. Power was lost for three days and caused \$525,912 in local public damages. However, most winter storms in the County are major snow storms which overtax the highway snow removal operations and cause localized power outages.

**PROBABILITY:** It is expected that a severe winter storm could cause damage in Waldo County at least once every three to five years. If the results of climate change are that the County experiences generally slightly warmer temperatures, then the potential impacts from winter storms will be somewhat less snow accumulation and more potential for icy snow storms. Ice storms tend to result in more regional power outages, but far less roadway snow removal. Both require sand, salt and calcium chloride to treat the roads.

### Severe Summer Storms/Hurricanes

**LOCATION & EXTENT:** Waldo County is subject to Hurricane and Tropical Storm events. Waldo County is a coastal county located on Penobscot Bay. The County has been impacted by six Category 1 hurricanes or severe tropical storms from 1954 to 1991. The County averaged a hurricane/tropical storm every ten years. It has been 25 years since the last hurricane impacted Waldo County. The last tropical storm (Irene) to have even minor effects was in 2011. There were a few scattered power outages and a number of trees down in the roads.

Since the County is only about 25 miles deep from the coast, all parts of the County are subject to the effects of a Hurricane. However the coastal towns will be hardest hit during the storm with storm surge and very high winds and rainfall. The northern half of the county will experience heavy rainfalls that will overwhelm rudimentary storm water control systems and will experience trees on power lines and in the roads.

## WALDO COUNTY HAZARD MITIGATION PLAN

**PREVIOUS OCCURRENCES:** Hurricanes Carol and Edna in September and October 1954 were not only the most destructive hurricanes to have impacted Waldo County in recorded times, they were separated by less than 2 weeks. The area had not even begun to recover when the second major storm struck. Two lives were lost in Unity, Maine during Hurricane Edna, due to drowning. In 1985, Hurricane Gloria brushed past Waldo County causing power outages and some localized flooding. In 1991, the Hurricane Bob path went directly over Waldo County, but had downgraded to a tropical storm.

**PROBABILITY:** It is expected that a Category 1 hurricane could cause major damage in Waldo County at some point within the next decade.

### Flooding

**LOCATION & EXTENT:** Waldo County is subject to riverine, storm surge, and wetland area flooding. The County EMA has reviewed the County's Flood Insurance Rate Maps (FIRMs) and Flood Insurance Study (FIS) to compile a profile of the flooding hazard in the County. The EMA staff completed research on flooding history in the County and indicated this data on the GIS base maps. The Municipal Base Maps show the areas susceptible to potential flooding. This provides a clear picture of areas and structures most vulnerable to flooding.

There are three major rivers located along the border of Waldo County. The Penobscot River and Bay is bordered on the towns of Belfast, Frankfort, Islesboro, Lincolnville, Northport, Prospect, Searsport, Stockton Springs and Winterport. The Sebastacook River is bordered by the Town of Burnham. A smaller river, the Passagassawakeg River flows through the City of Belfast. There are no dams on the Penobscot River in Waldo County, although there is a number of dams on the river, north in Penobscot County. The majority of the Waldo County dams are small and located at the outlets of lakes and ponds and would not have a major flooding impact. If a large dam on the Penobscot River, such as the Dolby dam in northern Maine were to catastrophically fail, it would take a day and a half for the flooding to occur along the Penobscot River section in Waldo County. This would provide us with sufficient warning time to prepare for the floodwaters. There is one dam in Waldo County on the Sebastacook River, however, that section adjacent to the Sebastacook River in Burnham is an undeveloped boggy area. This Dam is in excellent condition and procedures are in place for effective flood management. Flooding from the Penobscot and Sebastacook rivers is not expected to be likely; however, flooding along the Penobscot River would cause damage to a small number of residential structures if it were to occur.

The most susceptible communities to coastal flooding are Islesboro and Lincolnville. The island community of Islesboro could be split into two halves during storm surge. Public Safety resources must be divided to protect each half of the community during a major coastal storm. Lincolnville Beach, which is also the home of a State of Maine Ferry Service, is susceptible to flooding and several Lincolnville Beach area businesses have experienced minor flooding in the past.

The majority of the flood damage in the County is caused by water runoff in the springtime which undercuts or overtops rural roads. When Maine has an above average snowfall for the winter and than warmer temperatures and rainfall suddenly arrive in early spring, the snow pack melts off quicker than the watersheds can handle. This causes local water bodies to overflow their boundaries and flood nearby road surfaces.

Typically, this road damage is not major, though it can absorb a major portion of a municipal road maintenance budget for an entire year and does happen in several of the towns every other year or so.

## **WALDO COUNTY HAZARD MITIGATION PLAN**

**PREVIOUS OCCURRENCES:** The most destructive flooding events occurred in 2007 within four weeks of one another. The St Patrick's Day Flood caused a major flooding, especially to the eastern half of the County. Nearly all of the damages were to roads and storm water management systems. Four weeks later, the Patriot's Day Flood caused nearly three times the level of damages and impacted the entire County, although the majority of the damages occurred in the eastern half of the County. Again, nearly all of the damages were to roads and storm water management systems.

**PROBABILITY:** It is expected that a major flood event could cause road damage in Waldo County at least once every 2-4 years. Flood zones are shown on the Municipal Base Maps included in this section.

### **COUNTY BASE MAP**

This section contains base maps of the entire geographic area of Waldo County. The base maps were completed in ArcInfo GIS format by the Waldo County EMA office and contain the following layers:

#### County and Municipal Boundaries

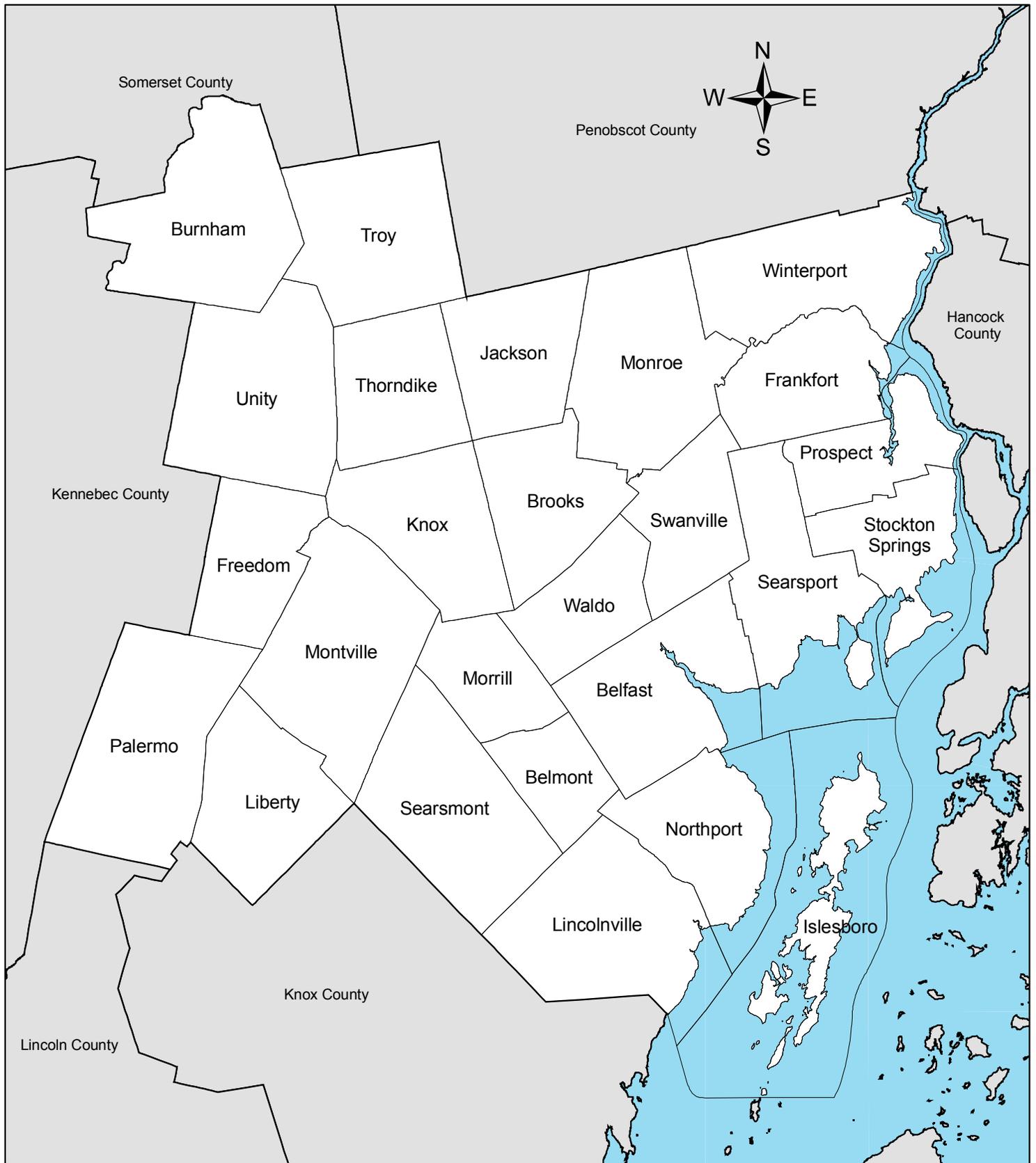
Neither the State of Maine nor the National Weather Service maintain data on snowfall and ice storms on a town-by-town basis. Normally there are only one or two locations within a Maine County that record weather data. For Waldo County, the only weather station is located in Belfast. Therefore, the entire county is modeled as one entire hazard area for severe winter storms.

FEMA has recently completed new flood maps for Waldo County. The GIS data resulting from this map revision and from new LIDAR data have been incorporated into this plan.

The County Map may be used to orient the user of this plan to the locations of the municipalities in relation to each other.

The National Weather Service (NWS) "Maine Weather Regions" is also attached for reference purposes. Waldo County is subdivided into two weather regions – "Interior" and "Midcoast". Throughout this plan, discussion is made as to the two separate weather patterns that split Waldo County into the "northern" or "interior" and into the "southern" or "coastal".

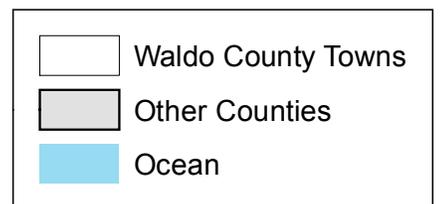
# Waldo County Political Subdivisions Map



0 5 10 20 Kilometers

0 2.5 5 10 Miles

Map created by Jake Weisberg for the Waldo County Emergency Management Agency.  
Data sourced from the Maine office of GIS  
This version published 3-10-2009



# WALDO COUNTY HAZARD MITIGATION PLAN

## MUNICIPAL BASE MAPS

This section contains base maps of the 26 municipalities located in Waldo County. The maps were completed in ArcInfo GIS format and contain the following layers:

- Municipal Boundaries
- State and Local Roads and Bridges
- USGS Topographical Contours
- Ocean, Lakes, Ponds, Rivers, Streams, and Wetlands
- Locations of critical facilities
- Georeferenced Aerial Photos

- FEMA FIRM Flood zone Areas
- FEMA/ACE Hurricane Surge Inundation Areas

The purpose of these maps is to graphically identify those facilities that overlap with flood and coastal surge zone hazard areas in order to determine what assets are potentially impacted.

None of the Municipal Comprehensive Land Use Plans with Waldo County are maintained in a GIS format and could not be mapped for this project.

There is no common map scale for any of the maps; the largest view of each town was used. The maps are for reference purposes only and not for detailed measurements.

Although there are 26 municipalities in Waldo County, only 12 decided to participate and adopt the 2017 version of this plan.

NOTE: For those municipalities that had critical facilities impacted by potential flood zones or hurricane inundation areas, a second map was created of the potential hazard area which zoomed in on that area. Text balloons were added to these “zoomed in maps” to indicate the facilities or systems that could be impacted.

# WALDO COUNTY HAZARD MITIGATION PLAN

## ASSESSING VULNERABILITY: OVERVIEW

<b>Requirement §201.6(c)(2) (ii):</b>	<b>[The risk assessment shall include a description of the jurisdiction’s vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community]</b>
---------------------------------------	--

The Hazard Mitigation Plan identified critical facilities located within the County and the hazards to which these facilities are susceptible. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions.

The critical facilities identified in Waldo County are municipal offices, fire and police stations, ambulance garages, post offices, town garages and sand/salt sheds, hospitals and clinics, electric and communication utilities, water and wastewater treatment facilities, hazardous material sites, large employers and public schools.

Severe winter storms will primarily impact power and telecommunications hard lines and roadways. Electrical and telephone lines may be torn down due to falling trees. Roadways will either be covered in deep snow, ice, or tree and utility line debris. Residents will be impacted by utility outages, however, the utility companies are private and utility repairs are not a responsibility of the Towns. Town governments will look to provide emergency power for public facilities and mass care for its residents.

High winds from hurricanes, severe summer storms or microbursts will primarily impact power and telecommunications hard lines and roadways. Electrical and telephone lines may be torn down due to falling trees. Roadways will either be covered with utility line debris. High winds may also cause trees to fall on homes, businesses and public building. There is no history of hurricane winds in Waldo County severely damaging structures. However, public safety radio communications towers could be damaged or destroyed. Flooding from hurricanes will be covered in the next paragraph. Residents will be impacted by utility outages, however, the utility companies are private and utility repairs are not a responsibility of the Towns. Town governments will look to provide emergency power for public facilities and mass care for its residents.

Flooding can result from winter storms, severe summer storms, tropical storms, hurricanes or spring runoff. Flooding in Waldo County will primarily impact roadways and storm water management systems that become overwhelmed by the storm water runoff. Roadways, culverts, and ditches become flooded and washed out. There are various locations around local lakes that can cause minor flooding to homes and camps along the lakes, especially during spring runoff. Hurricanes may cause local coastal flooding from storm surge to coastal businesses and homes.

# WALDO COUNTY HAZARD MITIGATION PLAN

## ASSESSING VULNERABILITY: ADDRESSING REPETITIVE LOSS PROPERTIES

<b>Requirement §201.6(c)(2) (ii):</b>	<b>[The risk assessment must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.]</b>
---------------------------------------	--

The Director of the Maine Floodplain Management Program, an office within the Department of Agriculture, Conservation and Forestry Maine, was consulted regarding NFIP insured structures that have been repetitively damaged by floods. The Director provided the information, with the stipulation that the addresses of the properties are not published in the plan, due to privacy issues.

There are 175 NFIP insurance policies in Waldo County, about 0.8 % of the total homes (21,566) in the County. Total 2015 coverage is \$32,888,000, with total premiums of \$164,692. Total number of claims is 55 since 1978, an average of 1.5 claims per year. Total claims paid has been \$509,894 since 1978; an average of \$13,781 per year. Total paid per claim is \$9,271.

There were only two repetitive loss properties in all of Waldo County. One, a business, is located in the town of Lincolnville and one, a residence, in the Town of Unity. The property in Lincolnville has been damaged by coastal flooding and the property in Unity has been damaged by lakeside flooding.

Both properties were last damaged over 18 years ago. The total payments paid by the NFIP to repetitive loss properties in Waldo County was \$123,413.75.

Since there have been no payouts for repetitive loss properties in over 18 years and we have had several dozen flood events in the past 18 years (including in the areas those two properties are located), it appears that these two properties have been retrofitted to mitigate further damages.

# WALDO COUNTY HAZARD MITIGATION PLAN

## ASSESSING VULNERABILITY: IDENTIFYING STRUCTURES

<b>Requirement §201.6(c)(2) (ii)(A):</b>	<b>The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.</b>
--	---

**Existing Critical Facilities:** The Waldo County Emergency Management Agency used existing Maine GIS map data and a handheld GPS data collector to map and locate the County's critical facilities and determine which are most likely to be affected by hazards. The three hazards most likely to impact the County are severe winter storms, severe summer storms/hurricanes, and flooding. The analysis revealed the following:

Severe Winter Storm Hazard: A "Northeaster", blizzard or ice storm of the severity that occurs at least once every 3-5 years would have an impact on all roads in the County and on all overhead electrical power and telephone lines. Roads may be covered in snow, washed out, or blocked with tree debris. Utility lines and poles will be felled. No critical structures were identified as in danger from a severe winter storm.

Flooding Hazard: A 100-year flood could have an impact on the Winterport Docks and the Unity Waste Water Treatment Plant. The most likely coastal flooding will occur from storm surge created by a "Northeaster". The most severe, though less likely, coastal flooding would be caused by a Category 1 Hurricane. The downtown areas of Lincolnville Beach, Belfast and Searsport, residential areas in Lincolnville, Northport, Belfast, Searsport, Stockton Springs, Prospect, Frankfort, Winterport, and Islesboro could be partially flooded by a Category 1 Hurricane. A Category 1 hurricane could impact the Penobscot McCrum Potato processing plant, the Front Street Shipyard, the Belfast Boathouse, the Frankfort Town Office & Post Office, the Islesboro Ferry landings, the Lincolnville Beach Fire Station, the Mack Point Cargo Terminal, and the Winterport Docks. A Category 2 storm could impact the Belfast Wastewater Treatment Plan, the Lincolnville Beach Post Office, and the Winterport Water Pumping Facility.

However, the most likely damage in the County from flooding that occurs at least once every two years is damage to local roads.

Hurricane Hazard: Hurricanes could impact the same facilities listed under Flooding and Winter Storms.

In addition to critical facilities, Waldo County contains at-risk populations that should be factored into a vulnerability assessment. These include a relatively large population of elderly residents who live alone in very rural areas and who have with limited mobility.

An analysis of the local municipal comprehensive plans and general growth patterns for the Waldo County communities indicates that there will be a slight but constant increase (5-8%) in residents expected over the next 10 years.

Commercial growth in the past 21 years has been mostly limited to the City of Belfast, with the arrival of the credit card giant, MBNA-New England in the mid-1990s. The MBNA facility was bought by Bank of America in 2005. BoA sold off half the old MBNA campus to AethnaHealth in 2011. Except for Bank of America and AethnaHealth, there has been only sporadic and small scale commercial or industrial development in Waldo County. This trend is expected to continue. The top four employers in Waldo County include AthenaHealth, Bank of America, Waldo County Healthcare Inc., and the local school districts.

## WALDO COUNTY HAZARD MITIGATION PLAN

The majority of the residential development and population increase in Waldo County in the last 10 years has occurred in Belfast, Northport, Palermo, Searsmont, and Unity. Relative to their population sizes, Belmont, Freedom, Morrill, Prospect, Searsmont, and Thorndike all experienced large population growths, though small in actual numbers.

### **Future Critical Facilities:**

Most of the Waldo County towns have very small populations; are very rural; and do not have planning departments, building codes or even a full time code enforcement officer (CEO). (Six of the towns all have the same part-time CEO who is a retired hardware store owner). The State of Maine has a State building code based on the International Building Code. However, only towns with a population of 4,000 or greater must enforce the State Building Code. None of the municipalities in Waldo County are required to enforce building codes, except Belfast. Only the City of Belfast has a full time CEO.

Assessing where future development will occur in the towns in Waldo County is difficult due to a lack of municipal data, planning, policies and programs. There is very little commercial, industrial, and public construction present in most of these communities. There is some residential construction; however, there is very little controlling guidance on single-family home construction in the State of Maine at any level of government. Shore-land zoning, floodplain ordinances, and septic system designs are about the only controlling guidance in residential construction.

Severe Winter Storm Hazard: It is very unlikely that a severe winter storm will have any impact on future structures. This hazard primarily impacts local roads and overhead utility lines.

Severe Summer Storms/Hurricane: Hurricanes in Waldo County towns primarily threaten coastal residential structures in the storm surge inundation areas. Severe summer storms, such as microbursts and strong thunderstorms and knock down tall trees anywhere in the county. All Waldo County municipalities allow homes to be built anywhere, in any land use zone. Hurricanes also primarily impact local roads and overhead utility lines. Homes could be damaged by falling trees.

Flooding Hazard: The majority of damages from flooding in Waldo County is to roadways, not structures. We were unable to find any records of public structures being lost in the County due to flooding. However, 24 of 26 towns do have floodplain ordinances that provide some control over development in identified flood zones. FEMA recently released and the towns adopted updated flood maps. The two towns that are not in the NFIP, do not have any special flood hazard areas that could ever flood structures – they are primarily streams that could potentially overtop local roads (most are old gravel roads with insufficient storm drainage).

# WALDO COUNTY HAZARD MITIGATION PLAN

## ASSESSING VULNERABILITY: ESTIMATING POTENTIAL LOSSES

<b>Requirement §201.6(c)(2) (ii)(B):</b>	<b>The plan should describe vulnerability in terms of an estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate...</b>
--	---

The Waldo County Emergency Management Agency and the Hazard Mitigation Planning Team, used GIS modeling, GPS data collection, field inspections, and historical data to estimate the potential dollar losses if the County were to experience severe winter storms, flooding, and wildfires, the most likely hazards to occur in the County. Average costs from road snow removal, sand and salting of roads and tree clearance in public ways were provided by those towns that participated in this version of the plan. The vulnerable structures and facilities were identified earlier in the planning process. See the County and Municipal Base Maps to locate the Facilities impacted by the Hazard Areas.

The Waldo County Hazard Mitigation Planning Team estimated the potential losses from Severe Winter Storms, Flooding, and Severe Summer Storms/Hurricanes.

It was decided to only determine the cost of potential losses to public property. Numbers of residential structures in flood zones were calculated and significant private infrastructure is listed. However, costs due to losses for private facilities and utilities were not included. Additionally, damage estimates for those municipalities not participating in this version of the plan were not calculated or included.

## WALDO COUNTY HAZARD MITIGATION PLAN

### Potential Severe Winter Storm losses

The primary damages expected to occur in Waldo County during a “Northeaster”, blizzard or ice storm would be to overhead utility lines and local roads. In calculating the damage costs, the Planning Team assumed that all local roads would be covered in snow or ice or blocked with tree and utility line debris.

Damage estimate were not completed for electrical power lines and telephone lines because these utilities are privately owned and insured.

No critical structures were identified as in danger from a severe winter storm in Waldo County.

The following table includes centerline road miles in each town as provided by the Maine Department of Transportation. The figures are current as of January 9, 2009.

Town	State Hwy	State Aid	Town Way	Other	Total
Belfast	18.35	12.97	52.82	0	84.14
Belmont	3.43	4.01	12.85	0	20.29
Brooks	6.13	5.2	24.87	0	36.2
Burnham	2.47	10.13	24.18	0	36.78
Frankfort	3.71	7.89	22.23	0	33.83
Freedom	4.82	7.03	17.85	0	29.7
Islesboro	0	4.58	26.45	0	31.03
Jackson	5.65	0	26.35	0	32
Knox	9.88	7.43	23.45	1.27	42.03
Liberty	4.19	10.69	23.78	0.59	39.25
Lincolntonville	4.18	17.99	34.08	2.88	59.13
Monroe	0	10.1	42.09	0	52.19
Montville	3.99	14.15	41.69	4.84	64.67
Morrill	1.34	7.83	15.79	0	24.96
Northport	8.16	2.61	34.99	0	45.76
Palermo	5.89	9.46	37.21	0	52.56
Prospect	7.96	3.57	14.29	0	25.82
Searsmont	3.35	18.34	26.37	0	48.06
Searsport	8.55	11.55	33.13	0.48	53.71
Stockton Springs	8.97	3.45	30.83	1.41	44.66
Swanville	0	13.65	18.23	0.70	32.58
Thorndike	3.41	3.55	25.95	0	32.91
Troy	5.89	7.79	28.1	0	41.78
Unity	14.6	2.35	31.98	0	48.93
Waldo	7.32	7.39	13.51	0	28.22
Winterport	6.36	14.89	45.09	0	66.34
<b>County Total</b>	149.55	218.60	728.16	12.17	1,107.53

The table does not include 0.95 miles of Federal Interstate located in Burnham.

## WALDO COUNTY HAZARD MITIGATION PLAN

- 1) State Highways are fully maintained by the Maine Department of Transportation. These road miles will not be included in the damage cost estimation, since none of the Towns in Waldo County are responsible for them.
- 2) State Aid Highways are maintained by the Maine Department of Transportation. However, the Towns are responsible for winter time maintenance (snowplowing, debris removal, etc). The road miles will only be included for snow, ice, and tree removal costs from winter storms.
- 3) Town Ways are the responsibility of the Towns. All damages cost estimates will be included.
- 4) "Other" roads are maintained by the State because they are roads located in State Parks and Game Management Areas.

### Damage Cost Estimate

In most cases, the only figures the municipalities have is how much it costs to plow, sand and salt the roads per mile on a seasonal basis. To calculate a damage cost for a Presidentially Declared event, it was assumed that the damage cost would equal to  $\frac{1}{4}$  a season's budget.

Town	Road Miles to Clear	Storm Cost per mile	Total Cost
Freedom	24.88	\$1,500.00	\$37,000.00
Jackson	26.35	\$1,500.00	\$40,000.00
Knox	30.88	\$1,500.00	\$46,000.00
Liberty	34.47	\$1,500.00	\$52,000.00
Lincolnton	52.07	\$1,500.00	\$78,000.00
Montville	55.84	\$1,800.00	\$100,000.00
Northport	37.60	\$2,600.00	\$98,000.00
Palermo	46.67	\$1,200.00	\$56,000.00
Prospect	17.86	\$2100.00	\$38,000.00
Searsmont	44.71	\$2,000.00	\$89,000.00
Searsport	44.68	\$1,500.00	\$67,000.00
Unity	34.33	\$1,300.00	\$45,000.00
Winterport	59.98	\$1,500.00	\$90,000.00

The total estimated loss from a severe winter storm is \$836,000.00.

## WALDO COUNTY HAZARD MITIGATION PLAN

### Potential Flood losses (to include Category 2 Hurricane flooding)

The primary damage losses that are expected in Waldo County during any flood event would be damage to local roads. During the development of the original Plan, the Planning Team assumed all roads that were either in the 100-year flood zone or had experienced flooding in the past would be effected. The Team recalculated the cost of roadwork which has increased since the last plan, using an average of \$250,000/mile (\$48/ft) for rebuilding Town roads. Figures were rounded to the nearest \$1,000. Homes in Waldo County are not susceptible to destruction by flooding. Those homes that are located in a flood zone experience flooded basements and there have only been 2 homes in the entire county of 16,431 homes that have experienced repetitive flood damages in the last 17 years that resulted in a NFIP payout. A figure of 10% potential damages value is used for structure damage for public facilities. Only the cost of potential damages to public facilities will be included.

The Planning Team used an average damage figure for general road washouts on road surfaces. This was determined by using the average figures from the last five Presidentially Declared storm events which resulted in unpaved road surface damages and for towns which have actually experienced damages. During the revision process, those roads that have been upgraded with mitigation projects by the communities through local, state and federal funds, to include FEMA 404 and 406 funds, have been removed from the original list. State-maintained roads were also removed from the list, as these are not local responsibilities. The following cost figures were determined.

Municipality	Critical Facility	Amt of Damage	Damage Cost
Freedom \$235,000	Mitchell Road Bridge	1	\$130,000
	Rollins Street	1,200 LF	\$42,000
	Smithton Road	1,000 LF	\$45,000
	Waning Road	500 LF	\$6,000
	Road Washouts	Avg	\$12,000
Knox \$18,000	Road Washouts	Avg	\$18,000
Liberty \$158,000	Stevens Pond inlet	1	\$100,000
	Road Washouts	Avg	\$58,000
Lincolntonville \$162,000	Beach Fire Station	1 ea	\$50,000
	Beach Waste Water Station	1 ea	\$100,000
	Road Washouts	Avg	\$12,000
Montville \$209,000	Halldale Road Culvert		\$60,000
	Haystack Mt Road Culvert		\$10,000
	Hogback Mt Road Culvert		\$3,000
	Morrill Road Culvert	Avg	\$60,000
	North Ridge Road Culvert		\$30,000
	Randlett Road Culvert		\$25,000
	Road Washouts		\$21,000
Northport \$255,000	Mountain Road	2,000 LF	\$18,000
	Park Street	500 LF	\$5,000
	Shore Road Culvert	250 LF	\$6,000
	Road Washouts	Avg	\$26,000
	Bayside Dock	1	\$50,000
	Saturday Cove Dock	1	\$50,000
	Bayside Waste Water	1	\$100,000

## WALDO COUNTY HAZARD MITIGATION PLAN

Municipality	Critical Facility	Amt of Damage	Damage Cost
Palermo \$217,000	Arnold Lane Culvert	Avg	\$20,000
	Beldon Woods Rd Culvert	2,500 LF	\$62,000
	Chisholm Pond Road	400 LF	\$11,000
	Jones Road Culvert	500 LF	\$14,000
	Parmenter Road	500 LF	\$14,000
	Marden Hill Road	1,200 LF	\$29,000
	Nelson Lane	1,900 LF	\$44,000
	Gore Road	500 LF	\$14,000
	Road Washouts	Avg	\$9,000
Prospect \$15,000	Bowden Point Rd Culvert	1	\$8,000
	Road Washouts	Avg	\$7,000
Searsmont \$8,000	Road Washouts	Avg	\$8,000
Searsport \$46,000	Cottage Street Culvert	200 LF	\$20,000
	Road Washouts	Avg	\$26,000
Unity \$505,000	Berry Road Bridge	1	\$26,000
	Crowell/Hunter Roads	800 LF	\$38,000
	East Mussey Road	700 LF	\$32,000
	Kanokolus Road	2,000 LF	\$50,000
	Stagecoach Road	2,000 LF	\$48,000
	Waning Road	1,500 LF	\$94,000
	Road Washouts	Avg	\$17,000
	Unity Wastewater Treat	1	\$200,000
Winterport \$59,000	Winterport Pumping Station	1	\$50,000
	Road Washout	Avg	\$9,000
<b>Total</b>			<b>\$1,886,000</b>

Estimated Losses for Public Roads = \$1,386,000  
 Estimated Losses to Municipal Property = \$500,000  
 Total Damages = \$1,886,000

# WALDO COUNTY HAZARD MITIGATION PLAN

## Potential Severe Summer Storm/Hurricane losses

The primary damage losses that are expected in Waldo County during a Severe Summer Storm/Hurricane would be the destruction of overhead electrical and telephone utility lines, flooding damage to local roads and residential and commercial structures, tree and utility pole debris in the roads and trees falling on residential structures. Much of these damages were already profiled in the following Damage Loss sections.

The damage losses from flooding will be included in the chart below. The damage losses calculated from winter storm debris removal will also be included below.

Property	Public or Private	Dollar Loss
Roadways damaged by Flooding	Public	\$1,386,000
Roadways covered in debris from High Winds	Public	\$836,000
Municipal Facilities damaged by Flooding	Public	\$500,000
Total Hurricane Damages		\$2,722,000

## Summary of All Disaster losses

The following is a summarization of the potential damages that could occur from the three profiled disaster events.

Severe Winter Storm	\$ 836,000
Flooding	\$ 1,886,000
Hurricane	\$ 2,722,000

# WALDO COUNTY HAZARD MITIGATION PLAN

## ASSESSING VULNERABILITY: ANALYZING DEVELOPMENT TRENDS

<b>Requirement §201.6(c)(2) (ii)(C):</b>	<b>The plan should describe vulnerability in terms of providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.</b>
--	---

Waldo County is located along the mid-coastline of Maine and is largely rural. A majority of the County's land use is designated as Rural and is primarily forestland or farmland. The largest city, Belfast, which has a year-round population of 6,668 is located on the coast in the southern half of the County. There are no suburbs in Waldo County. The land uses within the county generally consist of: Residential, Resource Protection, Agricultural, Industrial, Institutional and Commercial areas.

The State of Maine Legislature enacted the Growth Management Act in 1989 (Title 30-A, Chapter 187, subchapter 2) which made it voluntary for each community to develop a Municipal Comprehensive Plan. Because it is not mandatory, not every town has a comprehensive plan, as a matter of fact, most do not. The municipal comprehensive plans allow development to occur in appropriate areas taking into account the environment, physical constraints, location of utility services, similarity to existing development, and proximity to flood zone areas.

The municipalities may review existing conditions and predict future needs in order to develop their own plans, policies, and ordinances. All municipalities in Waldo County have enacted Shoreland Zone ordinances, due to the fact that this is a state law requirement. All towns, but two, have enacted floodplain ordinances and are in the NFIP. Further breakdown of the land use designations is shown on the following chart.

Severe winter storms will have an impact on all land use areas and zones within the 26 communities in Waldo County. This hazard has the primary impact of shutting down transportation and power, which will shut down business, industry, commerce and schools and stop all social and emergency services.

Flooding will have an impact on all land use areas and zones within the 26 communities in Waldo County. This hazard has the primary impact of shutting down transportation, since it is primarily the roads that are the object of flooding in the County. This could impact business, industry, commerce, and schools and delay many social and emergency services.

The majority of the municipalities (24 of 26) in Waldo County have enacted floodplain ordinances to regulate new commercial, industrial, and institutional development within flood zones. Each community will continue to enforce its ordinance. Two towns are not members of the NFIP program; these are: Prospect and Waldo. There are some existing commercial developments within flood zones in the County, such as the tourist businesses at Lincolnville Beach. These business have been in place for many years and are upgraded to meet floodplain ordinances as the structures are renovated or replaced. Additionally, there are a number of homes and seasonal camps that are within the flood zones. Likewise, as these properties are mortgaged, they are required to be upgraded in order to meet the floodplain ordinances.

Severe Summer Storms/Hurricanes will have an impact to land use areas and zones that includes the areas impacted by the Flooding Hazard listed above and the areas impacted by the high winds of the Severe Winter Storms, also listed above.

## WALDO COUNTY HAZARD MITIGATION PLAN

The Belfast Planning Office has indicated that the residential development pressure surrounding Belfast is the largest concern with respect to future land use decisions and hazard mitigation planning. The remainder of the County is expected to undergo a slight increase in residential development pressure to due serving as bedroom communities for Augusta, Waterville and Bangor, which are cities located outside Waldo County.

The Searsport Comprehensive Plan indicates that segments of industrial and residential zones are located in coastal storm surge areas. The town recently re-designated some of these areas to be Marine and Conservation Districts.

The Land Use Types and Growth Areas that have been designated in Waldo County are:

<b>Municipality</b>	<b>Land Use Types</b>	<b>Designated Growth Areas</b>
Freedom	Resource Protection, Limited Residential, Limited Commercial, Stream Protection	None
Knox	Resource Protection, Limited Residential, Stream Protection, Limited Commercial, General Development	None
Liberty	Wetland Preservation, Resource Protection, Limited Residential, Limited Commercial, Stream Protection, Wetland Conservation	None
Lincolntonville	General District, Harbor, Limited Commercial, Limited Residential, Resource Conservation, Resource Protection, & Stream Protection	General District
Montville	Limited Residential, Resource Protection	None
Northport	Residential, Commercial	Commercial
Palermo	Resource Protection, Limited Residential, Stream Protection, Limited Commercial	Limited Commercial
Prospect	Rural Residential, Limited Residential, Stream Protection, Resource Protection, Aquifer Protection	None
Searsmont	Resource Protected Village Core, Village Extension, Rural Shoreland	Village Core
Searsport	Commercial, Industrial, Residential, Marine, and Conservation, Resource Protection	Commercial, Industrial, Residential
Unity	Resource Protection, Limited Residential, Limited Commercial, Stream Protection, Rural, Flood Hazard, Downtown District, Village, Aquifer Protection	Downtown District, Village
Winterport	Limited Residential, Resource Protection, General Development, Commercial Maritime, Wetlands, Limited Commercial, Stream Protection, Protection District	General Development, Commercial Maritime

# WALDO COUNTY HAZARD MITIGATION PLAN

## MULTI-JURISDICTIONAL RISK ASSESSMENT

<b>Requirement §201.6(c)(2) (iii):</b>	<b>For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.</b>
--	--

Waldo County is a mid-sized Maine county consisting of 38,786 people living in 852 square miles located along the mid-coast of Maine. There are 26 municipalities within the County. Thirteen municipalities contributed to the risk assessment analyses performed for the Waldo County Hazard Mitigation Plan.

The Planning Team identified flooding as the most significant risk to the entire County, followed in severity by severe winter storms and then by severe summer storms/hurricanes.

The coastal communities of Belfast, Lincolnville, Northport, Searsport, and Stockton Springs are more susceptible to ice storms and coastal storm surges than the inland communities. The ice storm risk is due to the slightly warmer temperatures that these communities experience from the coastal waters. The storm surges affect the beach areas of these communities, which are highly developed due to the tourist business and attraction of living on the coast. The inland communities are more susceptible to high snowfall events. Winds from severe Winter Storms and from Hurricanes will be higher in the coastal communities than the inland communities.

The Town of Winterport, which is located along the banks of the Penobscot River is concerned about the possibility of a major oil spill from one of the oil tankers that transit the River. There are no local spill mitigation capabilities and any response to a major mishap could take hours to implement. This type of hazard could create major environmental damage to the River and cause a severe economic impact to the community.

# WALDO COUNTY HAZARD MITIGATION PLAN

This Page Left Blank

# WALDO COUNTY HAZARD MITIGATION PLAN

## SECTION 5. MITIGATION STRATEGY

§201.6(c)(3) of the Rule outlines measures that localities must take in developing their mitigation strategies. Specifically, the Local Hazard Mitigation Plan must “include a mitigation strategy that provides the jurisdiction’s blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.”

This entails the development of goals from which specific mitigation actions and projects will be derived. All mitigation actions must be prioritized according to a cost-benefit analysis, with a focus on how effective the actions are expected to be with respect to their cost. For multi-jurisdictional plans, each jurisdiction must show the specific actions they will undertake.

This section includes the following five subsections as follows:

Local Hazard Mitigation Goals

Identification and Analysis of Mitigation Actions

Implementation of Mitigation Actions

Multi-jurisdictional Mitigation Actions

Status of Mitigation Actions from 2011 Plan

# WALDO COUNTY HAZARD MITIGATION PLAN

## LOCAL HAZARD MITIGATION GOALS

<b>Requirement §201.6(c)(3) (i):</b>	<b>The hazard mitigation strategy shall include: a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.</b>
Definitions	<b>Goals</b> are general guidelines that explain what you want to achieve. They are usually long-term and represent global visions, such as “eliminate flood damage.” <b>Objectives</b> define strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific, measurable, and have a defined completion date. Objectives are more specific, such as “adopt a zoning ordinance prohibiting new development in the floodplain.”

The Waldo County Hazard Mitigation Planning Team met to review and analyze the County's risk assessment studies. The following goals were determined to have the greatest benefit in hazard reduction in the County. The descriptions, goals, and objectives for each are as follows:

### **SEVERE WINTER STORM EVENTS**

In Waldo County, the most likely damages caused by a severe winter storm event are the loss of electrical power, from downed power transmission lines, and the blockage of roadways, from tree debris or winter snow or ice. There has also been loss of life caused by the improper use of backup heat sources such as home generators, debris falling on an individual, or from storm-related vehicle accidents. Other types of general damage to personal and real property may be caused by blizzard winds. The very presence of a severe winter storm will keep tourists away from the area, resulting in major losses of income for local businesses.

There is no history in Waldo County of winter storms causing major damages to buildings and infrastructure. As mentioned above, winter storms cause power outages and temporarily create impassable or dangerous roads. All towns have sufficient physical resources for clearing snow, ice and tree debris from winter roads; only adequate funds to cover the costs of removal are an issue. Therefore, it has been determined by the County Planning team that there is no need for mitigation actions to address road debris, buildings and infrastructure.

#### **Goal 1: Reduce damage, injury and loss of life in Waldo County after a winter storm event**

Objective 1. Lessen the future loss of life and personal injuries resulting from severe storms.

### **FLOODING**

In Waldo County, the most likely damages caused by flooding are the damages to roadways caused by washouts and undercutting. Though there are very few critical facilities in the 100-year flood zone, there are several private facilities that are located in the Hurricane Surge Inundation Areas. Most communities are using the FIRM information to control development in flood zones. For the purposes of planning, however, the Hurricane Inundation Surge Area maps are being used to develop evacuation zones. There could be loss of lives from flooded roads, but there has not been any incidents of drowning during flood conditions. Flood waters could contaminate some public and private water supplies and damage personal and real property. Flooding may shut down businesses, resulting in major losses of income for local businesses and residents

# WALDO COUNTY HAZARD MITIGATION PLAN

There is little history in Waldo County of flooding causing major damages to public and commercial buildings and infrastructure. The County averages 1.5 flood-related NFIP claims per year amounting to \$9,271 per claim. As has been shown in various sections of this plan, flooding in Waldo County damages roads. Therefore, it has been determined by the County Planning Team that there is no need for mitigation actions to address public buildings and infrastructure.

The Towns of Prospect and Waldo have not adopted floodplain ordinances, and are not required to by the Mitigation Act of 2000 and the associated regulations in order for this plan to be approved. They have not joined because they do not have a history of flooding of buildings and structures.

## **Goal 2: Reduce damage, injury and loss of life in Waldo County caused by flooding**

Objective 2.1. Lessen the future loss of life and personal injuries resulting from flooding.

Objective 2.2. Assure prompt restoration of critical transportation links.

## **HURRICANE EVENTS**

In Waldo County, the most likely damages caused by a severe summer storm or hurricane event are the loss of electrical power from downed power transmission lines; the blockage of roadways from tree debris and utility poles and lines; damages to coastal residential properties; and damage to roadways caused by washouts and undercutting. There may also be loss of life caused by debris falling on individuals, or from storm-related vehicle accidents. Other types of general damage to personal and real property may be caused by high winds and ineffective storm water management systems. The very presence of a hurricane will keep tourists away from the area, resulting in major losses of income for local businesses. Therefore, the goals and objectives to mitigate the damages from severe summer storms such as hurricanes or high wind events are:

The typical damages to public buildings and infrastructure (old or new) caused by hurricanes are due to flooding (which has already been addressed in Goal 2) and power outages.

The State of Maine has adopted, by statute, the International Building Code as the Maine State Building Code. Any new public or commercial buildings in Maine will need to meet these standards. Municipal governments will no longer have local building codes. In Waldo County, only the City of Belfast is required to enforce building codes. All Towns do enforce the State Shoreland Zoning requirements which include aspects of floodplain management.

## **Goal 3: Reduce damage, injury and loss of life in Waldo County after a hurricane**

Objective 3.1. Lessen the future loss of life and personal injuries resulting from severe storms.

# WALDO COUNTY HAZARD MITIGATION PLAN

## IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS

<b>Requirement §201.6(c)(3) (ii):</b>	<b>The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.</b>
---------------------------------------	---

Waldo County municipal participants have identified several hazard mitigation actions that would benefit residents and was analyzed by the Waldo County Hazard Mitigation Planning Team. These actions were identified in the Mitigation Planning Team meetings and during meetings with public officials representing the municipalities. The identified mitigation actions are broken out by the Goals and Objectives for each hazard and was analyzed using a decision matrix that follows this list.

The following mitigation goals, objectives and actions are appropriate for the communities of Waldo County and have been selected by the duly appointed representatives of those communities. There are no hazards in Waldo County that cause major damages to public or private buildings; except structure fires, which is not profiled in this plan.

The Hazard Mitigation Act of 2000, and the associated regulations, do not require that a community that has no flooding threat to structures must develop mitigation actions to counter a threat that does not exist.

### **Goal 1: Reduce damage, injury and loss of life in Waldo County after a severe winter storm event**

**Objective 1.** Lessen the future loss of life and personal injuries resulting from severe winter storms.

Action 1. Educate the public on dangers of severe winter storms.

### **Goal 2: Reduce damage, injury and loss of life in Waldo County caused by flooding**

**Objective 2.1.** Lessen the future loss of life and personal injuries resulting from flooding.

Action 2.1. Educate the public on dangers of flooding.

**Objective 2.2.** Assure prompt restoration of critical transportation links.

Action 2.2. Upgrade ditches, culverts, and roadway drainage systems.

### **Goal 3: Reduce damage, injury and loss of life in Waldo County after a hurricane**

**Objective 3.** Lessen the future loss of life and personal injuries resulting from severe storms.

Action 3. Educate the public on dangers of severe winter storms.

## WALDO COUNTY HAZARD MITIGATION PLAN

**Requirement:  
§201.6(c)(3) (iii):**

**[The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdictions. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.**

(Note: Implementation and administration will be dealt with in the next section.)

Reviewing the Mitigation Projects identified, the Hazard Mitigation Planning Team determined that the top two mitigation priorities are:

1. Upgrade roads and their associated storm water management systems. Individual towns will identify what specific locations and necessary work are needed. They will also prioritize these road projects depending on their own individual needs and abilities.
2. Connect with and educate their residents on Disaster Preparedness. The County EMA will provide the literature and training to municipal EM Directors who will complete their own individualized public education programs.

# WALDO COUNTY HAZARD MITIGATION PLAN

## MULTI-JURISTIDICATIONAL MITIGATION ACTIONS IMPLEMENTATION AND ADMINISTRATION

Requirement §201.6(c)(3) (iv):	For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.
--------------------------------	--

Waldo County’s Hazard Mitigation Plan projects only include those jurisdictions that adopted the plan. Strategies for hazard mitigation within the County were identified to reduce overall damage in the County. Although these strategies are aimed at reducing overall damage in the County, each jurisdiction will be responsible for pursuing the actions that are relevant to that jurisdiction. The status of projects completed or cancelled are in the Table called “Status of Projects from 2011 Plan Version”

### CURRENT PROJECTS

Town	Project (In Priority Order)	Cost	Duration	Responsible Agency
Freedom	1. Waning Rd: Remove ledge and ditch 500'.	\$6,000	4 weeks	Road Comm
	2. Mitchell Rd: Replace existing bridge.	\$130,000	12 weeks	Road Comm
	3. Pleasant St: Repair 275 feet of roadside drainage	\$5,000	1 week	Road Comm
	4. Main St: Repair 100 feet of roadside drainage	\$2,000	1 week	Road Comm
	5. Mill Street: Repair 50 feet of roadside drainage	\$1,000	1 week	Road Comm
	6. Penny Hill: Repair 1,500 ft of drainage, replace culverts, add drain, and geotextile.	\$15,000	4 weeks	Road Comm
	7. Distribute the County Family Preparedness Guides.	\$0	Ongoing	EMA
Knox	1. Distribute the County Family Preparedness Guides.	\$0	Ongoing	EMA
Liberty	1. Distribute the County Family Preparedness Guides.	\$0	Ongoing	EMA
Lincolnville	1. Distribute the County Family Preparedness Guides.	\$0	Ongoing	EMA
Montville	1. North Ridge Rd: Add 24" x 40' culvert and repave.	\$30,000	3 weeks	Road Comm
	2. Morrill Rd: Upsize existing 18" x 40' culvert with 24" x 40' HDPE culvert and repave.	\$60,000	3 weeks	Road Comm
	3. Haystack Mt Rd: Add 24" x 40' culverts and repave.	\$10,000	2 weeks	Road Comm
	4. Halldale Rd: Add 24" x 40' culverts and repave.	\$60,000	3 weeks	Road Comm
	5. Randlett Rd: Add 24" x 40' culverts and repave.	\$25,000	3 weeks	Road Comm
	6. Hogback Mt Rd: Add 24" x 40' culverts and resurface.	\$30,000	3 weeks	Road Comm
	7. Kingdom Rd: Replace bridge	\$175,000	1 year	Road Comm
	8. Distribute the County Family Preparedness Guides.	\$0	Ongoing	EMA
Northport	1. Distribute the County Family Preparedness Guides.	\$0	Ongoing	EMA
Palermo	1. Chisholm Pond Road: Ditch 2,500' and place 2,500' x 22' of geotextile fabric and add 12" base and surface gravel.	\$62,000	5 weeks	Road Comm
	2. Parmenter Road: Ditch 1,200' and place 1,200' x 22' of geotextile fabric and add 12" base and surface gravel.	\$28,500	5 weeks	Road Comm
	3. Arnold Lane: Place 40 ft of 24" dia culvert and riprap inlet and outlet.	\$5,200	5 weeks	Road Comm
	4. Jones Road: Place 50 ft of 24" dia culvert; add 400 ft x 22 ft wide 12" surface gravel.	\$10,500	5 weeks	Road Comm
	5. Belden Woods Road: Place 50 ft of 48" dia culvert and riprap inlet/outlet; add 95 ft x 22 ft of 36 in depth of gravel.	\$16,500	5 weeks	Road Comm

## WALDO COUNTY HAZARD MITIGATION PLAN

Town	Project (In Priority Order)	Cost	Duration	Responsible Agency
Prospect	1. Upgrade culvert on Hawes Stream Rd at Lane Brook.	\$50,000	2 months	Road Comm
	2. Replace the Dickey Hill Bridge on George Road with more resilient structure.	\$100,000	6 months	Road Comm
Searsmont	1. Distribute the County Family Preparedness Guides.	\$0	2 months	EMA
Searsport	1. 2. Cottage Rd: Upsize existing culvert and riprap.	\$20,000	2 weeks	Road Comm
Unity	1. Berry Rd: Repair western bridge abutments & wingwall.	\$26,000	4 weeks	Road Comm
	2. Crowell Rd/Hunter Rd: Upsize 36" x 60' culvert with 48" x 60' culvert, elevate 250' x 24' x 24" and stabilize shoulders add 24" x 50' relief culvert and build berm.	\$38,000	6 weeks	Road Comm
	3. Waning Rd site 1: Elevate 1,500' x 2' x 18' stabilize shoulders & repave, upsize (2) 24" x 50' to 36" x 50' culverts & upsize (1) 36" x 50' culvert w/4' x 50' box culvert	\$76,000	4 weeks	Road Comm
	4. Waning Rd site 2: Elevate 150' x 21' x 2' and upsize 36" x 60' to 48" x 60' culvert.	\$17,000	4 weeks	Road Comm
	5. Stage Coach Rd: Ditch 15,000, and upsize (1) 15" x 50' to 18" x 50' culvert and (1) 18" x 50' to 24" x 50' culvert.	\$48,000	4 weeks	Road Comm
	6. Kanokolus Rd: Elevate 2,000' x 21' x 2' and repave.	\$50,000	6 weeks	Road Comm
	7. East Mussey Rd: Elevate 150' x 21' x 2', upsize existing 48" x 30' culvert with 5' x 5' x 50' box culvert.	\$32,000	5 weeks	Road Comm
	8. Distribute the County Family Preparedness Guides	\$0	Ongoing	EMA
Winterport	1. Rancourt Road: replace old 48" culvert with new 40ft long 72" culvert	\$20,000	2 months	Road Comm
	2. Stabilize 5,000 ft of shoulders at various locations	\$10,000	2 weeks	Road Comm
	3. Distribute the County Family Preparedness Guides	\$0	Ongoing	EMA
Waldo County	1. Distribute the County Family Preparedness Guides	\$0	Ongoing	EMA

Total Mitigation Project Funding = \$1,158,700

### Typical Funding Resources

Municipal Annual Property Taxes  
Municipal Bonding  
Maine DOT Transportation Capital Improvements

FEMA Pre-Disaster Mitigation Grants  
FEMA Hazard Mitigation Program Grants

# WALDO COUNTY HAZARD MITIGATION PLAN

## STATUS OF PROJECTS FROM 2011 PLAN VERSION

The following chart lists the mitigation actions created in the 2011 version of the County Hazard Mitigation Plan that were either accomplished or cancelled.

<b>T own</b>	<b>Project</b>	<b>Cost</b>	<b>Status</b>
Belfast	Distribute the County Family Preparedness Guides	\$0	Completed
Belmont	Dickey Mills Road culverts	\$6,000	Cancelled
	Halls Corner/Northport Rd: Ditch and culverts	\$10,000	Cancelled
	Back Belmont Road culvert	\$3,000	Cancelled
	Distribute the County Family Preparedness Guides	\$0	Completed
	Provide a generator at the Fire Station	\$2,500	Completed
Brooks	Pond Hill Road culverts	\$46,000	Cancelled
	Provide a generator at the Fire Station	\$2,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Burnham	Sayward Lane rebuild	\$115,000	Cancelled
	Rines Road Ledge removal and culverts	\$10,000	Cancelled
	Doherty Road elevation	\$20,000	Cancelled
	Pine Lane elevation	\$25,000	Cancelled
	Pond Road concrete box culvert	\$200,000	Cancelled
	Distribute the County Family Preparedness Guides	\$0	Cancelled
Frankfort	Treat Pond Road riprap road shoulder	\$4,500	Completed
	Provide a generator at the EOC	\$2,500	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Freedom	Rollins Street elevation	\$42,000	Completed
	Smithton Road renovation	\$45,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Islesboro	Main Road granite breakwater	\$130,000	Cancelled
	Distribute the County Family Preparedness Guides	\$0	Completed
Jackson	Kimball Road: Elevate and install new culverts	\$20,000	Cancelled
	Bog Road: Elevate and install new culverts	\$30,000	Cancelled
	Works Road: Ditching, ledge removal and elevate	\$60,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Knox	Provide a generator at the Town Office/EOC	\$2,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Liberty	Provide a generator at the EOC	\$2,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Lincolntonville	Acquire road barricades for flooded roads	\$7,000	Cancelled
	Provide a generator at the Fire Station	\$4,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Monroe	Dahlia Road culvert	\$7,900	Completed
	Back Brooks Road culvert	\$5,000	Completed
	Provide a generator at the Fire Station	\$4,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Montville	Distribute the County Family Preparedness Guides	\$0	Completed
Morrill	Elevate Poland Woods Road	\$35,000	Cancelled
	Weymouth Road culverts	\$425,000	Cancelled
	Provide a generator at the Fire Station	\$4,000	Completed
	Adopt floodplain ordinance and enter NFIP	\$100	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed

## WALDO COUNTY HAZARD MITIGATION PLAN

<b>T own</b>	<b>Project</b>	<b>Cost</b>	<b>Status</b>
Northport	Shore Road culverts	\$6,000	Completed
	Mountain Road ditching	\$18,000	Completed
	Park Street ditching	\$5,000	Completed
	Provide a generator at the Fire Station	\$4,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Palermo	Banton Road ditching and culverts	\$91,000	Completed
	Marden Hill Road ditching and surfacing	\$44,000	Completed
	Provide a generator at the Fire Station	\$2,500	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Prospect	Bowden Point Road culvert	\$8,000	Completed
	Adopt floodplain ordinance and enter NFIP	\$100	Cancelled
	Distribute the County Family Preparedness Guides	\$0	Completed
Searsmont	Distribute the County Family Preparedness Guides	\$0	Completed
Searsport	Town Wharf repairs	\$556,000	Completed
Stockton Springs	Distribute the County Family Preparedness Guides	\$0	Completed
Swanville	Provide a generator at the Town Office/EOC	\$2,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Thorndike	East Thorndike Road ditching and culverts	\$90,000	Cancelled
	Files Hill Road ditching and culverts	\$22,500	Cancelled
	Hunt Rd ditching	\$8,000	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Troy	Provide a generator at the Fire Dept	\$2,500	Completed
	Distribute the County Family Preparedness Guides	\$0	Completed
Unity	Quaker Hill Road ditch and underdrain	\$83,556	Completed
	Acquire barricades to block flooded roads	\$3,000	Cancelled
	Distribute the County Family Preparedness Guides	\$0	Completed
Waldo	Provide generators at the Fire Station & Town Office	\$8,000	Completed
	Adopt floodplain ordinance and enter NFIP	\$100	Cancelled
	Distribute the County Family Preparedness Guides	\$0	Completed
Winterport	Distribute the County Family Preparedness Guides	\$0	Completed
Waldo County	Acquire a mobile generator to use around County	\$6,000	Completed
	Distribute the County Family Preparedness Guides	\$500	Completed

### **Use of a cost-benefit analysis**

MEMA and applicant towns will utilize the current version of the FEMA cost benefit analysis (BCA) tool when they apply for hazard mitigation funding.

Many of the jurisdictions included in this Plan are small towns run by volunteers. They do not have staff, resources or funding to prepare cost-benefit analyses for all the projects included in this Plan. However, in virtually all cases involving expenditure of local funds for implementation, there will be a very rigorous, line-by-line analysis of cost effectiveness during the budget review process and subsequent public discussion. This review is at least equal to a formal benefit-cost calculation because each expenditure item will be carefully scrutinized rather than simply being plugged into a formula. Nevertheless, MEMA and the County EMA have made it clear to local officials that a cost benefit analysis will have to be prepared in the event they apply for mitigation funding.

## WALDO COUNTY HAZARD MITIGATION PLAN

Below is a summary of existing authorities, policies, programs and resources available to accomplish hazard mitigation. See also the table that follows this summary.

- **Town Manager, Administrator, Administrative Assistant to the Selectmen:** Two participating towns in Waldo County have a town manager, others have an administrator whose duties may vary from those of a town manager, and still others have an administrative assistant to the selectmen who may serve as staff to the selectmen but may not have the powers of a town manager to hire staff. In the table below, “TM” indicates town manager; “AA” indicates administrator, administrative assistant or clerk.
- **Board of Selectmen or Board of Assessors:** If a town has no Town Manager, that role is filled by a Board of Selectmen. Depending on the community’s needs and financial resources, the Board might also serve as Road Commissioner.
- **Staff Resources:** Staff resources, where available, usually consist of a planner or community development director. There are no communities in Waldo County with staff resources devoted exclusively to hazard mitigation.
- **Road Commissioner:** Most towns in Waldo County have a road commissioner. The road commissioner might also be the town manager or board of selectmen.
- **Flood Hazard Ordinance:** All of the towns that are in the Flood Insurance Program have a flood hazard ordinance in effect.
- **All of the towns in Waldo County** are required to have a shoreland zoning ordinance, whether adopted by the municipality or imposed by the Maine Department of Environmental Protection.
- **Form of Government:** In the following table, the letters “ST” indicate the selectmen/town meeting form of government; a “Council” indicates a council form of government.
- **Resources:** In addition to staffing or other expertise, funding resources are from local taxes and/or grants that are funded by taxes or private donations.

All jurisdictions in Waldo County could expand and improve their existing capabilities if additional funds, beyond their existing tax bases, became available to address hazard mitigation projects listed on the previous pages.

### Key to table on next page

“X” - Yes

“AA” – Administrator, Administrative Assistant or Town Clerk

“DPW” – Director of Public Works

“RC” – Road Commissioner

“ST” – Selectmen/Town Meeting form of government

“TM” – Town Manager

## WALDO COUNTY HAZARD MITIGATION PLAN

### Authorities, Policies, Programs and Resources Available to Accomplish Hazard Mitigation

Town	Town/City Manager	Staff involved in Local Planning	Public Works or Road Commissioner*	EMA Director	Flood Hazard Ordinance	Shoreland Zoning Ordinance	Form of Government
Freedom	AA	-	RC	X	X	X	ST
Knox	AA	-	RC	X	X	X	ST
Liberty	AA	-	RC	X	X	X	ST
Lincolnville	AA	-	RC	X	X	X	ST
Montville	AA	-	RC	X	X	X	ST
Northport	AA	-	RC	X	X	X	ST
Palermo	AA	-	RC	X	X	X	ST
Prospect	AA	-	RC	X	-	X	ST
Searsmont	AA	-	RC	X	X	X	ST
Searsport	TM	-	DPW	X	X	X	ST
Unity	AA	-	RC	X	X	X	ST
Winterport	TM	-	RC	X	X	X	ST

\*The Road Commissioners and/or Emergency Management Directors identified, clarified, added to or deleted the projects for their communities.

# WALDO COUNTY HAZARD MITIGATION PLAN

This Page Left Blank

# WALDO COUNTY HAZARD MITIGATION PLAN

## SECTION 6. PLAN MAINTENANCE PROCESS

§201.6(c)(4) requires a formal plan maintenance process to take place to ensure that the Mitigation Plan remains an active and pertinent document. The plan maintenance process includes a schedule for monitoring and evaluating the plan at least every five years, and continued public participation throughout the plan maintenance process.

This section also includes an explanation of how the county and municipal governments intend to incorporate their mitigation strategies into any existing planning mechanisms they have, such as comprehensive or capital improvement plans, or zoning and building codes.

This section includes the following three subsections as follows:

Monitoring, Evaluating, and Updating the Plan

Incorporation into Existing Planning Mechanisms

Continued Public Involvement

# WALDO COUNTY HAZARD MITIGATION PLAN

## MONITORING, EVALUATING, AND UPDATING THE PLAN

<b>Requirement §201.6(c)(4)(i):</b>	<b>The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.</b>
-------------------------------------	--

Waldo County has developed a method to ensure that periodic review and update of the Hazard Mitigation Plan occurs. The Waldo County Emergency Management Agency (EMA) has formed a Hazard Mitigation Planning Team that consists of members from the County EMA office and the EMA directors and Selectmen from member towns.

Monitoring – At least once a year, and after every declared event, the Team will track the progress of the plan, especially with regard to the implementation of the projects within it.

Evaluating – The Team will review each mitigation goal, objective and action to determine their relevance to changing situations and land developments in the County, as well as changes in State or Federal policy, and to ensure that they are addressing current and expected conditions. The Team will also review the risk assessment portion of the plan to determine if this information should be updated or modified. The parties responsible for the various municipal implementation actions will report on the status of their projects and will include which implementation processes worked well, any difficulties encountered, how coordination efforts were proceeding, and which actions should be revised.

Updating - The County EMA Office is responsible for contacting team members and organizing the series of meetings every five years. The meetings will begin about one year out from the due date of the plan and proceed on a monthly basis. The Team members will be responsible for monitoring and evaluating the progress of the mitigation actions in the plan. The next planning cycle will be:

Update the Demographics:	July 2020
Updated Hazard Mapping	July 2020
Update the Planning Process	August 2020
Update the Risk Assessment:	September 2020
Update the Mitigation Projects	November 2020
Submit draft plan to MEMA/FEMA	January 2021
Approval Signatures	September 2021

Once the review and changes are made, the Waldo County EMA Office will submit the draft revised plan to the State Hazard Mitigation Officer. If no changes are necessary, the State Hazard Mitigation Officer will be given a justification for this determination.

# WALDO COUNTY HAZARD MITIGATION PLAN

## INCORPORATION INTO EXISTING PLANNING MECHANISMS

<b>Requirement §201.6(c)(4) (ii):</b>	<b>The plan shall include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.</b>
---------------------------------------	---

Within Maine, most government authority is with State statutes and rules or with municipal “Home Rule” ordinances. Only one of the 26 municipalities are required to enforce the State building codes, according to State law. Only the City of Belfast must enforce the State Building Code.

The Waldo County Hazard Mitigation Planning Team did not select any ordinance-related mitigation actions for this plan, because land use/control ordinances are not necessary or popular. The mitigation actions chosen were primarily educational or road improvements which do not require incorporation into ordinances or comprehensive plans.

One town, Morrill, did enact a floodplain ordinance and became a member of the NFIP since the 2011 version of the plan.

All of the mitigation actions that were identified and selected by the participating towns are either structural, such as road and drainage system upgrades, or public awareness programs. These may be incorporated into existing capitol road improvements plans and potentially funded by annual budgets. In most cases, the only way the expensive road improvements will be accomplished will be through Hazard Mitigation Assistance (HMA) Grants and through Public Assistance following a Presidentially-declared disaster. Emerging grants, such as Maine’s Department of Environmental Protection culvert upgrade funds, will be taken advantage of when they are available.

The County EMA office will assist by reviewing the FEMA Pre-Disaster Mitigation (PDM) and Hazard Mitigation Grant (HMGP) packages completed by the County’s municipalities, against the 2016 version of this Plan.

The Selectmen or Emergency Management Director within each municipality that is responsible for the implementation and completion of each mitigation action will notify the County EMA Office whenever assistance is needed or whenever a measure is completed. Existing programs such as the municipal Road Maintenance Plan and local Emergency Management program will be utilized to their greatest extent to complete the community’s mitigation actions.

The primary municipal incorporation of Hazard Mitigation Plan information will be in relation to the communities’ annual road maintenance and capitol improvements budgets. Municipalities may budget to upgrade roadways found to be vulnerable to flooding or budget matching funds for potential federal grants.

Aspects of the Waldo County Hazard Mitigation Plan has been incorporated into the Waldo County Emergency Operations Plan, especially the hazard and vulnerability assessments.

# WALDO COUNTY HAZARD MITIGATION PLAN

## CONTINUED PUBLIC INVOLVEMENT

<b>Requirement §201.6(c)(4) (iii):</b>	<b>The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.</b>
--	---

Waldo County promotes direct public participation in the continual reshaping and updating of the County Hazard Mitigation Plan. The County Planning Team has tried many ways to encourage public involvement including, media releases and social media and will continue to do so.

The Hazard Mitigation Planning Team members are responsible for the review and update of the plan.

Copies of the plan will be provided to the municipal Emergency Management Directors and kept on hand at all municipal offices in the County. The existence and location of these copies will be publicized by posting flyers in all the town offices. Contained in the plan is the address and phone number of the Waldo County EMA Office, which is responsible for keeping track of public comments on the plan.

The 2011 version of the County Hazard Mitigation Plan has been linked to the County EMA website at: <http://www.waldocountyme.gov/ema.html> for the last 5 years. The 2017 draft version has also been located at this website and the public is encouraged to review and comment on the draft plan.

Public meetings are also held throughout the Mitigation Planning Team process. These public meetings provide the public a forum for which they can express concerns, opinions, or ideas about the plan. The County EMA Office publicizes through e-mails, websites, posters, brochures and newspaper articles and hosts these meetings.

Waldo County Emergency Management Agency  
4 Public Safety Way, Belfast, Maine 04415  
Office Phone: (207) 338-3870  
E-Mail: [emadirector@waldocountyme.gov](mailto:emadirector@waldocountyme.gov)

# WALDO COUNTY EMERGENCY MANAGEMENT AGENCY SIGN-IN ROSTER

Type of Course/Meeting: County Hazard Mitigation Planning

Date/Time: August 26, 2014

Facilitator: Dale Rowley

Name (Please Print)	Position	Community	Contact Info
1 PETER B SIMPSON	EMA DIRECTOR	NORTHPORT	338-4136 PSS 260 BLUFF G M.H.L.C.
2 ALMON D. (BUN) RIVERS	EMA DIRECTOR	SEARSPORT	338-1887 SEARSPORTEMA@ymail.com
3 DANIEL SMITH	EMA DR	Monn, IL	323-8013
4 THOMAS DOE	EMA Director	Winterport	
5 JAMES RICHARDS	EMA "	Belfort	330-3362
6 James T. Ames	EMA	Searsport	342 5707
7 <del>Dale Rowley</del>	EMA	Jackson	722-3453
8 Tim Terry	EMA	PROSPECT	
9 TERRY SAWYER	EMA	Swanville	338-4436
10 Henry Lang	EMA	Lincolnville	592-9365
11 MARIO TRIBUZZO	EMA	MONROE	944-9647
12 Dale Rowley	EMA	Waldo County	
13			
14			
15			
16			
17			
18			
19			

# WALDO COUNTY EMERGENCY MANAGEMENT AGENCY SIGN-IN ROSTER

Type of Course/Meeting: County Hazard Mitigation Planning

Date/Time: April 9, 2015      6:30 - 7:30 pm      Facilitator: Dale Rowley

Name (Please Print)	Position	Community	Contact Info
<sup>1</sup> Dale Rowley	Director	Waldo County EMA	338-3870
<sup>2</sup> ALMON D. (BUD) RIVERS	EMA DIRECTOR	SEASPOKT	338-1887
<sup>3</sup> EMILY NEWELL	SELECTMAN, FF	UNITY	416-8890
<sup>4</sup> NICKIE Brancato	FF	UNITY	416-2153
<sup>5</sup> Robert Price	3 <sup>rd</sup> selectperson	Moutville	387-6374
<sup>6</sup> Thomas Doe	EMA Director	Winterport	944-6033
<sup>7</sup> MARTIN W. Vogel	EMA Director	JACKSON	322 5569
<sup>8</sup> DIANE TERRY	Selectperson	Prospect	567-3621
<sup>9</sup> Tim Terry	EMA Director	Prospect	567-3621
<sup>10</sup> Barbara Ashley	Town Administrator	Northport	338-3819
<sup>11</sup> Henry Lang	Local EMA Director	Lincolntonville	592-9365
<sup>12</sup>			
<sup>13</sup>			
<sup>14</sup>			
<sup>15</sup>			
<sup>16</sup>			
<sup>17</sup>			
<sup>18</sup>			
<sup>19</sup>			

# WALDO COUNTY EMERGENCY MANAGEMENT AGENCY SIGN-IN ROSTER

Type of Course/Meeting: County Hazard Mitigation Planning

Date/Time: June 11, 2015 6pm-8pm Facilitator: Dale Rowley

Name (Please Print)	Position	Community	Contact Info
1 Dale Rowley	County EMA Dir.	Waldo County	emadirector@waldocty.me.gov
2 Tim Terry	Prospect EMA	Prospect	<del>therry@fairpoint.net</del>
3 DIANE TERRY	Prospect Selectman	Prospect	therry@fairpoint.net
4 Christine Spaulding	EMA Chief	<del>Prospect</del> Freedom	
5 John C York	EMA	Montville	
6 Helen D. Larrabee	<sup>1st</sup> Selectman	Knox	
7 Wannen Steeves	1st Selectman	Liberty	Steeves@fairpoint.net
8 Henry Lang	Lincolnville EMA Director	Lincolnville	huk@midcoast.com
9 PETER B. SIMPSON	EMA NORTHPORT DIR	NORTHPORT	EMERGENCY, PSS 260 BLUFF COM
10 Gayle mckeige	Seavusport Dty EMA	Seavusport	gayle.mckeige@mdi.sheepblacksheepfarm@gmail.com
11			
12			
13			
14			
15			
16			
17			
18			
19			

# WALDO COUNTY EMERGENCY MANAGEMENT AGENCY SIGN-IN ROSTER

Type of Course/Meeting: County Hazard Mitigation Planning – Risk Assessment

Date/Time: August 13, 2015

Facilitator: Dale Rowley

Name (Please Print)	Position	Community	Contact Info
1 Dale D. Rowley	Waldo County EMA	Waldo County	338-3870
2 BUD RIVERS	SEARSPORT EMA	SEARSPORT	322-8464
3 DIANE TERRY	Prospect Selectman	Prospect	567-3627
4 TIM TERRY	EMA	Prospect	—
5 John York	Montville EMA	Montville	
6 Thomas Doe	Winterport EMA	Winterport	
7 Henry Lang	Lincolnville EMA	Lincolnville	592-9369 hoke@midcoast.com
8 Robert A. Price	3rd Selectperson Montville	Montville	387-6324 montville3rd@
9 Elise Brown	Liberty EMA	Liberty	Fairpoint.net elisebrw@gmail.com
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			

# WALDO COUNTY EMERGENCY MANAGEMENT AGENCY SIGN-IN ROSTER

Type of Course/Meeting: County Hazard Mitigation Planning – Planning and Mitigation Strategies

Date: Sept 10, 2015      Time: 1830 - 2000      Facilitator: Dale Rowley

Name (Please Print)	Signature	Community	Position
1 Dale Rowley	<i>Dale D. Rowley</i>	Waldo County EMA	Director
2 Henry Lang	<i>Henry Lang</i>	Lincolnville EMA Northport FD	Local Director Asst Chief
3 BUD RIVERS	<i>Bud Rivers</i>	SEASPORT EMA	DIRECTOR
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			

# WALDO COUNTY EMERGENCY MANAGEMENT AGENCY SIGN-IN ROSTER

Type of Course/Meeting: County Hazard Mitigation Planning – Planning and Mitigation Strategies

Date: Feb 24, 2016      Time: 1830 - 1930      Facilitator: Dale Rowley

Name (Please Print)	Signature	Community	Position
1 Dale D. Rowley	Dale D. Rowley	Waldo County EMA	Director
2 Christine Spaulding	Christine Spaulding	Freedom EMA	EMD
3 Tim Terry	Tim Terry	PROSPECT	EMA D
4 DIANE TERRY	Diane Terry	Prospect	Select person
5 Robert Price	Robert H. Price	Mountville	select person
6 John York	John @ York	Mountville	FIRE Chief EMA
7 Tom Doe	Thomas Doe	Winterport	Fire Chief EMA
8 Henry Lang	Henry Lang	Northport	Asst Chief - Fire
9 Elise Brown	Elise Brown	Liberty	EMA Don
10 Angela Nelson	Angela Nelson	Palermo	Treasurer
11			
12			
13			
14			
15			
16			
17			
18			
19			



## Waldo County updates hazard mitigation plan, invites comments

Posted: Wednesday, June 8, 2016 - 9:00pm

The Waldo County Emergency Management Agency has initiated an effort to update the County Hazard Mitigation Plan using the guidelines as provided by the Federal Emergency Management Agency.

The purpose of a Hazard Mitigation Plan is to assess the county's risk to likely disasters, inventory critical infrastructure and special need populations, and develop goals and strategies to lessen the impacts of a potential disaster. Examples of disaster mitigation include floodplain management, whereby new construction in floodplains is limited, and the upgrading of storm water management systems along our roadways.

"An important aspect of the Hazard Mitigation Planning process is the involvement of the public in the revision of the County Plan," said Dale Rowley, Director of the Waldo County EMA program, in a news release. "Inputs from all municipalities and all interested citizens are vital in order to make this plan work."

C

ounty residents, businesses, non-profit groups, and municipal officials with knowledge of past disaster events, repetitive areas of repair after storms and floods, and locations of critical facilities and utilities and special needs populations that could be impacted by a disaster are strongly encouraged to provide that information to the Hazard Mitigation Planning Team hosted by the Waldo County EMA office.

A Public Hearing is scheduled for Wednesday, June 22, at 6 p.m. in the County EMA office.

For more information, contact Rowley, 338-3870, or by email at [emadirector@waldocountyme.gov](mailto:emadirector@waldocountyme.gov) (<mailto:emadirector@waldocountyme.gov>) ; <http://www.waldocountyme.gov/ema> (<http://www.waldocountyme.gov/ema>) or write or visit the office at 4 Public Safety Way, Belfast, ME 04915.

---

### Most Popular

---

[Sammy's Deluxe, new Rockland...](#) (3,278)

[Driver escapes injury after tree...](#) (2,831)

[Welcome back to the Camden-Rockport...](#) (2,265)

[Parker S. Laite Sr., notice](#) (2,079)

[Feeding birds is not a crime in a...](#) (1,968)