

ANDROSCOGGIN COUNTY
Hazard Mitigation Plan – 2017 Update



Source: Minot Flash Flood event WMTW channel 8 video clip image, 2008

Androscoggin Valley Council of Governments
2017

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SECTION 1 - OVERVIEW

Geography

Androscoggin County, the fourth smallest county in Maine, has a land area of 470 square miles. Androscoggin County encompasses two cities, Auburn and Lewiston, and 12 towns. Lewiston is the second largest city in Maine, and Auburn, the fourth largest. Lewiston/Auburn is a center for manufacturing, services, and retail trade.

Valleys and Foothills

The major natural features of the county include the Androscoggin River which has drained some 2,900 square miles as it flows between Auburn and Lewiston; the Little Androscoggin River with a drainage area of 350 square miles at its confluence with the Androscoggin River; the Sabattus River with a drainage area of 74 square miles when it enters the Androscoggin River in Lisbon; the Nezinscot River in Turner and many lakes and ponds.

Major hydroelectric dams were constructed across the Androscoggin River at Deer Rips in 1902 and at Gulf Island in 1925. These dams still produce electricity today.

Climate, Tourism and Recreation

Androscoggin County is an area desirable for both residents and visitors with outdoor interests. While tourists help the area economy, the effects of weather plays a large role in how successful businesses are.

Winter. There are opportunities for various outdoor activities. There are trail systems for cross country skiing and snowshoeing and ice fishing locations for the avid outdoorsman. Snow and ice are recurrent throughout the county, therefore, flooding from ice jams and blizzard conditions are not uncommon.

Spring. The transition of seasons brings rapid thawing conditions which can be detrimental with ice jams on the rivers and flooding from spring rains.

Summer. Large numbers of tourists vacation in Androscoggin County to enjoy the rivers and lakes. There are several dangers associated with the season; high winds and severe rain events, potential droughts, and wildfires are all possible concerns.

Fall. Leaf peepers come to Androscoggin County to sightsee the magnificent foliage while hunters take to the woods for game. Though the county offers a multitude of recreational activities, the large amount of forest also poses a concern for forest fires.

Governance

There are several governmental structures in Androscoggin County. The following summary is based in part on the Maine Municipal Association's report "Local Government in Maine."

County. County government in Maine has a somewhat limited role. There are seven county commissioners who oversee the operations of county government, which include courts, sheriff, corrections, registry of deeds and emergency management.

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Cities. There are two cities in Androscoggin County, Auburn and Lewiston. All cities in Maine have local charters granted by the Maine Legislature that provide for a representative form of government - meaning they have a city council that serves as the legislative body. The city council is elected by and answerable to the citizens. The office of mayor varies considerably from city to city, with only a few acting as chief executive officer. Some mayors are elected by the vote of the people, while others are elected by a vote of their fellow councilors.

Lewiston and Auburn operate under a mayor/city council form of government; Auburn has a city manager while Lewiston has a city administrator.

Towns. There are twelve incorporated towns in Androscoggin County. Towns remain the cornerstone of local government. A Maine community becomes a town when it is incorporated by a special act of the legislature. At that time, it is given certain privileges and responsibilities. Maine operates under a “home rule” statute which provides its municipalities with a great deal of local autonomy. Under Home Rule, towns may take any action or change their form of government in any way not denied or precluded by state or federal law. The voters of the town constitute its legislative body.

Day-to-day governance of towns has expanded from the original board of selectmen concept to include town managers, town councils, budget committees, municipal departments and various professional managers. In a small number of mostly larger towns, the council exerts legislative control without a town meeting. In others, a ballot vote is used to approve the budget rather than the open town meeting.

All of the county’s towns operate with a town meeting; 10 of the towns have selectmen while Lisbon and Mechanic Falls have a town council. Many of the towns also have town managers.

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Population

Municipal Population (2010 Census)							
Androscoggin County pop. 103,793	Population	Land Area (Square Miles)	Population Density/Square Mile	Median Age	Total Housing Units	Occupied Housing Units	Average Household Size
Auburn	23,005	65	354	39.9	11,016	9,974	2.26
Durham	3,848	38.8	99	41.2	1,548	1,496	2.57
Greene	4,350	36.0	121	42.6	1,880	1,676	2.59
Leeds	2,326	42.4	55	41.3	1,018	895	2.60
Lewiston	36,592	36.8	994	37.4	16,731	15,267	2.26
Lisbon	9,009	23.8	378	39.4	3,948	3,696	2.43
Livermore	2,095	40.1	52	44.4	1,127	889	2.36
Livermore Falls	3,187	19.7	162	38.1	1,534	1,316	2.41
Mechanic Falls	3,031	11.4	266	39.8	1,299	1,206	2.50
Minot	2,607	31	84	42.3	1,056	1,001	2.59
Poland	5,376	49.7	108	43.4	2,679	2,140	2.49
Sabattus	4,876	27.1	180	42.0	2,121	1,979	2.46
Turner	5,734	62.3	92	41.1	2,481	2,193	2.61
Wales	1,616	18.3	88	38.7	652	587	2.75

Source: U.S. Census Bureau 2000 & 2010 <http://www.census.gov/>, and State of Maine <http://www.maine.gov/portal/index.php>.

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County Demographic Profile – Androscoggin County, Maine

Measure	2010	2000	1990
<i>Population</i>			
Total	107,702	103,793	105,259
White	92.8%	97%	98.5%
Black	3.6%	0.70%	0.4%
American Indian	0.4%	0.30%	0.2%
Asian	0.7%	0.60%	0.5%
Hispanic Origin	1.5%	1.0%	0.7%
Under 5 Years	6.4%	5.9%	7.4%
19 Years and under	25.4%	25.8%	29.1%
20 Years and over	74.6%	76.1%	70.9%
65 Years and over	6.1%	14.4%	13.4%
Female	51.1%	51.5%	51.6%
Male	48.9%	48.5%	48.4%
Median Age (Total Population)	39.8	37.2	32.8
Population Density (sq. mi.)	230	221	224
<i>Households</i>			
Total Households	44,315	42,028	40,077
Household Population	104,942	100,125	101,904
Average Household Size	2.37	2.38	2.55
Median Household Income	\$44,470	\$35,793	\$26,979
<i>Poverty Level</i>			
Persons Below Poverty (Over 18 Years) *1999	12.6%	7,626/11.1%	9.7%*
Children Below Poverty (Under 18 years) *1999 data	20.0%	3,294/11.0%	15.5%*

Source: U.S. Census Bureau 1990, 2000 & 2010 <http://www.census.gov/>

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Employment - Large Business

Top Private Employers in Androscoggin County by Average Monthly Employment 3rd Quarter 2016			
Rank	Name	Business Description	Employee Range
1	CENTRAL MAINE HEALTHCARE CORP	General medical and surgical hospitals	2,501 to 3,000
2	T D BANK N A	Commercial banking	1,501 to 2,000
3	ST MARY'S REGIONAL MEDICAL CTR	General medical and surgical hospitals	1,501 to 2,000
4	WAL MART / SAM'S CLUB	Warehouse clubs and supercenters	1,001 to 1,500
5	BATES COLLEGE	Colleges and universities	501 to 1,000
6	MURPHY HOMES INC, JOHN F	Residential developmental disability homes	501 to 1,000
7	L.L. BEAN, INC.	Mail order houses	501 to 1,000
8	PIONEER PLASTICS CORPORATION	Laminated plastics plate, sheet, and shapes	1 to 500
9	TAMBRANDS INC	Sanitary paper product manufacturing	1 to 500
10	P.S.T. SERVICES, INC.	Other accounting services	1 to 500
11	HANNAFORD BROS CO	Supermarkets and other grocery stores	1 to 500
12	PERRIER GROUP-POLAND SPRING	Bottled water manufacturing	1 to 500
13	BONNEY STAFFING CENTER INC	Temporary help services	1 to 500
14	DINGLEY PRESS LLC, THE	Commercial printing, except screen and books	1 to 500
15	CLOVER MANOR INC	Nursing care facilities, skilled nursing	1 to 500
16	ANDROSCOGGIN HOME CARE & HOSPICE	Home health care services	1 to 500
17	HARTT TRANSPORTATION SYSTEMS INC	General freight trucking, long-distance TL	1 to 500
18	SHAWS SUPERMARKETS INC	Supermarkets and other grocery stores	1 to 500
19	TRI COUNTY MENTAL HEALTH SERVICES	Outpatient mental health centers	1 to 500
20	CONFORM AUTOMOTIVE	Nonwoven fabric mills	1 to 500
21	CARBONITE INC	Other computer related services	1 to 500
22	HILLANDALE FARMS CONN LLC	Chicken egg production	1 to 500
23	GREAT FALLS MARKETING	Telemarketing and other contact centers	1 to 500
24	ALTERNATIVE SRVS-NORTHEAST INC	Residential developmental disability homes	1 to 500
25	LIBERTY MUTUAL GROUP INC	Direct property and casualty insurers	1 to 500

Source: Center for Workforce Research & Information

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Transportation

Highways. Androscoggin County is served by the Maine Turnpike, with exits in Lewiston, Auburn and Sabattus. Other major routes serving the area include Routes 11, 26, and 121 serving the western part of the county, Route 196 serving Lewiston/Auburn and providing connections to the Bath/Brunswick/Topsham area, Routes 126 and 202 serving the eastern towns and Route 4 serving the north. Route 4 also provides access from Franklin County to the Maine Turnpike.

Rail. Railroads were important to the early development of the area and still offer freight service. The St. Lawrence & Atlantic offers connections to Canada, and Pan Am links to the south.

Airports. The Auburn-Lewiston Municipal Airport supports local and regional general aviation, flight training, cargo, and a large volume of corporate activity. The airport has two runways: one 5,000 feet in length and one 2,750 feet in length. The airport is owned and operated jointly by the cities of Auburn and Lewiston.

Hazardous Material Routes. Hazardous materials are shipped all throughout the Androscoggin County region. Routes are monitored by the State, County, and towns and will not be discussed further in this plan.

History

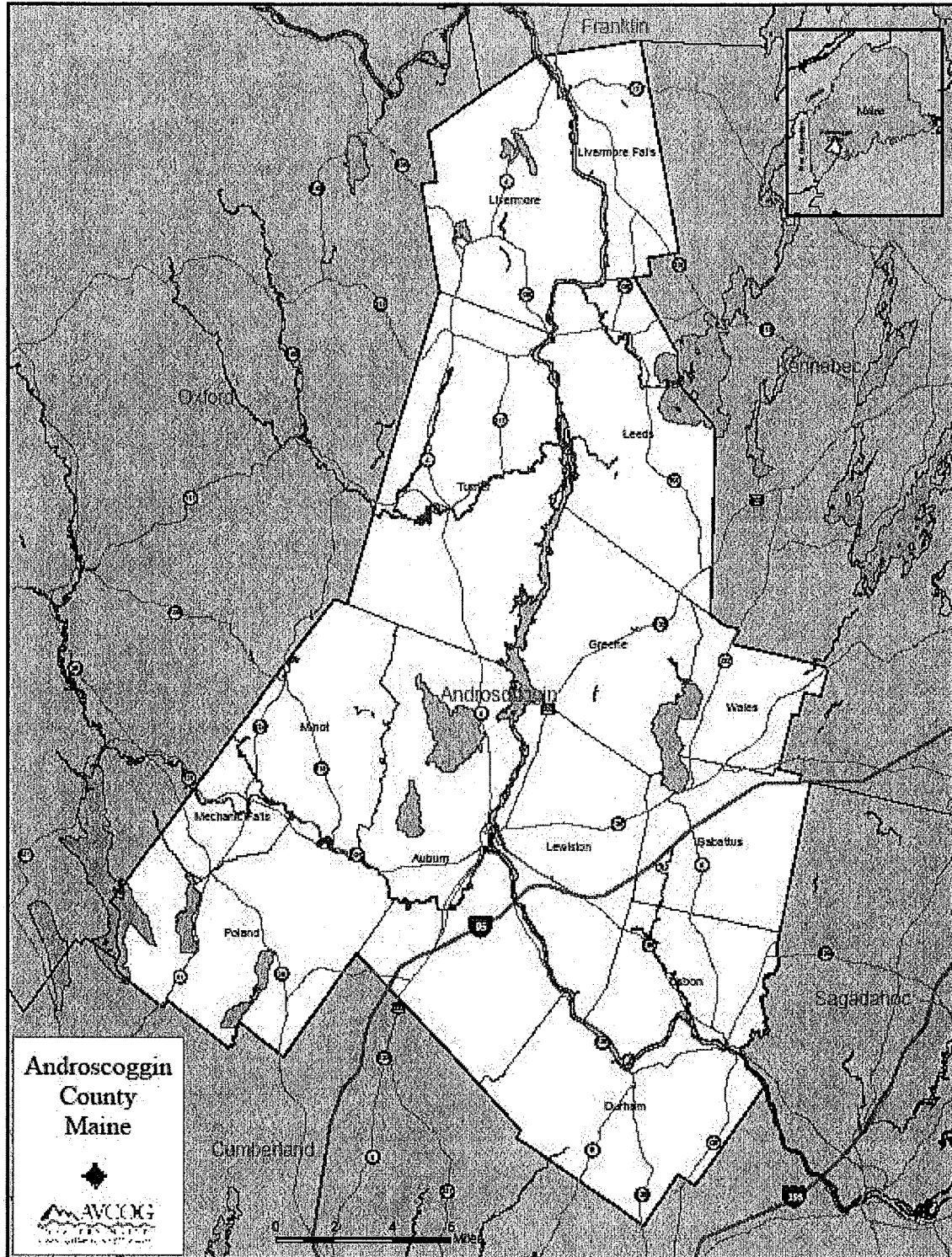
Androscoggin County was founded March 18, 1854. The county seat is located in the City of Auburn. County government in Maine has a somewhat limited role. Androscoggin County has seven county commissioners who oversee the operations of county government, which include sheriff, corrections, registry of deeds and emergency management.

The “twin cities” of Lewiston and Auburn developed during the industrial revolution of the early 1880's as the Androscoggin River could power the cities' factories. While some industrial development occurred in the other county towns, especially Lisbon, Livermore Falls and Mechanic Falls, they principally developed as agricultural and forestry communities.

While agriculture is less important today than in the past, several communities, including Turner and Auburn, still support an active farming environment. Much of the county's area remains wooded.

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Androscoggin County Map



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SECTION 2 - PREREQUISITES

Multi-Jurisdictional Plan Adoption

Requirement §201.6(c)(5):	For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.
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This is a multi-jurisdictional plan that includes the following cities and towns:

Auburn, City of
Durham, Town of
Greene, Town of
Leeds, Town of
Lewiston, City of
Lisbon, Town of
Livermore, Town of
Livermore Falls, Town of
Mechanic Falls, Town of
Minot, Town of
Poland, Town of
Sabattus, Town of
Turner, Town of
Wales, Town of

Their adoption resolutions are on the following pages:

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RESOLUTION OF ADOPTION

Whereas, natural and man-made disasters may occur at any time, we recognize that to lessen the impacts of these disasters we will save resources, property and lives in Androscoggin County.

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

And whereas, the 2 cities, and 12 towns, and Androscoggin County are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Androscoggin County Commissioners hereby adopt the Androscoggin County Hazard Mitigation Plan – 2017 Update, as does also each community through its Town Managers and Boards of Selectmen or City/Town Councilors.

AUTHORIZING SIGNATURES: Commissioners/City/Town – See the following pages

_____	_____	_____
	Position	Date
_____	_____	_____
	Position	Date
_____	_____	_____
	Position	Date
_____	_____	_____
	Position	Date
_____	_____	_____
	Position	Date

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SECTION 3 - PLANNING PROCESS

Multi-Jurisdictional Planning Participation

Requirement §201.6(a)(3) Multi-Jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process...Statewide plans will not be accepted as multi-jurisdictional plans.

The Androscoggin County Hazard Mitigation Plan 2017 Update was a multi-jurisdictional collaborative effort. The Hazard Mitigation Planning Steering Committee sought participants through town mailings, surveys, public meetings, the county website and emails.

A wide network of participants took part in planning efforts. Representatives in town government, road maintenance, emergency management, and fire safety all contributed to updating the Hazard Mitigation Plan.

Participants discussed county wide and town specific hazards and the probability and vulnerability of certain hazards. Groups also reviewed mitigation projects from the 2005 plan, new projects that have been added for the 2011 plan, and discussed any additional projects that were not already identified.

Additional participation was encouraged through phone and email correspondence for any recommendations/comments.

The Androscoggin Unified Emergency Management Agency contracted with Androscoggin Valley Council of Governments to prepare a plan update for the entire county, with specific town information as appropriate.

The Steering Committee provided expertise, data and assistance in preparing the plan; the following served on the Committee.

The Hazard Mitigation Planning Steering Committee consisted of the following representatives:

JoAnn Mooney	Maine Emergency Management Agency (MEMA)
Joanne Potvin	Director, Androscoggin Unified Emergency Management Agency (AUEMA)
Tim Bubier	Deputy Director, Androscoggin County AUEMA
Joan Walton, AICP	Regional Planner, AVCOG

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The Municipal Hazard Mitigation Planning Group representatives consisted of the following:

Name	Title	Municipality
William St. Michel	Chief of Fire & Rescue	Durham
Gildace Arsenault	Director of Planning & Code Enforcement Department	Lewiston
Richard Burnham	City Engineer	Lewiston
Ryan Leighton	Director of Public Works	Lisbon
Lisa Ward	Director of Emergency Management	Lisbon
Kristal Flagg	Town Manager	Livermore Falls
Ernest Steward, Jr.	Chief of Police	Livermore Falls
Arlan Saunders	Town Administrator	Minot
Wayne Cotterly	Director of Emergency Management	Poland

Additional Organizations and Agencies participated in the development and review of the Androscoggin County Hazard Mitigation Plan:

Androscoggin County Commissioners
 Maine Forest Service staff
 Floodplain Management Program staff in the Maine Department of Agriculture,
 Conservation and Forestry

Additionally, the following table indicates the jurisdictions that were part of the 2005 planning process as well as the revision processes during 2010 and 2017. An "X" indicates participation, though it may have been in a variety of forms such as the surveys, meetings, project identification or verification, or correspondence about the plan.

Jurisdictions	2005 Participation	2010 Participation	2017 Participation
Auburn	X	X	X
Durham	X	X	X
Greene	X	X	X
Leeds	X	X	X
Lewiston	X	X	X
Lisbon	X	X	X
Livermore	X	X	X
Livermore Falls	X	X	X
Mechanic Falls	X	X	X
Minot	X	X	X
Poland	X	X	X
Sabattus	X	X	X
Turner	X	X	X
Wales	X	X	X

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Participating Jurisdictions							
Municipality	Kick-Off Meeting/Risk Assessment Meeting (01/05/2017)	Project/Map Review Meeting (03/09/2017)	Final Review and Comment Meeting (**/**/2017)	Surveys	Email	Project Updates*	Map Changes
Auburn	✓	✓		✓	✓	PWD	Yes
Durham	✓	✓		✓	✓	RC	Yes
Greene				✓	✓	RC	No
Leeds				✓	✓	RC	No
Lewiston	✓	✓		✓	✓	CE	Yes
Lisbon	✓	✓		✓	✓	PWD	Yes
Livermore		✓		✓	✓	RC	No
Livermore Falls	✓	✓		✓	✓	TM	Yes
Minot	✓	✓		✓	✓	TM	Yes
Mechanic Falls	✓			✓	✓	TM	No
Poland	✓	✓		✓	✓	EMA	Yes
Sabattus	✓			✓	✓	RC	No
Turner				✓	✓	PWD	No
Wales				✓	✓	RC	No

*Updates were done by the following:

PWD = Public Works Director

RC = Road Commissioner

CE = City Engineer

TM = Town Manager/Town Administrator

EMA = EMA Director

SB = Select Board

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Documentation of the Planning Process

Requirement § 201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (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
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Requirement §201.6(c)(1): 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.

Because this is a multi-jurisdictional plan, and all meetings were open to the public, neighboring communities were involved in the update process from the outset. To update the Hazard Mitigation Plan, the county first sent out a survey to all its towns. During meetings, the group reviewed and analyzed each section of the plan, with emphasis on hazards and assessed risks. The 2011 Androscoggin County Hazard Mitigation Plan was referenced, hazard mitigation projects were reviewed and updated, and new projects were added accordingly. Review also included reference to the 2013 State of Maine Hazard Mitigation Plan.

Information about the planning process was made via emails, municipal mailings and the county website. Androscoggin County Unified EMA continued to solicit input through meetings and calls or emails to jurisdictions were not able to attend meetings.

Pre-Kickoff Meeting 01/05/2017: A pre-kickoff meeting was held in January between MEMA, Androscoggin Unified EMA, and AVCOG. The group discussed needed updates to the current county map detailing critical services. AVCOG planned on supplying those to Androscoggin Unified EMA for their review. Androscoggin EMA had emailed towns about upcoming kickoff meetings and written a letter to towns discussing hazards, basic information and losses.

Kick-off Meeting 01/05/2017:

Androscoggin Unified EMA mailed letters to towns explaining that the 2011 Hazard Mitigation Plan for Androscoggin County is federally required to be updated every 5 years for towns to remain eligible for Hazard Mitigation Grant Program (HMGP) opportunities. The letter outlined an upcoming kick-off meeting.

Towns were asked to help inform the public of these meetings and the planning process. The meeting was held from 6:00 pm to 8:00 pm and was open to all towns in the county. The meeting was held in Lewiston at the Androscoggin Unified Emergency Management Office which is centrally located to all the communities in Androscoggin.

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Topics Discussed:

1. Androscoggin Unified EMA Director and MEMA began the meeting discussing Hazard Mitigation Plan updates and eligible projects.
2. MEMA gave a brief PowerPoint presentation on typical mitigation projects, especially ones that had been completed in the towns of Minot, Mechanic Falls and Turner.
3. AVCOG outlined:
 - a. Sections (1-6) and the timeframe for completing the updating process
 - b. Discussing the need for the county/towns to update the 2011 Androscoggin County Hazard Mitigation Plan every five years to remain eligible for grant assistance.
 - c. The necessary steps for individual towns in reviewing hazards and identifying mitigation projects.
 - d. Hazards classification and identification
 - e. Past hazard related planning per town
 - f. Project eligibility
 - g. New projects, maps
4. The meeting emphasized that towns need to determine which projects have been completed, those that need to be revisited, and those which are new.
5. The towns discussed and agreed that the typical hazards profiled in the last plan should be continued in this update.
6. Towns were told they would discuss old and new mitigation project revisions at the next meeting.

HANDOUTS INCLUDED:

1. **Identifying Hazards and Assessing Vulnerability**
2. **Sample pages showing some updated occurrence tables**
3. **Prioritized County Mitigation Actions Projects in Androscoggin County (2011) Mitigation Projects lists for the Androscoggin County municipalities to update**

MEETING		
	ATTENDEES	TOWNS
January 5, 2017 (Androscoggin Unified Emergency Management Agency Office)	13	Auburn, Durham, Lewiston, Lisbon, Livermore Falls, Mechanic Falls, Minot, Poland and Sabattus

Hazard Mitigation Plan Update – Meeting March 9, 2017:

A meeting was held at the Androscoggin Unified Emergency Management Agency Office. The group reviewed old and new mitigation projects. Municipal-specific critical facilities maps were handed out for possible corrections and/or clarifications.

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Topics:

1. Meeting began with:
 - a. Identifying mitigation projects (old and new; completed, deferred or added).
 - b. Map corrections (town specific critical facilities map)
2. Municipal representatives determined that there are no changes to previous hazard classifications and discussed the 2016 drought conditions as they related to firefighting capacities.
3. Municipal representatives provided information pertaining to any hazard planning in their communities (Comprehensive Plans, building codes, CRS, Floodplain Ordinances, Flood Insurance)
4. Municipal representatives determined which projects have been completed, those that are in progress, and those which are new. There was discussion about breaking expensive or complicated projects into more manageable units.

HANDOUTS INCLUDED:

1. **Critical Facilities Map for each town.**

MEETING	ATTENDEES	TOWNS
March 9, 2017 Androscoggin Unified Emergency Management Agency Office	11	Auburn, Durham, Lewiston, Livermore, Livermore Falls, Lisbon, Minot, Poland

Prior to the Plan being sent to FEMA for review and conditional approval pending adoption, a final review and comment meeting was held on February 15, 2018 Androscoggin Unified Emergency Management Agency Office. Prior to the meeting, the updated sections of the plan were posted to the county website. To make it easy for readers to recognize changes from the previous plan, new information was in red font, outdated information was struck out and content that would be kept was still in black font.

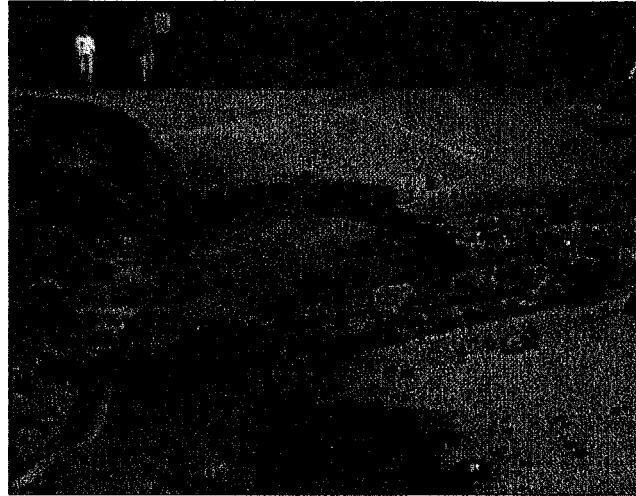
Notice of this meeting was also on the county website and through the Great Falls TV cable channel. The public had the options of attending in person or providing their comments to the EMA office. (Until the meeting occurs, we will not know if there are any additional comments to make to the plan or this section.)

Aside from updates to the project list in the Strategy Section, Androscoggin County did not receive comments following the final review and comment meeting.

After the final review and comments the updated plan was sent to MEMA for final review prior to requesting FEMA review and approval. The plan adoption process will occur after FEMA's conditional approval.

SECTION 4 - RISK ASSESSMENT

It is essential in any natural hazard mitigation plan to identify the hazards that exist in the town or multi-town region and to assess the vulnerability of the communities to the particular hazard. This is known as the hazard identification and vulnerability analysis process.



Source: Minot Flash Flood event WMTW channel 8 video clip images, August 2008

Identifying Hazards

Requirement §201.6(c)(2)(i): The plan shall include a description of the type, location and extent of all natural hazards that can affect the jurisdiction.

During update meetings in 2017, participating towns discussed hazards that face their community. Because of severe drought conditions in Androscoggin County in 2016, the risks associated with future droughts and resulting impacts on Androscoggin County communities were discussed as a possible addition to the hazard profiles. See scoring on the next page. The major impacts of drought are loss of fire protection capacity due to low water levels and wildfire potential. The following table has been updated to address Androscoggin County's vulnerability to that hazard and the probability that each hazard will occur in the future.

The following hazards will be examined in detail in this mitigation plan: Flood/Dam Failure, Severe Winter Storm, Severe Summer Storm, and Wildfire. A determination that these are the most significant hazards in Androscoggin County was made through personal communication and by reviewing plans, data, reports, and records. While several hazards have a high likelihood of occurring, the other factors of the hazard/vulnerability analysis relegate them to non-significant/lower priority hazards.

Key to Rating:

- 3 **Severe:** **Multiple deaths, mass casualties, or millions of dollars in damages**
- 2.5 **High:** **Deaths or injuries; or \$100,000s in damages**
- 2 **Moderate:** **Single death or several injuries; or \$10,000s in damages**
- 1.5 **Low:** **Injuries; or \$1,000s in damages**
- 1 **Slight:** **No deaths, single injury; or \$100s in damages**

- A. **Very Likely**
- B. **Possible**
- C. **Very Unlikely**

Type of Hazard	Potential Damages	Source of Information	Rating	Priority
Avalanche	Low	In the northeast, only the Mt. Washington region of New Hampshire has the snowfall, wind conditions, slope and elevation to support regular occurrences. (www.avalanche.org)	1C	12
Coastal Erosion	N/A	Androscoggin County does not have any coast line.	N/A	N/A
Coastal Storm	N/A	Androscoggin County does not have any coast line.	N/A	N/A
Drought	Moderate	Much of Maine, including Androscoggin County, experienced a drought from 1999 through 2003, and in 2016. Since the 2016 drought was of short duration, it was decided not to profile that hazard in this update.	2C	5
Earthquake	Low	The Maine Geological Survey rates the entire state of Maine as a moderate risk for earthquake.	1.5C	7
Expansive Soils	Low	Some of Androscoggin County’s soils have moderate shrink/swell potential; however, these soils tend to be in low lying areas where development potential is limited, primarily by high water table. All other soils have low shrink/swell potential. (<u>Soil Survey of Androscoggin and Sagadahoc Counties, Maine, USDA, SCS, November 1970</u>)	1C	11
Flood (includes potential dam failure)	High	The last major flooding on the Androscoggin and Little Androscoggin rivers was in 2009, while the flood of record for both occurred in 1936. There are over 40 dams in Androscoggin County, 2 of which have a High hazard potential and 5 of which have a Significant hazard potential.	3A	1

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Hurricane/ Windstorm	Moderate	<p>During the 20th Century, there have been at least 7 tropical storms/hurricanes; the most recent were severe storms in 2011 having caused damage throughout Androscoggin County. Most damage is from flooding due to heavy rain. Power outages have been widespread, often from tree limbs falling on power lines.</p> <p>Windstorm damage is usually limited to power outages and minor structural damage from falling tree limbs and flooding from heavy rain.</p>	1.5B	6
Landslide	Low	<p>Androscoggin County is generally underlain by bedrock rather than unstable clay like marine soils. Maine Geological Survey indicates that most landslides are likely to occur in coastal communities. (www.state.me.us/mema) (www.state.me.us/doc/nrimc/mgs/mgs.htm)</p>	1C	9
Severe Summer Storm/ Extreme Heat	Moderate	<p>Excessive rainfall amounts over relatively small areas results in high stream flows and localized flooding resulting in excessive erosion and potentially damaging stream channels, culverts, bridges, roads and utilities. “A violent weather phenomenon producing winds, heavy rains, lightning, and hail that causes injuries damages/destroys property, crops, and/or livestock.” (http://www.maine.gov/mema/prepare/prep_history.shtml MEMA, 2009).</p> <p>While the climate in Androscoggin County is generally temperate, summer temperatures have occasionally exceeded 100°F. “In extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature... Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat.” (http://www.fema.gov/hazard/heat/index.shtml FEMA, 2010).</p>	3B	3
Severe Winter Storm/ Hailstorm	High	<p>Androscoggin County experienced a declared blizzard in January 2015 (DR-4208), with more than two-feet of snow falling in some communities.</p> <p>Androscoggin County experiences a severe winter storm almost every year. The 1998 Ice Storm resulted in more than \$3 M in damages. Freezing conditions may endanger resident health and safety.</p> <p>Although more than 20 hailstorms have been reported since 1950, there have been no injuries or quantified property or crop damage.</p>	3A	2
Subsidence	Low	<p>The bedrock underlying Androscoggin County is predominately granitic and unlikely to be affected by significant withdrawal of water.</p>	1C	10
Tornado	Low	<p>Androscoggin County has experienced 4 tornadoes since 1950, with one injury reported. Androscoggin County experienced one F2 tornado in 1971. The most recent tornado, in 1988, caused minor damage to homes in Hill View Trailer Park in Turner and damaged a small airplane at Twitchell’s Airport in Turner.</p>	1B	8
Tsunami	N/A	<p>The minimum elevation of land in Androscoggin County is approximately 60 feet above mean sea level, well above the level of any tsunami. The County’s proximity (or lack thereof) to coastline precludes this phenomenon from affecting this County.</p>	N/A	N/A

Volcano	N/A	There are no known volcanoes in Androscoggin County.	N/A	N/A
Wildfire/ Urban fire	Moderate	Maine experienced devastating fires in 1947, with some minor fires in Androscoggin County. Between Aug.1 & Sept. 12, 2002, there were more than 220 fires in Maine during the height of the drought. (Lewiston Sun Journal, Sept. 12, 2002)	2B	4

Profiling Hazards

Requirement (201.6(c)(2)(i): 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.

The top 4 hazards are detailed below:

Summary of Hazards Profiled in this Plan		
Hazard	How Identified	Why Identified
Flooding	Maine State Hazard Mitigation Plan – 2013 Update, local historic data, residents.	Flooding can occur anytime throughout the year in Androscoggin County, and can range from events such as excessive summer/autumn rains, excessive spring rains coupled with snowmelt runoff to ice jams in the winter.
Severe Summer Storm	Maine State Hazard Mitigation Plan – 2013 Update, local historic data, residents.	Androscoggin County generally has experienced at least one severe summer storm annually with additional storms becoming more frequent.
Severe Winter Storm	Maine State Hazard Mitigation Plan – 2013 Update, local historic data, residents.	Androscoggin County generally experiences at least one severe winter storm annually.
Wildfire	Maine State Hazard Mitigation Plan – 2013 Update, local historic data, residents.	New building construction without buffer zones poses potentially dangerous situations. Blow-downs from severe wind storms or ice storms accumulate on forest floors and until decomposed, can create highly ignitable debris.

Flooding



Source: Minot Flash Flood event WMTW channel 8 video clip images, August 2008

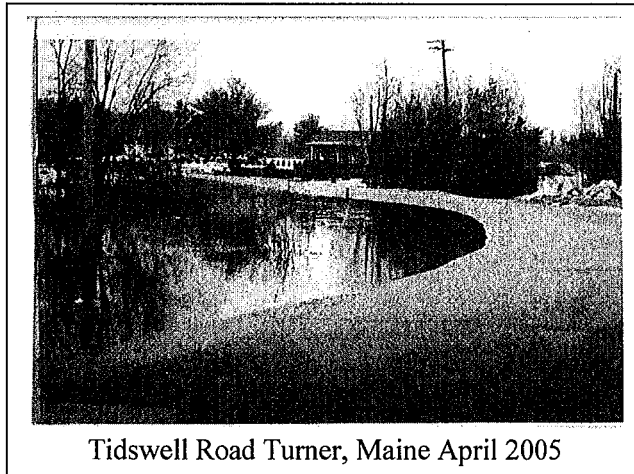
General Definition: a temporary overflow of water onto lands not commonly covered by water. Flooding is the most frequent natural hazard in Androscoggin County.

Types of Flooding in Androscoggin County: There are several types of potential flooding in Androscoggin County.

- **Dam Failure:** Dam failure is the spontaneous release of water from the loss of structural integrity of a barrier constructed to hold back the flow of water causing rapid flooding, loss of life, and damage or destruction of property as well as the forced evacuation of people and essential resources.
- **Flash Flood:** Several inches of rain occurs over a short period of time.
- **Ice Jam:** A buildup of snow and ice occur at a section(s) along a river which results in water to overflow its banks upstream. A sudden release of an ice jam downstream also results in an abundance of water downstream. Large masses of floating ice debris may cause destruction in its wake resulting in structural damage, loss of vegetation or bodily injury.
- **Riverine/Riparian:** Spring runoff and excessive rainfall may cause river banks to overflow and erode. Erosion not only leads to loss of property along waterways but sedimentation deposits affect aquatic species.
- **Urban:** “Overflow of storm sewer systems, usually due to poor drainage, following heavy rain or rapid snowmelt. The combined sanitary and storm water systems that some urban areas installed years ago cause flooding of sanitary sewerage when riparian floods occur. Runoff is increased due to a large amount of impervious surfaces such as roof tops, sidewalks and paved streets” (State of Maine Hazard Mitigation Plan, MEMA, 2007).

A.Location:

Flooding, or a temporary overflow of water onto lands not commonly covered by water, is the most frequent natural hazard in Androscoggin County. Flooding may result from snow melt combined with steady rain when major rivers overtop their banks, or it may be flash flooding when several inches of rain occur over a short period of time. Both types of flooding occur in Androscoggin County.



Tidswell Road Turner, Maine April 2005

Under the right climatic conditions, ice jams can form on some Androscoggin County rivers. The ice acts as a dam, causing backwater flooding. Damage can also occur when the jam lets go. Jams tend to occur where there is a flattening of the river slope and/or an obstruction in the river¹.

The chance of dam failure is greater during flood events particularly when coupled with ice jams. There are more than 40 dams in Androscoggin County. These range in size from small privately owned dams on many ponds to Gulf Island Dam which creates an impoundment 14 miles long with a surface area of 2,862 acres.

A dam's hazard rating determines responsibilities of the dam owner and situational awareness on the part of downstream residents and businesses. Dam owners with "high" or "significant" potential hazard ratings must produce an emergency action plan (EAP) and forward it to MEMA for compliance with the law. The primary purpose of the EAP is to alert and warn potentially affected residents and businesses in the "call down area" when there is an "imminent" or actual breach. Copies are kept by the owner, relevant local, county and state agencies and must be updated every two years. See definition excerpts from the Dam Safety Law in the table below:

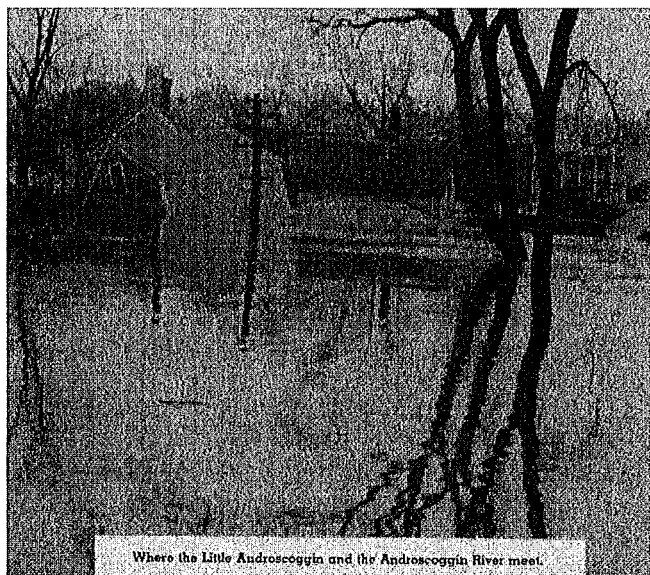
Hazard Ratings	Excerpts from Dam Safety Law Definition
High	"...will probably cause loss of human life;"
Significant	"...no probable loss of human life but can cause major economic loss..."
Low	"...no probable loss of human life and low economic...losses"

¹United States Army Corps of Engineers, Historical Ice Jam Flooding in Maine, New Hampshire and Vermont, October 1980.

Dam Name	Dam	Hazard Rating	Location	River
Gulf Island	Next Era Energy	High	Auburn - Lewiston	Androscoggin
Deer Rips	Next Era Energy	High	Auburn - Lewiston	Androscoggin
Upper Dam	Max Miller & Co., Inc.	Significant	Lisbon Falls	Sabattus
Livermore Falls Mill	International Paper Co.	Significant	Livermore Falls	Androscoggin
Estes Bog	Consolidated Hydro Maine,	Significant	Poland	Coyne Brook
Sleeper	Town of Sabattus	Significant	Sabattus	Sabattus
Nezinscot	Town of Turner	Significant	Turner	Nezinscot

B.Extent:

Although the State Plan highlights 1987 as the worst flood of record in Maine, the floods of record for Androscoggin County are 1936, which took houses down river, and 1987.



“Fifty News Pictures of Maine’s Greatest Flood.” The Lewiston Daily Sun and the Lewiston Evening Journal, March 12-23, 1936.

Flood damages to roads, bridges and ditches continue to be the most common occurrence throughout Androscoggin County, especially in heavy rain events (> 3-5” in 24 hours). Depending on the saturation level of the ground at the time of the event, and the duration of the storm, the

extent of damages can vary from a few overwhelmed culverts to major road washouts throughout the county. Note the range in severity of flooding events on page 4-12.

The Androscoggin River, which traverses and divides the county, is the major river of concern. Other important rivers are the Little Androscoggin, in the west, the Nezinscot, in the north, and the Sabattus. These major rivers have experienced major flooding events over the past 100 years. Many smaller brooks and streams have also flooded; while flooding on these streams may be less catastrophic, it may occur more frequently. In addition to spring floods, heavy summer rains and fall tropical storms can result in localized flooding.

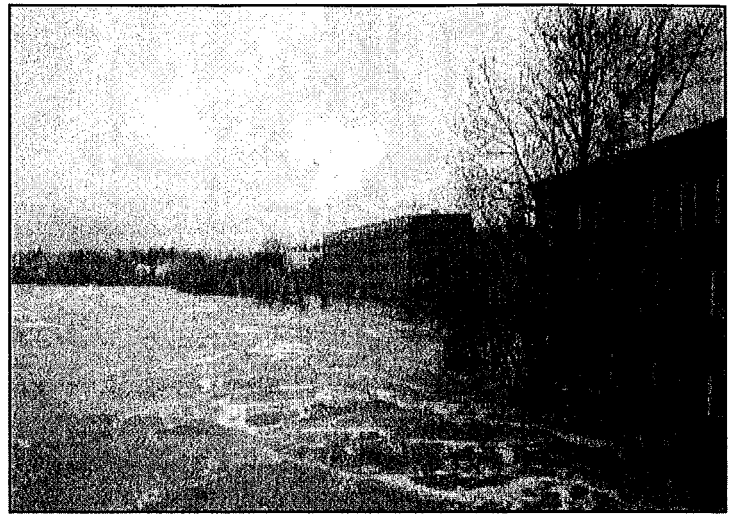
A dam breaching event can occur spontaneously with little time to warn persons and communities down river. With the renewed interest in dam safety and the enactment of dam safety inspections to detect structural problems in 1997, warning times have increased significantly. Regarding the possibility of flooding from dam failure, MRS Title 37-B, Chapter 24, also known as Maine's Dam Safety Law, classifies dams into three hazard potential ratings: high, significant and low. High and significant hazard rated dams are inspected every six years. According to Maine law, dams having a high and significant hazard rating classification are required to have an Emergency Action Plan that includes notification procedures for warning downstream communities and populations of impending flash flooding. Accordingly, there are seven EAPs that must be updated every two years to remain compliant. Based on the EAP for Gulf Island Dam, a breach of this dam could impact parts of Lewiston, Auburn, Lisbon and Durham in Androscoggin County.

Androscoggin River:

The Androscoggin River has drained some 2,900 square miles as it enters Androscoggin County at Livermore/Livermore Falls. The river then forms a municipal boundary as it traverses the county. The river has a highly regulated flow management system. Several headwater lakes are manipulated to store water during periods of high runoff and to release water to the river system during periods of low runoff. This flow management system was established to enhance the river's suitability for power production and manufacturing processes and to reduce flooding conditions. Through flow regulation, spring flows are reduced and summer flows are increased significantly above what would naturally occur.

Before the damming and industrialization of the Androscoggin River, it was a rough and rugged water system. With an average drop of eight feet per mile, it was a raging torrent during periods of high runoff. At times of minimal runoff, the river resembled a brook at various points along its path to Merrymeeting Bay, a tidal estuary.

Flooding of the Androscoggin generally occurs in the spring; several factors are needed to create significant flooding, including heavy rain, high water content of the snow pack and deep frost. Ice can be a major hazard during spring runoff, creating higher floodwaters and potential damage to bridges and other structures. Major flooding has occurred on the Androscoggin since earliest recording in 1896, the March 1936 flood is considered the flood of record, with a maximum flow of 135,000 cfs in Auburn.



1987 Flood, Roak Block, Auburn, ME.

Although the floodplain is not extensive, it does include some of the older, developed portions of Lewiston, Auburn, Lisbon and Livermore Falls. Parts of Turner, Livermore and Durham can also be affected by flooding from the Androscoggin. Flooding along the Androscoggin causes both structural and infrastructure damage.



Flooded Roadway Turkey Lane Road Livermore, ME April 2005

In Auburn, structure and infrastructure damage as the result of a major flood typically occurs along North River Road and Main Street. Damages occur to public roads as well as several commercial and residential structures. Downtown Auburn below the Longley Bridge in the area of Miller and Main Street would be flooded in a major flood event. This area contains primarily commercial buildings. In New Auburn, the residential Newbury Street neighborhood would also suffer damage. In addition, First and Second Streets and Riverside Drive areas, which contain a mixture of commercial and residential structures, would be damaged.

There are approximately 150 residential and 40 non-residential structures located in the floodplains of Lewiston. Potential structural and infrastructure damage from major flood waters on the Lewiston side of the Androscoggin occur in three primary locations: the Tall Pines Drive area where multi-family development is located; businesses located south of the Longley Bridge; and sections of Lincoln, River, and Cedar Streets which contain both business and residential structures.

The South Bridge was destroyed by flooding in 1896 and again in 1936 after which a higher structure was built. In the 1953 flood, the North Bridge was closed for several hours.

In Durham, the areas that are vulnerable to flooding and/or have had repeated flood damage are Cedar Pond Road, Meadow Road, Pinkham Brook Road, Rabbit Road, Royalsborough Road, Runaraound Pond Road, Snow Road, Soper Road and Swamp Road.

In Lisbon, the areas that are vulnerable to flooding and/or have had repeated flood damage are Burrough Road adjacent to Bridge #0016, Ferry Road and several stream crossings, River Road near Route 196, Crest Avenue, and Davis Street.

In Livermore Falls, Foundry Road has suffered the most flood damage, including damage in 1987 to the water pollution control facility. Searles Street, Upper Depot Street and the Norris Bridge in East Livermore are vulnerable to flooding and/or have had repeated flood damage.

Little Androscoggin River:

Damaging floods have been recorded in the Little Androscoggin River basin as early as 1855. In Auburn, the 1936 flood had an estimated discharge of 16,800 cfs. This compares to 16,500 cfs in the 1953 flood and 14,400 cfs in 1987. Each of these floods had a recurrence interval of greater than 100 years. In Auburn, the principal areas of potential structural damage from flooding of the Little Androscoggin River are near Washington Street and in New Auburn near its confluence with the Androscoggin River. In these locations, commercial and residential structures are located in the floodplain. There is also potential for flooding in Mechanic Falls, particularly on Highland Avenue and Riverside Drive, Bucknam Bridge Road in Minot, and in Poland.

Nezinscot River:

The Nezinscot River forms in Androscoggin County in two branches; the east branch forms the boundary between the towns of Sumner and Hartford. In Turner, Martin Stream, known to have frequent flooding, joins the river. A gage at Turner Center has been operating since 1941, recording flows from the 169 square mile drainage area. On April 1, 1987, the flow of 11,000 cfs was about 80% of the highest recorded on March 27, 1953, the flood of record on this river. There is the potential for damage to some development in Turner Village, particularly on School House Hill Road.

Sabattus River:

The Sabattus River flows out of Sabattus Pond, in the south central part of Androscoggin County, and flows southerly where it enters the Androscoggin River in Lisbon. There are no flow records for this river; however, the surface area of the pond is likely to dampen flows in this watershed. One dam along the river was also constructed for flood control. There is potential for damage in Lisbon, where the river is quite close to Route 196, along Mill Street, and where the river crosses Route 196 and the railroad tracks before joining the Androscoggin.



Webster Corner Road Sabattus, ME

C.Previous Occurrences:

Historical Summary of Flooding Events in Androscoggin County				
Year	Month	Day	Declaration	Declaration Number
1896	March	2	N/A	N/A
1936	March	11-23	N/A	N/A
1953	March	27-30	N/A	N/A
1977	March	20	N/A	N/A
1984	June	5/31 to 6/2	N/A	N/A
1986	January	27-29	N/A	N/A
1987	April	1 (“April Fool’s Storm”)	Presidential	FEMA-788-DR-ME
1989	May-July	5/12 to 7/27	Presidential	FEMA-830-DR-ME
1992	March	27	Presidential	FEMA-940-DR-ME
1993	April	“Easter Flood”	Presidential	FEMA-988-DR-ME
1996	January-February	1/19 to 2/6	Presidential	FEMA-1106-DR-ME
1996	April	16-17	Presidential	FEMA-1114-DR-ME (addendum to 1106)
1998	January	1/9 to 1/23	Presidential	FEMA-1198-DR-ME
1998	June	12-21	Presidential	FEMA-1232-DR-ME
2000	March-April	3/28 to 4/26	Presidential	FEMA-1326-DR-ME
2003	December-June	12/17/02 to 6/1/03	Presidential	FEMA-1468-DR-ME
2005	March-May	3/28 to 5/3	Presidential	FEMA-1591-DR-ME

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2005	March	11-12	Presidential	FEMA-3210-DR-MR
2007	April	4/5 to 4/23	Presidential	FEMA-1693-DR-ME
2008	July-August	7/18 to 8/16	Presidential	FEMA-1788-DR-ME
2009	December	12/11 to 12/27	Presidential	FEMA-1815-DR-ME

(Source: <http://www.fema.gov/femaNews/disasterSearch.do> FEMA, 2016 and State Hazard Mitigation Plan – 2013 Update)

Note: Androscoggin County has not had a Disaster Declaration for flooding since 2008.

There are 189 residential and non-residential policies in effect in Androscoggin County. The breakdown by municipality is:

Flood Insurance Policies as of May 31, 2017						
Community	Single Family	2-4 Family	Other Residential	Total Residential	Non-Residential	Total Policies in Effect
Auburn	55	9	4	68	24	92
Durham	5	0	0	0	0	5
Greene	7	0	0	0	0	7
Leeds	6	0	0	0	0	6
Lewiston	11	6	7	24	11	35
Lisbon	13	1	0	14	1	15
Livermore	4	0	0	4	0	4
Livermore Falls	1	0	0	0	1	2
Mechanic Falls	7	1	0	8	0	8
Minot	1	0	0	1	0	1
Poland	10	0	0	10	0	10
Sabattus	2	0	0	2	2	4
Turner	19	1	0	20	1	21
Wales	1	0	0	1	0	1

The following table details the number of claims by property type for each municipality in Androscoggin County:

Androscoggin County Flood Insurance Claims Data – as of August 8, 2017						
Community	Single Family	2-4 Family	Other Residential	Total Residential	Non-Residential	Total # of Claims
Auburn	29	10	6	45	14	59
Durham	3	0	0	3	1	4
Greene	5	0	0	5	0	5
Leeds	2	0	0	2	0	2
Lewiston	13	7	2	22	2	24
Lisbon	0	0	0	0	3	3
Livermore	2	0	0	2	0	2

Livermore Falls	3	0	0	3	0	3
Mechanic Falls	5	0	0	5	0	5
Minot	1	0	0	1	0	1
Poland	0	0	0	0	0	0
Sabattus	1	0	0	1	0	1
Turner	9	0	0	9	0	9
Wales	2	0	0	2	0	2

(Source: Floodplain Management Program in the Maine Department of Agriculture, Conservation and Forestry)

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D.Probability of Future Events:

Floods are described in local flood hazard studies in terms of their extent, including the horizontal area affected, and the related probability of occurrence. Flood studies use historical records to determine the probability of occurrence for different extents of flooding. The most widely adopted design and regulatory standard for floods in the United States is the 1-percent annual chance flood and this is the standard formally adopted by FEMA. The 1-percent annual flood, also known as the base flood, has a 1 percent chance of happening in any particular year. It is also referred to as the “100-year flood.” The probability of flooding of homes, commercial and governmental buildings and critical facilities located in flood-prone areas is 1% in any given year.

Dam failure risk. Maine dams were constructed incrementally over a period of 300 years. Businesses harnessed the abundant fast flowing rivers and rocky rapids for the development of energy and transportation. Many dams throughout the country are now aged, and in Maine the majority of these structures are nearly 100 years old and beyond the normal design life of civil engineering works. Many are low head dams constructed using local materials of stone, timber and earth.

Since Gulf Island and Deer Rips are high hazard dams, Lewiston-Auburn would be most at risk from a breach since release of such large impoundments could cause loss of life. Per the table, and classification of the significant hazard dams on page 4-6, the towns of Lisbon, Livermore Falls, Poland, Sabattus and Turner could expect infrastructure damages, especially to downstream roads and bridges if their dams were to breach.

(Severe) Winter Storms

General Definition. Extreme ice and snow events which may be accompanied by below-freezing temperatures.

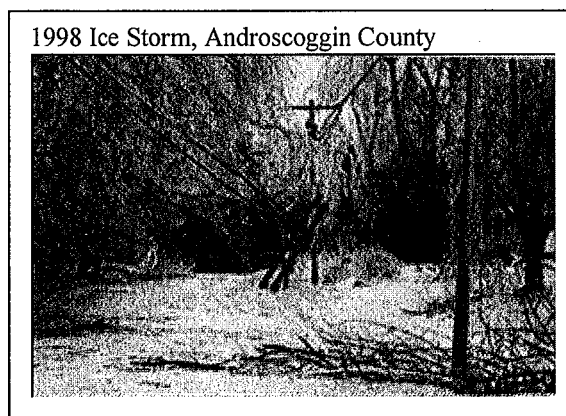
Types of Winter Storms. Blizzards, sleet, and ice storms can threaten Androscoggin County at any time from December through April. The climate of Androscoggin County is classified as Humid Continental with cool summers. Minimum winter temperatures may drop to -20 or -30° F. However, daytime temperatures generally range from 0° to 30° F. Annual snowfall averages some 78 inches, with the greatest amounts falling in January and February.

- **Blizzard:** Snow and strong winds lasting 12 -24 hours, with some dropping snow for up to 72 hours. Blizzards create poor visibility and dangerous wind chill.
- **Sleet:** Rain which turns to ice before reaching the ground causing potentially dangerous road travel.
- **Ice:** Freezing conditions due to an ice/snow mix creating dangerous situations for travel and survival due to power outages for heat and food preparation.

A.Location:

All of Androscoggin County is subject to severe winter storms. The most recent severe winter storm to receive a presidential declaration was the January 26-28, 2015 blizzard.

The most recent catastrophic winter storm to hit Androscoggin County was the Ice Storm of January 1998. More than 1½ inches of ice collected on utility lines, causing them to break from the weight of the ice or to be broken by ice-laden trees falling across them. Outlying areas of Androscoggin County were without electricity for more than 2 weeks. The costs of the Ice Storm of 1998 were substantial. Utility companies from Maine and throughout the East Coast worked around the clock to clear downed trees and replace power lines. Many area residents were unable to reach their places of employment forcing their employers to close. Federal disaster reimbursement to county communities and public service agencies topped \$3.2 million.



Blizzards carry with them their own problems. Lasting from 12 to 24 hours, with some dropping snow for up to 72 hours, blizzards often interrupt electrical and telephone service and cause roads to become impassible as the result of snow accumulation and drifting. Business closings can occur due to road conditions and loss of power. Structural failures are possible as the result of snow loads on roofs. This is of particular concern in communities such as Auburn, Lewiston,

Lisbon, Livermore Falls and Mechanic Falls because they contain many older structures constructed prior to snow load design standards. Heavy snow loads can also result in formation of ice dams on roofs, resulting in leakage and damage to building interiors.

Municipal Survey – Location of Areas Susceptible to Severe Winter Storms. The following is a summary of areas that have been identified as being vulnerable to severe winter storms:

- Auburn – citywide, anywhere next to the Androscoggin River and the Little Androscoggin River is subject to ice jams
- Durham – townwide
- Lewiston – rural areas
- Minot – Death Valley Road
- Poland – power outages mostly on private camp roads

B. Extent:

Blizzards, sleet, and ice storms can threaten Androscoggin County at any time from December through April. In addition to the ice storm of January 1998, Presidential Disasters were declared as a result of snow and extreme winter weather in and 2013, with the most recent in 2015.

Blizzards can last from 12 to 24 hours, with some dropping snow for up to 72 hours with depths measured in feet rather than inches.

C. Impacts

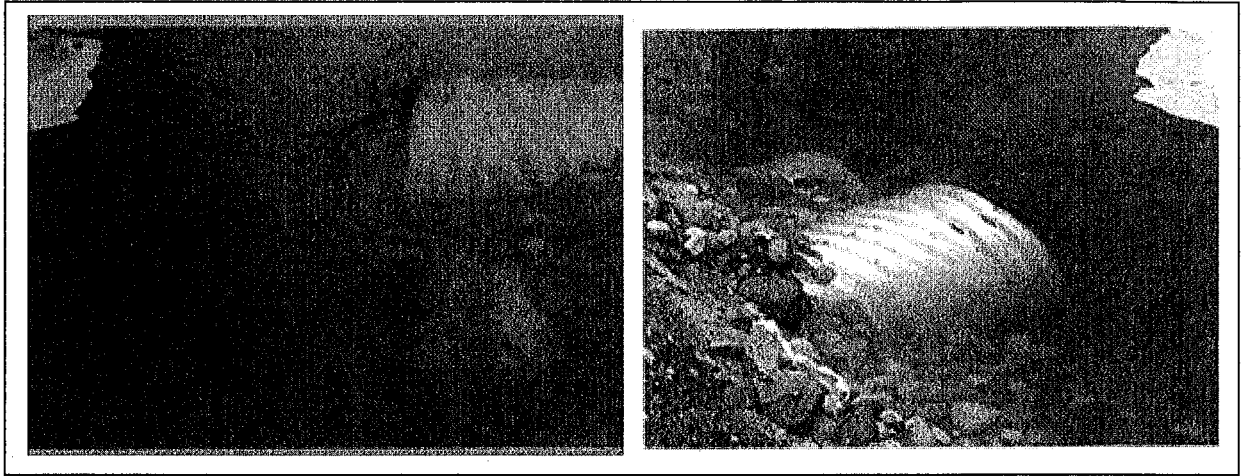
Blizzards often interrupt electrical and telephone service and cause roads to become impassible as the result of snow accumulation and drifting. Business closings can occur due to road conditions and loss of power. Structural failures are possible as the result of snow loads on roofs. This is of particular concern in communities such as Auburn, Lewiston, Lisbon, Livermore Falls and Mechanic Falls because they contain many older structures constructed prior to snow load design standards. Heavy snow loads can also result in formation of ice dams on roofs, resulting in leakage and damage to building interiors.

D. Previous Occurrences:

Historical Summary of Major Winter Storms in Androscoggin County				
Year	Month	Day	Description	Declaration Number
1993	March	13-14	Blizzard with severe winds and snowfall	EM-3099
1998	January	5-25	“Great Ice Storm of ‘98”; major power outages, forestry damage	DR-1198
2001	March	5-31	Severe winter storm and flooding	EM-3164
2002-3	Dec. 17-June 1	14	Extreme winter weather; severe cold and frost (the “Frozen Pipes” Disaster)	DR-1468
2005	February	10-11	Severe winter storms; extreme cold	EM-3206
2005	March	9	Severe winter storms; extreme cold	EM-3209
2005	March	11-12	Severe winter storms; extreme cold	EM-3210
2013	February	8-9	Severe winter storm (blizzard)	DR-4108
2013	December	21-26	Severe ice storm compounded by sub-freezing temperatures from the Polar Vortex; prolonged power outages	Denied
2015	January	26-28	Blizzard that closed state and municipal offices; major snow removal efforts and overtime costs	DR-4208
2017	February	13	State offices closed due to blizzard; motorists warned to avoid any unnecessary travel to aid road crews during snow plowing.	N/A

Sources: FEMA website 2017, MEMA records and State Hazard Mitigation Plan – 2013 Update

E. Probability of Future Events: While there are no probability studies for severe winter storms, given Maine’s latitudinal and longitudinal location, it is reasonable to expect one severe storm per winter season.



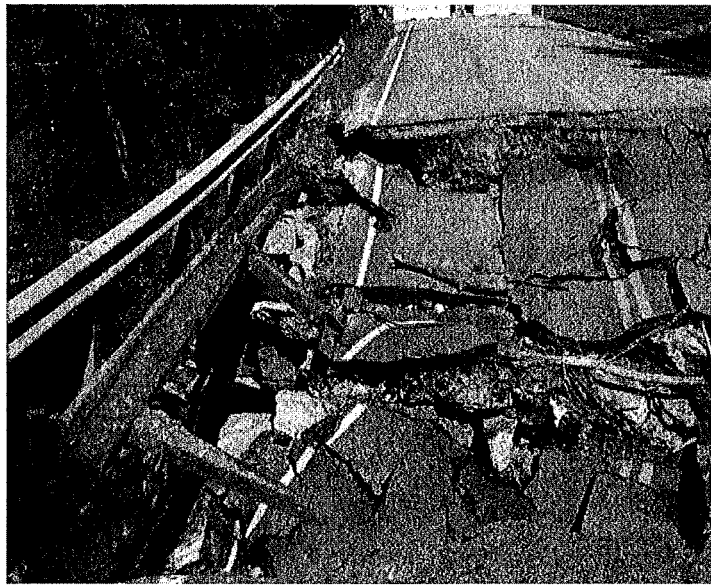
Camaro Drive Leeds, ME February 2010

(Severe) Summer Storms

General Definition: Severe winds, excessive rains and severe lightning storms.

Types of Severe Summer Weather Events: Certain weather events may contain one exaggerated characteristic or several hazards.

- **Hurricane:** Tropical storms with wind speeds reaching upwards of 74 miles per hour, accompanied by heavy rain. Hurricanes are categorized on a Saffir-Simpson Scale; category one has wind speeds 74-95mph, category two with winds 96-110mph, category three from 111-130mph to category five with winds over 155mph. Damage varies considerably; damage to unanchored mobile homes in a category one storm to evacuation of structures during a category five storm. (FEMA, 2009)
- **Tornado:** Vortex of wind which develops during a thunderstorm and funnels towards the ground. Tornado activity is most likely to occur between March and August, and is extremely rare in Androscoggin County. Tornado activity in Androscoggin County would mainly be categorized as gale winds with wind speeds 40-72mph. There is a slight chance for moderate wind speeds 73-112mph winds.
- **Microburst:** Often mistaken as a tornado. In contrast to the upward rush of air in a tornado, air blasts rapidly downward from thunderstorms to create microbursts. (FEMA, 2009)



Bridge Collapse Minot, ME August 2008

A.Location:

All of Androscoggin County is subject to severe summer storm events. Some areas have recently experienced microburst activity which has created substantial damage, but not life threatening. Easterly storms from the coast are more often severe rain and wind events while westerly storms which are most active in the mountains before reaching the valleys of Androscoggin County. There is a definite line of demarcation with more severe storms north of the town of Turner as well as the towns of Poland into Oxford (part of Oxford County).

Municipal Survey – Location of Areas Susceptible to Severe Summer Storms. The following is a summary of areas that have been identified as being vulnerable to severe summer storms:

- Auburn – citywide
- Lewiston – citywide
- Livermore Falls – Upper Depot Street, Searles Street, Norris Bridge
- Minot – Death Valley Road
- Poland – power outages on private camp roads

B.Extent:

The most potentially damaging types of summer storms in Androscoggin County would be F1 or greater tornados, microbursts with winds in excess of 100 miles per hour, thunderstorms of more than an inch of rain per hour that could wash out roads and result in flash flooding, or an actual hurricane strike that could cause deaths as well as structural damages. The table below provides information on various categories of tornados.

The Fujita Tornado Scale (abbreviated)

Maximum Wind Speeds	Tornado Category	Equivalent Saffir-Simpson Scale (for hurricanes)	Typical Effects
40-72 mph	F0	NA	Gale tornado; light damage to chimneys; breaks twigs and branches off trees; pushes over shallow-rooted trees; damages signboards; some windows broken.
73-112 mph	F1	Cat 1/2/3	Moderate tornado. Moderate damage: peels surfaces off roofs; mobile homes pushed off foundations or overturned; outbuildings demolished; moving autos pushed off roads; trees snapped or broken.
113-157 mph	F2	Cat 3/4/5	Significant tornado; considerable damage: roofs torn off frame houses; mobile homes demolished; frame houses with weak foundations lifted and moved; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
158-206 mph	F3	Cat 5	Severe tornado; severe damage: roofs and some walls torn off well-constructed houses; trains overturned; most trees in forests uprooted; heavy cars lifted off the ground and thrown; weak pavement blown off roads.
207-260 mph	F4	NA	Devastating tornado; devastating damage: well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and disintegrated; large missiles generated; trees in forest uprooted and carried some distance away.

C. Impacts

To date, the worst damages from severe summer storms have been the power outages resulting from broken limbs that have fallen on utility lines or a transformer that might get struck by lightning. Today, that can interrupt use of the Internet as well as the temporary loss of refrigeration and air conditioning.

D. Previous Occurrences:

Historical Summary of Hurricanes/Tropical Storms & Tornadoes/Micro-bursts in Androscoggin County				
Year	Month	Day	Description	Declaration Number
1938	September	21	Hurricane	N/A
1971	July	31	F2 Tornado	N/A
1985	September	17	Hurricane "Gloria"	N/A
1991	August	19	Hurricane "Bob"	FEMA-DR-915-ME
1999	September	16-19	Hurricane "Floyd"	FEMA-DR-1308-ME
2008	September	9	Severe storms, flooding, and tornadoes	FEMA-DR-1788-ME
2011	August-Sept		Tropical Storm Irene	FEMA-DR-4032

(Sources: <http://www.fema.gov/femaNews/disasterSearch.do> FEMA, 2010, the and 2012 Androscoggin County Hazard Mitigation Plan and the State Hazard Mitigation Plan – 2013 Update.)

NOTE: Androscoggin County has not been in a Hurricane/Tropical Storm declaration since 2011.

E.Probability of Future Events:

There are no probability studies pertaining to severe summer storms but at least one (severe) summer storm is possible in Androscoggin County each year. The National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) provides forecasting, advanced warning, and awareness of storms.

Wildfires

General Definition. Wildfires are uncontrolled fires that occur in combustible grassland and woodlands environments. Wildfires commonly cover large areas and spread quickly with potentially erratic movement.

Types of Wildfires: There are three main types of Wildfires.

- Forest Fires which are large and slow due to lesser undergrowth for combustion. Once fire reaches the tree canopy it burns fiercely.
- Brush Fires which occupy lowland with low lying dry vegetation such as grass and shrub. Brush fires burn quickly and spread easily.
- Grass Fires which are fast moving, intense, and comparatively brief.

A.Location:

Maine's forests are not as susceptible to fire as some areas of the country that have been in the news in recent years. Maine generally has adequate precipitation throughout the year to support its forest vegetation, and its forest species are not as susceptible to ignite through lightning or carelessly disposed smoking and cooking debris. Most of Androscoggin County can be susceptible to wildfire because of its proximity to wooded and grass land areas as well as railroad tracks.

In October 1947, after several months of far below normal rainfall, several areas of Maine experienced devastating wildfires. In Androscoggin County, the largest fires occurred in Auburn and Livermore, with smaller fires in Lisbon, Durham and throughout the county. An extensive portion of Auburn burned and had to be rebuilt, the village of New Auburn emerged from the ashes.

Municipal Survey – Location of Areas Susceptible to Wildfire. The following is a summary of areas that have been identified as being vulnerable to wildfires:

- Auburn – any area that is wooded
- Durham – northwest 50% of the community
- Lewiston – Old Greene Road and Dyer Road area
- Lisbon – Beaver Park and Summer Street Park areas (are heavily wooded)
- Livermore Falls – land adjacent to the railroad tracks
- Poland - townwide

B.Extent:

The MFS reports from 2009-2016 fifteen structures were destroyed by wildfires. The damage costs listed below are estimates given to the Maine Forest Service; this data does not include actual costs and does not include the type of structure destroyed. For actual damage cost insurance agents should be contacted.

C.Previous Occurrences:

COUNTY	FIRE_YR	# of Fires
Androscoggin	2009	10
Androscoggin	2010	8
Androscoggin	2011	8
Androscoggin	2012	12
Androscoggin	2013	9
Androscoggin	2014	6
Androscoggin	2015	13
Androscoggin	2016	26

(Source: Maine Forest Service, 2017)

Androscoggin County Structures Destroyed by Wildfire				
COUNTY	TOWN	YEAR	# of Structures Destroyed	Damage* Real Property
Androscoggin	Sabattus	2010	1	\$100.00
Androscoggin	Poland	2010	2	\$10,000.00
Androscoggin	Livermore Falls	2012	1	\$200.00
Androscoggin	Lewiston	2013	1	\$52,130.00
Androscoggin	Mechanic Falls	2015	2	\$1,200.00
Androscoggin	Durham	2015	1	\$1,000.00
Androscoggin	Livermore	2016	4	\$251,000.00
Androscoggin	Greene	2016	3	\$20,100.00

(Source: Maine Forest Service, 2017)

*Damage costs reported by the MFS are just estimates for “structures”. These structures could be homes, barns, garages or other outbuildings and do not reflect any actual insurance claim totals.

D.Probability of Future Events:

There are no probability studies that have been conducted although, since 1947, Androscoggin County has worked to become better prepared to fight forest fires when they occur. What’s in place for firefighting has shown an effective means to keep fires at bay. “Debris burning” and

“children” are the primary causes of fire. It’s hard to predict the locations of carelessness.

Slash left in the woods from the 1938 hurricane and intensive forestry activities during and following World War II were considered by many to be key causes of the 1947 fires. However, due to usually ample rainfall and humidity, the from the '98 ice storm was able to safely compost in the county’s forests, reducing the wildfire threat to adjacent housing and other developed areas.

According to the Maine Forest Service between 2009 and 2016, the annual number of reported fires ranged from 6 to 26 and few structures were lost. As previously noted, those “structures” could be homes, barns, garages or other outbuildings and do not reflect any actual insurance claim totals.

Assessing Vulnerability: Overview

Requirement § 201.6 (c)(2)(ii): 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.

Hazards Vulnerability and Impact on the County	
Hazard	
Flooding	Year-round throughout Androscoggin County, from excessive summer rains, excessive spring rains coupled with snowmelt runoff to ice jams in the winter. As previously described, roads and public infrastructure damages are the most common impact from flooding throughout the county.
Severe Summer Storm	Androscoggin County generally experiences at least one severe summer storm annually. Additional storms are becoming more frequent. As previously stated, the usual impacts from severe storms are road damage, the interruption of the power supply and communication when tree limbs fall on utility lines. Direct lightning strikes could damage personal property.
Severe Winter Storm	Androscoggin County generally experiences at least one severe winter storm annually. Depending on the severity of the storm, power supply can be lost, communication may be severed, and emergency response can be treacherous and business can be interrupted.
Wildfire	Is less of a concern countywide, but new developments and increased human activity occurring along and among forested areas could create potentially ignitable atmospheres. Blow-downs from severe storms accumulate on forest floors can, over time, create highly ignitable debris. Drought conditions can lead to insufficient water resources for fire suppression, resulting in greater damage by wildfires.

Assessing Vulnerability: Addressing Repetitive Loss Properties

Requirement § 201.6 (c)(2)(ii): The risk assessment must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.

According to the Flood Insurance Program in the Maine Department of Agriculture, Conservation and Forestry, there are three single family repetitive loss properties in Androscoggin County.

Assessing Vulnerability: Identifying Structures

Requirement § 201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities locate in the identified hazard area.

Critical Facilities

General Definition: The County has determined that its critical facilities include, but are not limited to the following:

- Fire and Police Stations
- Regional Communication
- Emergency Medical Service
- Shelters

Vulnerability of Critical Facilities to Hazards: Androscoggin County’s Critical Facilities are most likely to be affected by flooding, severe winter or summer storms, and wildfires.

Flooding: An abundance of water over lands due to excessive rains or blockage may affect critical facilities by flooding roads and preventing access to the facilities, water damage to buildings, etc.

Severe Winter Storm: Extreme incidence of snow and ice conditions can cause loss of utilities and dangerous road conditions. Any critical facility could be affected by severe winter storm conditions, including damage to buildings by excessive snow loads on roofs, frozen pipes, downed trees and utilities poles/lines, etc.

Severe Summer Storm: Heavy winds and rain can cause considerable damage to roadways and infrastructure as well as loss of utilities. Any critical facility could be affected by severe summer storm conditions, including loss of access to facilities due to flash flooding, property damage due to hail or wind, fire as the result of lightning strike, etc.

Wildfires: Consequences of wildfire can be considerable; threats to residents’ health and safety and loss of utilities and/or communication.

Critical Facility Location: There are numerous critical facilities available throughout Androscoggin County, none of which are located in floodplains.

Assessing Vulnerability: Estimating Potential Losses

Requirement (201.6(c)(2)(ii)(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.

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The following four tables detail federal disaster reimbursements from April 1987 through January 2015. The cumulative reimbursements totaled \$11,809,242.

ANDROSCOGGIN COUNTY											
DISASTER REIMBURSEMENT SUMMARY											
REPORT #1											
APRIL 1987 THROUGH APRIL 1996											
DISASTER EVENT →	FEMA (788-DR) RAIN & FLOODING APRIL 1987	FEMA (830-DR) RAIN & FLOODING MAY 1989	FEMA (915-DR) HURRICANE BOB AUGUST 1991	FEMA (940-DR) RAIN & FLOODING MARCH 1992	FEMA (3099-DR) BLIZZARD MARCH 1993	FEMA (988-DR) RAIN & FLOODING APRIL 1993	FEMA (1106-DR) RAIN & FLOODING JANUARY 1996	FEMA (1114-DR) RAIN & FLOODING APRIL 1996	TOTAL PER MUNICIPALITY FOR REPORT #1		
APPLICANT NAME ↓											
Androscoggin County	\$8,726	\$0	\$0	\$0	Not Eligible	\$0	\$0	\$0	\$0	\$8,726	
Auburn	\$126,948	\$57,244	\$189,481	\$5,490	\$13,599	\$13,934	\$3,085	\$12,223	\$422,004		
Durham	\$6,854	\$9,610	\$49,798	\$6,391	Not Eligible	\$1,578	\$8,510	\$44,313	\$127,054		
Greene	\$10,918	\$6,700	\$17,206	\$21,748	\$2,321	\$20,510	\$15,001	\$30,372	\$124,776		
Leeds	\$11,324	\$6,574	\$0	\$27,059	\$2,255	\$6,175	\$0	\$9,872	\$63,259		
Lewiston	\$31,366	\$13,019	\$143,920	\$31,690	\$15,125	\$7,273	\$6,160	\$19,528	\$268,081		
Lisbon	\$77,882	\$9,471	\$168,805	\$29,300	\$3,992	\$0	\$17,035	\$6,771	\$313,256		
Livermore	\$26,996	\$0	\$0	\$20,606	\$1,534	\$0	\$0	\$4,391	\$53,527		
Livermore Falls	\$43,382	\$0	\$3,253	\$37,854	\$1,809	\$0	\$20,012	\$1,972	\$108,282		
Mechanic Falls	\$5,102	\$17,672	\$12,663	\$9,483	\$806	\$32,069	\$6,463	\$30,877	\$115,135		
Minot	\$6,644	\$104,477	\$0	\$23,942	\$2,949	\$14,317	\$0	\$138,968	\$291,297		
Poland	\$9,383	\$38,207	\$6,283	\$34,975	\$2,869	\$12,886	\$0	\$14,501	\$119,104		
Sabattus	\$6,614	\$0	\$155,159	\$7,146	\$1,915	\$0	\$0	\$0	\$170,834		
Turner	\$9,730	\$8,578	\$4,420	\$10,775	\$3,656	\$17,839	\$4,835	\$31,582	\$91,415		
Wales	\$4,470	\$0	\$2,696	\$4,934	Not Eligible	\$0	\$6,707	\$1,732	\$20,539		
Auburn Water District	\$66,002	\$1,137	\$3,838	\$0	\$0	\$0	\$1,649	\$7,159	\$79,785		

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LAWPCA	\$4,223	\$0	\$4,787	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,010
Agassiz Village Inc	\$0	\$0	\$515	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$515
Lisbon Village Library	\$0	\$0	\$3,128	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,128
L/A Municipal Airport	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,545	\$0	\$1,545
Livermore Falls Water District	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central Maine Medical Center	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sister of Charity	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Auburn Housing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MSAD #52	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PNP's	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Lewiston Housing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Durham Elm School	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Auburn School Department	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,030	\$0	\$1,030
Union #44	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sabattus Sanitary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MSAD #36	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Hope House Network	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL PER EVENT	\$456,564	\$272,689	\$765,952	\$271,393	\$52,830	\$126,581	\$92,032	\$354,261	\$2,392,302	GRAND TOTAL FOR ALL EVENTS ON RPT #1		

Source: Androscoggin Unified Emergency Management Agency

Androscoggin County Hazard Mitigation Plan – 2017 Update

ANDROSCOGGIN COUNTY

DISASTER REIMBURSEMENT SUMMARY

REPORT #2

JANUARY 1998 THROUGH DECEMBER 2004

DISASTER EVENT →	FEMA (1198-DR) ICE STORM JANUARY 1998	FEMA (1232- DR) FLOODS JUNE 1998	FEMA (1308-DR) HURRICANE FLOYD SEPTEMBER 1999	FEMA (1326-DR) HEAVY RAINS MARCH/APRIL 2000	FEMA (1364-EM-ME) BLIZZARD MARCH/APRIL 2001	FEMA (1468-EM- ME) SEVERE WINTER CONDITIONS DECEMBER 2003	FEMA (3190-EM- ME) HEAVY SNOW DECEMBER 2004	TOTAL FOR REPORT #2	TOTAL PER MUNICIPALITY FOR REPORTS #1-2
APPLICANT NAME									
Androscoggin County	\$8,119	\$0	\$0	\$0	\$1,775	\$0	\$2,974	\$12,868	\$21,594
Auburn	\$845,127	\$11,499	\$151,628	\$0	\$79,454	\$0	\$57,634	\$1,145,342	\$1,567,346
Durham	\$134,190	\$30,610	\$30,219	\$0	\$4,726	\$0	\$9,903	\$209,648	\$336,702
Greene	\$129,513	\$7,696	\$2,124	\$0	\$14,853	\$0	\$12,034	\$166,220	\$290,996
Leeds	\$202,496	\$11,271	\$0	\$0	\$12,732	\$0	\$10,909	\$237,408	\$300,667
Lewiston	\$538,308	\$7,397	\$123,712	\$296,956	\$105,920	\$145,517	\$108,492	\$1,326,302	\$1,594,383
Lisbon	\$209,545	\$25,886	\$0	\$0	\$24,809	\$17,899	\$11,407	\$289,546	\$602,802
Livermore	\$217,051	\$40,037	\$0	\$5,449	\$8,925	\$1,125	\$6,842	\$279,429	\$332,956
Livermore Falls	\$50,679	\$23,161	\$0	\$0	\$12,598	\$15,117	\$10,690	\$112,245	\$220,527
Mechanic Falls	\$88,433	\$21,812	\$0	\$6,142	\$11,055	\$3,414	\$6,029	\$136,885	\$252,020
Minot	\$125,147	\$27,580	\$11,518	\$13,255	\$16,978	\$0	\$14,401	\$208,879	\$500,176
Poland	\$212,636	\$22,501	\$0	\$0	\$25,356	\$0	\$14,318	\$274,811	\$393,915
Sabatius	\$116,779	\$11,712	\$27,405	\$0	\$17,402	\$8,837	\$10,605	\$192,740	\$363,574
Turner	\$143,273	\$0	\$0	\$0	\$12,521	\$1,838	\$8,150	\$165,782	\$257,197
Wales	\$35,938	\$3,074	\$0	\$0	\$0	\$0	\$1,885	\$40,897	\$61,436
Auburn Water District	\$20,182	\$0	\$22,940	\$0	\$0	\$101,842	\$0	\$144,964	\$224,749
LAWPCA	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,010
Agassiz Village Inc	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$515

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Lisbon Village Library	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,128
L/A Municipal Airport	\$0	\$0	\$0	\$0	\$0	\$7,199	\$0	\$0	\$0	\$4,561	\$11,760	\$13,305
Livermore Falls Water District	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central Maine Medical Center	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sister of Charity	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Auburn Housing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,198	\$3,198	\$3,198
MSAD #52	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PNP's	\$119,641	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$119,641	\$119,641
Lewiston Housing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Durham Elm School	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Auburn School Department	\$24,942	\$0	\$11,588	\$0	\$8,168	\$0	\$0	\$0	\$0	\$0	\$44,698	\$45,728
Union #44	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sabbatus Sanitary	\$0	\$1,061	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,061	\$1,061
MSAD #36	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Hope House Network	\$0	\$0	\$6,304	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,304	\$6,304
Wales Central School	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Lewiston School District	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
St. Dominic Regional HS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL PER EVENT	\$3,221,999	\$245,297	\$387,438	\$321,802	\$364,471	\$295,589	\$294,032	\$5,130,628	\$7,522,930	\$6,304	\$119,641	\$119,641

Source: Androscoggin Unified Emergency Management Agency

Androscoggin County Hazard Mitigation Plan – 2017 Update

ANDROSCOGGIN COUNTY DISASTER REIMBURSEMENT SUMMARY

REPORT #3

FEBRUARY 2005 THROUGH DECEMBER 2008

DISASTER EVENT →	FEMA (3206-EM- ME) SNOW STORM FEBRUARY 2005	FEMA (3209-EM- ME) SNOW STORM MARCH 2005	FEMA (3210-EM- ME) SNOW STORM MARCH 2005	FEMA (1591-DR- ME) FLOODING 03/28 THRU 05/03 2005	FEMA (1693-DR- ME) PATRIOT'S DAY STORM 04/15- 23/2007	FEMA (1788-DR- ME) STORMS/ FLOODING 07/18 THRU 08/16 2007	FEMA (1815-DR- ME) SEVERE WINTER STORM 12/11 THRU 12/29 2008	TOTAL FOR REPORT #3	TOTAL PER MUNICIPALITY FOR REPORTS #1-2-3
APPLICANT NAME ↓									
Androscoggin County	\$0	\$0	\$1,870	\$2,379	\$1,716	\$0	\$0	\$5,965	\$27,559
Auburn	\$55,889	\$53,155	\$68,554	\$15,603	\$33,300	\$40,830	\$281,110	\$548,440	\$2,115,786
Durham	\$8,492	\$42,376	\$14,180	\$46,257	\$24,605	\$0	\$26,623	\$162,532	\$499,234
Greene	\$10,286	\$17,824	\$11,051	\$77,259	\$97,174	\$0	\$68,154	\$281,748	\$572,744
Leeds	\$13,543	\$16,848	\$11,333	\$71,870	\$33,741	\$0	\$45,155	\$192,490	\$493,157
Lewiston	\$81,643	\$88,722	\$91,170	\$28,117	\$120,999	\$0	\$234,045	\$644,697	\$2,239,080
Lisbon	\$21,220	\$17,455	\$24,001	\$13,607	\$8,392	\$0	\$21,442	\$106,117	\$708,919
Livermore	\$13,089	\$20,404	\$10,429	\$15,636	\$70,817	\$10,968	\$39,046	\$180,389	\$513,345
Livermore Falls	\$7,361	\$12,764	\$11,688	\$10,666	\$33,043	\$52,647	\$30,675	\$158,844	\$379,371
Mechanic Falls	\$14,275	\$16,939	\$10,287	\$16,324	\$29,599	\$0	\$38,428	\$125,852	\$377,872
Minot	\$13,971	\$12,324	\$8,055	\$24,604	\$42,873	\$92,789	\$59,477	\$254,093	\$754,269
Poland	\$19,133	\$21,986	\$23,861	\$65,347	\$120,385	\$7,154	\$54,057	\$311,923	\$705,838
Sabatius	\$15,297	\$16,782	\$16,903	\$7,209	\$11,637	\$0	\$30,691	\$98,520	\$462,094
Turner	\$19,178	\$21,749	\$10,322	\$68,196	\$35,214	\$0	\$58,489	\$213,148	\$470,345
Wales	\$0	\$0	\$0	\$5,889	\$1,467	\$0	\$0	\$7,356	\$68,792
Auburn Water District	\$0	\$0	\$0	\$0	\$8,963	\$0	\$0	\$8,963	\$233,712
LAWPCA	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,010

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Agassiz Village Inc	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$515
Lisbon Village Library	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,128
L/A Municipal Airport	\$5,705	\$6,311	\$5,331	\$38,469	\$0	\$20,912	\$76,728	\$0	\$0	\$0	\$0	\$90,033
Livermore Falls Water District	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central Maine Medical Center	\$3,048	\$2,618	\$2,804	\$0	\$0	\$0	\$8,470	\$0	\$0	\$0	\$0	\$8,470
Sister of Charity	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Auburn Housing	\$2,047	\$4,353	\$1,945	\$0	\$0	\$0	\$8,345	\$0	\$0	\$0	\$0	\$11,543
MSAD #52	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PNP's	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$119,641
Lewiston Housing	\$4,062	\$3,479	\$5,305	\$0	\$0	\$0	\$12,846	\$0	\$0	\$0	\$0	\$12,846
Durham Elm School	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Auburn School Department	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$45,728
Union #44	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sabbatus Sanitary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,061
MSAD #36	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Hope House Network	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,304
Wales Central School	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Lewiston School District	\$22,125	\$15,633	\$22,151	\$0	\$0	\$0	\$59,909	\$0	\$0	\$0	\$0	\$59,909
St. Dominic Regional HS	\$0	\$1,509	\$1,495	\$0	\$0	\$0	\$3,004	\$0	\$0	\$0	\$0	\$3,004
TOTAL PER EVENT	\$330,364	\$393,231	\$352,735	\$507,432	\$673,925	\$1,008,304	\$3,470,379	\$204,388	\$0	\$0	\$0	\$10,993,309
							TOTAL FOR REPORT #3					CUMULATIVE TOTAL FOR EVENTS ON RPT #1-2 & 3

Source: Androscoggin Unified Emergency Management Agency

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ANDROSCOGGIN COUNTY				
DISASTER REIMBURSEMENT SUMMARY				
REPORT #4				
FEBRUARY 2013 THROUGH CURRENT DISASTER EVENT				
DISASTER EVENT →	FEMA (4108-DR-EM) Severe Winter Storm February 8-9, 2013	FEMA (4208-DR-ME) Severe Winter Snowstorm January 26-27-28, 2015	TOTAL FOR REPORT #4	TOTAL PER MUNICIPALITY FOR REPORTS #1-2-3-4
APPLICANT NAME ↓				
Androscoggin County	\$3,613.00	\$3,148.13	\$6,761.13	\$34,320.13
Auburn	\$108,815.00	\$78,877.44	\$187,692.44	\$2,303,478.64
Durham	\$1,540.00	\$24,226.16	\$25,766.16	\$525,000.60
Greene	\$27,267.80	\$14,754.00	\$42,021.80	\$614,765.75
Leeds	\$14,816.05	\$13,035.05	\$27,851.10	\$521,008.28
Lewiston	\$44,592.00	\$72,046.08	\$116,638.08	\$2,355,717.96
Lisbon	\$31,396.10	\$21,117.12	\$52,513.22	\$761,431.97
Livermore	\$12,724.84	\$10,038.78	\$22,763.62	\$536,108.71
Livermore Falls	\$19,819.06	\$15,083.83	\$34,902.89	\$414,273.44
Mechanic Falls	\$12,907.54	\$10,155.61	\$23,063.15	\$400,935.57
Minot	\$23,995.99	\$14,244.68	\$38,240.67	\$792,509.85
Poland	\$31,474.07	\$19,611.41	\$51,085.48	\$756,923.81
Sabattus	\$20,690.89	\$11,903.34	\$32,594.23	\$494,688.02
Turner	\$31,070.00	\$18,756.44	\$49,826.44	\$520,171.75
Wales	\$0.00	\$0.00	\$0.00	\$68,791.98
Auburn Water District	\$0.00	\$6,335.00	\$6,335.00	\$240,046.53
LAWPCA	\$0.00	\$0.00	\$0.00	\$9,010.00
Agassiz Village Inc	\$0.00	\$0.00	\$0.00	\$515.00
Lisbon Village Library	\$0.00	\$0.00	\$0.00	\$3,128.00

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L/A Municipal Airport	\$0.00	\$10,250.00	\$10,250.00	\$100,282.64
Livermore Falls Water District	\$0.00	\$0.00	\$0.00	\$0.00
Central Maine Medical Center	\$0.00	\$0.00	\$0.00	\$8,470.00
Sister of Charity	\$0.00	\$0.00	\$0.00	\$0.00
Auburn Housing	\$0.00	\$0.00	\$0.00	\$11,543.00
MSAD #52	\$0.00	\$0.00	\$0.00	\$0.00
PNP's	\$0.00	\$0.00	\$0.00	\$119,641.00
Lewiston Housing	\$0.00	\$0.00	\$0.00	\$12,846.00
Durham Elm School	\$0.00	\$0.00	\$0.00	\$0.00
Auburn School Department	\$0.00	\$10,713.00	\$10,713.00	\$56,441.00
Union #44	\$0.00	\$0.00	\$0.00	\$0.00
Sabbattus Sanitary	\$0.00	\$0.00	\$0.00	\$1,061.00
MSAD #36	\$0.00	\$0.00	\$0.00	\$0.00
Hope House Network	\$0.00	\$0.00	\$0.00	\$6,304.00
Wales Central School	\$0.00	\$0.00	\$0.00	\$0.00
Lewiston School District	\$0.00	\$46,226.00	\$46,226.00	\$106,135.00
St. Dominic Regional HS	\$0.00	\$0.00	\$0.00	\$3,004.00
RSU #73	\$0.00	\$1,320.00	\$1,320.00	1,320.00
MDOT	\$0.00	\$29,368.00	\$29,368.00	29,368.00
TOTAL PER EVENT	\$384,722.34	\$431,210.07	\$815,932.41	\$11,809,241.63
			TOTAL FOR REPORT #4	CUMULATIVE TOTAL FOR EVENTS ON RPT #1-2-3-4

Source: Androscoggin Unified Emergency Management Agency

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Potential Flood Losses

To the best of our knowledge none of the critical facilities identified in the previous table lie within an established floodplain. One would not establish a critical facility in a floodplain. Moreover, current codes would prevent locating in a floodplain.

Severe Winter Storm Losses

During severe storm events, it is anticipated that utilities may be interrupted and roadways will become damaged. Having downed telephone or cable lines may leave residents without access to storm event information or assistance. Utility companies work closely with the Maine Public Utilities Commission to ensure the best service possible to residents. It is expected that service can be restored to as many people as possible in a timely manner by all service providers.

Damaged roads, whether public or private, may be considerable and costly depending on the extent of the storm.

There are urban and rural considerations to understanding getting power restored. Urban areas are close to substations where power is centralized versus rural areas that are more remote. Additionally, 3-phase power will be restored as priority to feed power to single phase lines.

Urban areas also have designated warming shelters whereas rural areas may rely on access to local schools.

Severe Summer Storm Losses

Androscoggin County has distinct weather; storms coming from western Maine are windward to the mountain ranges, where rain events primarily occur before cresting the mountains leaving a “dry shadow” of less wet weather on the leeward side of Androscoggin County’s valley areas.

Storms entering Androscoggin County from the east are from the coast and are generally more severe among the county. There are lines of demarcation where summer storms are exacerbated north of Turner and the area of Poland into Oxford.

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Bridge Collapse Minot, ME August 2008

Cost Estimate Assumptions

There may be several variables for reconstructing damaged roadways such as culvert replacement or repairing a stormwater system. The damage cost listed below is based on the current cost of base and pavement for rural road repair, nothing else. Damage cost estimates fluctuate daily and to a great extent depend upon global market circumstances.

Road Replacement Cost - Estimate Assumptions for base and pavement				
Municipality	Critical Facility	Function Lost	Quantity (Miles)	25% Estimate - Damage Cost @ \$2.75 million/mile
Auburn	Townway/Seasonal Roads	Transportation	157.27	\$108,123,125
Durham	Townway/Seasonal Roads	Transportation	46.58	\$32,023,750
Greene	Townway/Seasonal Roads	Transportation	53.36	\$36,685,000
Leeds	Townway/Seasonal Roads	Transportation	46.43	\$31,920,625
Lewiston	Townway/Seasonal Roads	Transportation	131.65	\$90,509,375
Lisbon	Townway/Seasonal Roads	Transportation	56.02	\$38,513,750
Livermore	Townway/Seasonal Roads	Transportation	43.42	\$29,851,250
Livermore Falls	Townway/Seasonal Roads	Transportation	30.40	\$20,900,000
Mechanic Falls	Townway/Seasonal Roads	Transportation	20.59	\$14,155,625
Minot	Townway/Seasonal Roads	Transportation	45.87	\$31,535,625
Poland	Townway/Seasonal Roads	Transportation	54.90	\$37,743,750
Sabattus	Townway/Seasonal Roads	Transportation	66.52	\$45,732,500

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Turner	Townway/Seasonal Roads	Transportation	16.95	\$11,653,125
Wales	Townway/Seasonal Roads	Transportation	37.36	\$25,685,000
Total			807.32	\$555,032,500

(Source: Androscoggin County Public Road Centerline mileage by Municipality as of 1/9/09, Maine Department of Transportation, 2017)

Potential Wildfire Losses

The extent of damage and loss due to wildfires may be great depending on the type of wildfire and the proximity of the event. New dwellings built close to large tracts of woodlands without buffers create an environment where human activity could ignite combustible vegetative materials.

The Maine Forest Service reports one major forest fire as having a benchmark of 500 acres. Historically, there have been no major forest fires in Androscoggin County.

For land cover, there is approximately 70% mixed forest in Androscoggin County, 20% crop and bare ground for farming/ agriculture/recreation, and 10% developed lands. There is potential in Androscoggin County for wildfires, but per the table on page 4-15, the two primary causes of fire are “debris burning” and “children.” One cannot predict who will seek burn permits in any given year or where children might be careless.

Assessing Vulnerability: Analyzing Development Trends

Requirement (201.6 (c)(2)(ii)(C): (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.

Many of the communities in Androscoggin County have completed comprehensive plans pursuant to the Maine Growth Management Act that have limited discussions about how land use impacts floodplains and other hazards. All the communities in the county have adopted floodplain management ordinances and have joined the National Flood Insurance Program.

Lewiston and Auburn have gone through the Community Rating System (CRS) process; Lewiston is rated a Class 8 community while Auburn is a Class 9 community. Several communities have adopted the Maine Uniform Building and Energy Code (MUBEC).

Development Concerns:

1. Androscoggin County population is estimated to have grown 3% between 2000 and 2016. New population growth in forested areas increases wildfire hazards, especially when buffers are not constructed between human activities and wild lands. Greater thought needs to be taken when building in wooded areas to address the issues of forestland buffer and access of construction in emergency situations.
2. Tree canopy removal adjacent to Androscoggin County’s lakes and ponds is discouraged in order to minimize erosion and protect water quality.

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3. Traditional skilled industries are being replaced with lower paying unskilled service producing jobs. Between 2001 and 2016, 1,960 manufacturing jobs and 1,805 goods-producing jobs were lost in Androscoggin County (Maine Department of Labor Center for Workforce Research and Information). Residents looking for higher paying jobs with benefits must commute longer distances for employment. Many communities have volunteer fire departments; more people commuting for work leaves less people to help fight fires.
4. Androscoggin County has an old housing stock with 41.4% of homes built between 1970 and 1940 and 34% built prior to 1939. Old housing stock may not be up to code, which leaves greater concern for house fire.

Development goals include:

- Infrastructure development, improvement, and expansion (i.e., water, sewer, electric).
- Regional cooperation and economic development partnerships to analyze and implement strategies to deal with changes in the demographics of the region.
- Regional cooperation to analyze land use practices which may exacerbate fires/wildfires occurrences.

Community planning goals include:

- Comprehensive and land use planning to ensure the efficient allocation of resources and provision of municipal services.
- Natural resource management using efficient methods for use and protection.
- Environmental quality achieved through compliance with federal and state laws and regulations for the protection of the public's health.
- Encourage those residents that live off the electrical grid to have backup generators for emergencies.

Multi-Jurisdictional Risk Assessment

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

Androscoggin County has distinct weather; storms coming from western Maine are windward to the mountain ranges, where precipitation primarily occurs before cresting the mountains leaving a "dry shadow" of less wet weather on the leeward side of Androscoggin County's valley areas. Storms entering Androscoggin County from the east are from the coast and are generally more severe among the county.

There are lines of demarcation where summer storms are exacerbated north of Turner and the area of Poland into Oxford (part of Oxford County). Severe storms during the winter and summer months for the most part are associated with power outages as was discussed on pages 4-18 and 4-19.

Flooding poses the greatest potential for losses due to repairing roadways. Wildfire losses are most prevalent along interface areas.

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Critical facilities maps for the towns and cities outlined in this plan are included in the following several pages. The 100-year floodplains are identified for each community in relation to critical facilities.

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SECTION 5 – MITIGATION STRATEGIES

Local Hazard Mitigation Goals

Requirement 201.6(c)(3)(i): (The hazard mitigation strategy shall include a) description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

The purpose of mitigation is to reduce and eliminate the impact of natural disasters on people, property, and infrastructure. In recent history, millions of dollars in damage to private property and public infrastructure has occurred as the result of severe winter storms and flooding in Androscoggin County. In addition, unknown dollar amounts have been lost as the result of business shutdowns, loss of wages, and damaged inventory. Other potential natural hazards could affect county communities causing significant losses to private and public property. Hazard mitigation is commonly the most cost effective and environmentally sound approach to reducing loss from natural disasters.

- i. Objectives.** Work to reduce vulnerability to a hazard.
- ii. Activities.** Develop ways to deal with hazards.
- iii. Action plan.** Establish a list of mitigation projects (current and anticipated) among communities, and include needed equipment and materials, cost, and timeframe.

Identification and Analysis of Mitigation Actions

Requirement §201.6 (c)(3)(ii): (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.

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COUNTY-WIDE GOALS AND MITIGATION ACTIONS

FLOODING

Goal = Reduce effects of flooding on people and property.

Actions	Responsibility	Timeframe	Status / Notes
1. Encourage all municipalities to remain in the NFIP.	Androscoggin County municipalities with the support of Androscoggin Unified EMA	2017-2022.	All 14 communities continue to participate.
2. Develop and distribute customized information releases about flood safety and protection.	Androscoggin Unified EMA.	Will continue from 2017-2022.	Seasonal and as needed. As planned.
3. Provide all communities with latest information from State River Flow Advisory Commission meeting.	Androscoggin Unified EMA.	2017-2022.	As planned.
4. During season or as needed, create reports using state and federal data and distribute widely to towns.	Androscoggin Unified EMA.	2017-2022.	As planned.
5. Encourage use of mitigation concepts and construction technologies recommended by FEMA for public infrastructure with repeated flood damage.	Androscoggin Unified EMA.	2017-2022.	Applicants advised during workshops and at time of application. Will continue 2017 – 2022.
6. Promote proper sizing of culverts/drainage systems to protect against flooding impacts.	Androscoggin Unified EMA, Public Works Departments and AVCOG	2017-2022.	Applicants advised on proper sizing during workshops and application process. Will continue 2017 – 2022.

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SEVERE WINTER STORMS

Goal = Reduce the effects of winter storms on people and property.

Actions	Responsibility	Timeframe	Status / Notes
1. Pre-identify public sheltering facilities.	Androscoggin Unified EMA and local municipalities.	2017-2022.	Each fall notify 211 of any new information.
2. Utilize local community access cable station to give winter related access and safety information.	Androscoggin Unified EMA.	Will continue from 2017-2022.	Seasonal and as needed.
3. Provide updated information to Maine 2-1-1 (an information resource center).	Androscoggin Unified EMA.	2017-2022.	As planned.

SEVERE SUMMER STORMS

Goal = Reduce the effects of summer storms on people and property.

Actions	Responsibility	Timeframe	Status / Notes
1. Develop information releases about preparedness actions to protect life and property (examples attached).	Androscoggin Unified EMA and local municipalities.	2017-2022.	Each fall notify 211 of any new information.
2. Utilize local community access cable station to give seasonally related access and safety information	Androscoggin Unified EMA.	Will continue from 2017-2022.	Seasonal and as needed.

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WILDFIRES

Goal= Reduce the occurrence of wildfires and their effects on people and property.

Actions	Responsibility	Timeframe	Status / Notes
1. Inform the public about Maine Forest Service information about constructing defensible space	Androscoggin Unified EMA, municipal fire departments and Maine Forest Service.	2017-2022.	Continue as part of seasonal public awareness campaign.
2. Email fire danger status to monitor risk to all fire departments.	Androscoggin Unified EMA, municipal fire departments and Maine Forest Service.	2017-2022.	Seasonal Updates needed.
3. Inform the public about debris management.	Local communities and media with support from Androscoggin Unified EMA, municipal fire.	2017-2022.	Was not needed in past 5 years but would be essential information.
4. Coordinate with local fire services on best practices for fire safety.	Androscoggin Unified EMA, municipal fire departments and Maine Forest Service.	2017-2022.	As needed, for example 2017 drought season.

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Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance

Requirement § 201.6 (c)(3)(ii): (The mitigation strategy) must also address the jurisdiction’s participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

Town	In Floodplain (FP) Management Program	Latest FP Ordinance
Auburn	Y - 81	20-Jun-05
Durham	Y - 88	02-Apr-05
Greene	Y - 90	21-May-07
Leeds	Y - 90	01-Jun-02
Lewiston	Y - 79	20-Apr-06
Lisbon	Y - 85	01-Apr-08
Livermore	Y - 90	09-Jun-99
Livermore Falls	Y - 91	11-Jun-97
Mechanic Falls	Y - 90	04-Dec-06
Minot	Y - 90	02-Mar-96
Poland	Y - 85	6/1/2001
Sabattus	Y - 80	31-May-96
Turner	Y - 85	05-Apr-08
Wales	Y - 2010	08-May-06

Each community will continue to enforce its floodplain ordinance for regulating new construction in Special Flood Hazard Areas.

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Implementation of Mitigation Actions

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 jurisdiction. 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.

Criteria for prioritization. The list of local projects was developed separately by each municipality. Local officials did not use formal, written criteria for the identification of local projects. Local officials relied on history of past damages, local knowledge of which projects were of the highest priority, based on frequency and severity of damages, local knowledge of the weather, the geography and topography of the community, and the technical and financial abilities of their respective communities to address hazards and mitigate the impacts of hazards. It should be noted that if unanticipated funding became available, that could greatly re-order priorities and increase the jurisdictions' capacity to do more mitigation.

Use of a cost-benefit analysis. 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 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 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 formal cost benefit analysis will have to be prepared in the event they apply for mitigation funding.

Funding sources for projects are anticipated as follows:

Projects of Less than \$50,000

- Local Funding through Taxes
- Maine Dept. of Transportation Local Aid
- FEMA Hazard Mitigation Grant

Projects of \$50,000 to \$100,000

- Local Funding through Taxes
- Maine Dept. of Transportation Local Aid
- FEMA Hazard Mitigation Grant

Projects of More than \$100,000

- Local funding through Taxes
- Bonds
- Community Development Block Grant
- State of Maine Infrastructure Grant
- Maine Dept. of Transportation Local Aid
- FEMA Hazard Mitigation Grant

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TOWN SPECIFIC MITIGATION ACTIONS

Multi-Jurisdictional Mitigation Actions

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.

Note: Projects are listed in priority order but municipalities sometimes undertake projects that are part of a larger project out of order because the overall project priority changed. Changes occur for political reasons or because other agencies, such as sewer districts receive funding on a different schedule. Deferred projects are usually from lack of available funding rather than a lack of interest in mitigating problem areas.

Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Auburn	1) Jordan School Road: rehabilitate the culvert headwall and wing-wall to reduce erosion.	\$60,000	3 weeks	Director of Public Works	No Progress/ Lack of Funds
	2) Royal River Road: Improve, and add 2,300' of ditches, line and add check dams as needed. Blasting necessary.	\$40,000	4 weeks	Director of Public Works	No Progress/ Lack of Funds
	3) Perkins Ridge Road: Upsize existing twin 36" x 40' cmps with 4' x 6' bottomless box and riprap intake and outlet.	\$25,000	5 weeks	Director of Public Works	Completed with Grant/City Funds 2015
	4) Woodbury Hill Road: Improve, and add 4,000' of ditches, line and add check dams as needed.	\$42,000	5 weeks	Director of Public Works	No Progress/ Lack of Funds
	5) Trapp Road: Improve, and add 4,500' of ditches, line and add check dams as needed and reset (3) 36" x 40' cross culverts.	\$62,000	5 weeks	Director of Public Works	Project done with city funds
	6) Steele Road: Remove ledge in ditch line 500' add 3,300 of ditches, add (3) 36" x 40' cross culverts.	\$56,000	5 weeks	Director of Public Works	Ditching completed, blasting needed
	7) Hatch Road: Add ditches	\$14,500	3 weeks	Director of	Done

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1,500' and stone line.			Public Works	
8) Beaver Road: Add 2,400' of ditches, line and add check dams as needed, and relay driveway culverts as needed.	\$28,000	4 weeks	Director of Public Works	No Progress/ Lack of Funds
9) Blanchard Road: Reclaim road base and pave, add 1,800' of ditches, line and add check dams as needed.	\$72,000	4 weeks	Director of Public Works	Partially Done Still needs work
10) Jordan School Road: Improve, and add 5,000' of ditches, line and add check dams as needed, add (5) 36" x 40' cross culverts and relay (10) driveway culverts.	\$1,000,000	6 weeks	Director of Public Works	Project lengthy; partially done by State still needs some work
11) Park Avenue: Improve and add ditches.	\$1,000,000	8 weeks	Director of Public Works	In progress; completion anticipated in 2018.
12) Mill Street: Improve, and add 2,500' of ditches, line and add check dams as needed, add (3) 36" x 40' cross culverts and add (15) 15" x 20' driveway culverts. Enclose drainage system	\$500,000	6 weeks	Director of Public Works	Project completed in 2015
13) Johnson Road: Improve and add 2,300' of ditches and add check dams as needed.	\$20,000	3 weeks	Director of Public Works	Funded 2010 CIP. In Progress as long term project.
14) East Waterman Road: Improve, and add 3,700' of ditches, line and add check dams as needed.	\$140,000	4 weeks	Director of Public Works	Completed
15) Hobart Road: Improve, and add 3,000' of ditches, line and add check dams as needed.	\$31,000	4 weeks	Director of Public Works	Project done with city funds
16) Moose Brook Road: Upsize bridge.	\$45,000	4 weeks	Director of	Project done with city

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				Public Works	funds. 2004
17) South Witham Road: Upsized culverts and add ditches.	\$30,000	4 weeks		Director of Public Works	Project done with city funds. 2004
18) Jackson Hill Road: Improve and add ditches.	\$130,000	4 weeks		Director of Public Works	Project done with city funds. 2004
19) Pownal Road: Improve and add ditches.	\$330,000	6 weeks		Director of Public Works	Project done with city funds. 2017
20) Maple Hill Road: Improve, and add ditches.	\$687,500	5 weeks		Director of Public Works	Project done with city funds.
21) Broad Street: Improve and add ditches.	\$390,000	4 weeks		Director of Public Works	Project done with city funds.
22) Fickett Road: Add ditches and upsize culverts.	\$30,000	4 weeks		Director of Public Works	Needs ditching
23) Sopers Mill Road: Add 5,000' of ditches, line and add check dams as needed, add (5) 36" x 40' cross culverts and relay (10) driveway culverts.	\$40,000	5 weeks		Director of Public Works	Project done with city funds. 2007
24) Danville Corner Road: Improve and add ditches and upsize culverts.	\$300,000	5 weeks		Director of Public Works	Project done with city funds. 2005
25) Witham Road: Improve and add ditches, upsize culverts.	\$160,000	3 weeks		Director of Public Works	Project done with city funds. 2002
26) Butler Hill Road: Add ditches, upsize culverts. Blast ledge.	\$30,000	3 weeks		Director of Public Works	Project done with city funds.
27) McKinnon Street: Improve and add ditches and upsize culverts.	\$140,000	4 weeks		Director of Public Works	Project done with city funds. 2007
28) Vickery Road: Improve and add ditches,	\$200,000	4 weeks		Director of	Project done with city

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upsized culverts.			Public Works	funds. 2001
29) Carrier Court: Improve and add ditches, upsized culverts.	\$100,000	4 weeks	Director of Public Works	Project done with city funds. 2001
30) Martindale Road: Improve and add ditches, upsized culverts.	\$108,000	3 weeks	Director of Public Works	Project done with city funds. 2001
31) Lake Street: replace catch basins near Lake Street School.	\$15,000	1 week	Director of Public Works	Project done with city funds.
32) Minot Avenue Area: stormwater separation	\$	N/A	Director of Public Works	Project done with city funds.
33) Western Avenue Area: stormwater separation	\$	N/A	Director of Public Works	Project done with city funds.
34) Hillcrest, Oakland, Orchard area: stormwater separation	\$	N/A	Director of Public Works	Funded 2010 CIP Completed

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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Durham	1) Swamp Road: Upsize existing multiple culverts with 8' x 4' x 40' bottomless box culvert with integrated headwalls. Flooded causing a road closure 3 times between January 1, and May10, 2010. Dig and repave.	\$123,000	3 weeks	Road Commissioner	No Progress, lack of funding.
	2) Improve drainage on Swamp Road near Meadow Brook.	\$7,000	2 weeks	Road Commissioner	No Progress/ Lack of Funds
	3) Soper Road: Upsize existing culvert with 6' x 4' x 40' bottomless box culvert with integrated headwalls. Floods at least annually causing a road closure.	\$97,000	2 weeks	Road Commissioner	No Progress
	4) Cedar Pond Road (option1): Move 250' x 20' of road, repave and add ditches 250'	\$189,000	6 weeks	Selectmen and Road Commissioner	No Progress
	5) Protect Cedar Pond Road from erosion	\$50,000	4 months	Selectmen and Road Commissioner	No Progress/ Lack of Funds

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	(Option 2): improved ditching, new culverts, rip rap, grading and elevating the road.				
	6) Reconstruct Runaround Pond Dam. Dam has been patched needs to be strengthened and repaired to prevent failure.	\$200,000	12 weeks	Selectmen and Road Commissioner	No Progress/ Lack of Funds
	7) Add culvert, protect inlet/outlet and improve drainage on Auburn Pownal Road where Twin Brooks flow into Runaround Pond. Even with the increased culvert size it floods at least annually causing a road closure.	TBD	1 week	Road Commissioner	Project requires clarification
	8) Improve and armor ditches on Brickyard Hill and Shiloh Roads where steep slopes create problems.	\$15,000	2 weeks	Road Commissioner	No Progress/ Lack of Funds
	9) Brickyard Hill and Shiloh Road: Remove ledge as needed and stabilize slope 5' x 400' and ditch 400'.	\$15,700	3 weeks	Road Commissioner	No Progress/La ck of Funds

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10) Meadow Road. Elevate 5,000' x 21' x 2', stabilize shoulders upsize (13) 15" x 40' culverts with 18" x 40' HDPE culverts.	\$1,100,000	6 weeks	Road Commissioner	No Progress/Lack of Funds
11) Raise Snow Road to prevent flooding from Gerrish Brook.	\$18,000	3 weeks	Road Commissioner	Project done with 2006 funds.
12) Shiloh Road: Replace Bridge over Pinkham Brook.	\$90,000	3 weeks	Road Commissioner	Project done with town funds. 2005
13) Replace Mill Pond Bridge	\$128,000	4 weeks	Road Commissioner	Project done with town funds. 2015
14) Brickyard Hill install catch basin and widen. Problems with erosion.	\$790,000	4 weeks	Road Commissioner	Partially complete
15) Auburn-Pownal Road: Upsize culvert and improve drainage.	\$40,000	3 weeks	Road Commissioner	Project done with town funds. 2008
16) New Gloucester Road: Upsize culvert and improve drainage.	\$18,000	3 weeks	Road Commissioner	Project done with town funds. 2008

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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Greene	1) Coburn Road: Replace 2 cross culverts 22"x40', 300 400 ft. of ditching and stone line a portion.	\$123,000	3 weeks	Road Commissioner with assistance from Androscoggin Water and Soil	Completed
	2) Coburn Rd: Add Base gravel 1,000' x 21' x 6", ditch 1,000, and add (5) 24" x 40' cross culverts.	\$7,000	2 weeks	Road Commissioner	Completed
	3) Quaker Ridge Road: Improve Drainage remove ledge as needed.	Town Funds	4 weeks	Road Commissioner	Completed
	4) Morse Cemetery Road: Ditch and line 400' remove ledge as needed, add (4) 24" x 40' HDPE culverts.	\$12,000	4 weeks	Road Commissioner	Completed
	5) North Mountain Road: Ditch and line 800', upsize (6) 12" x 40' with 24" x 40' HDPE culverts.	\$16,000	3 weeks	Road Commissioner	In Progress Long project, continued through 2017

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	<p>6) Old Green Road: Improve drainage. Reclaiming road on existing asphalt, cross culvert, bring in gravel and re-gravel, 2" modified binder asphalt. On town line; raise dip and lower the rise.</p>	<p>Town Funds</p>	<p>3 weeks</p>	<p>Road Commissioner</p>	<p>Continue to work through list of projects</p>
	<p>7) River Road: Elevate causeway 200' x 21' x 24" and stabilize shoulders, ditch 1,500' and add (9) 24" x 40' culverts. Florida Power and Light (FPL) is working near causeway at Cherry Pond doing road upgrades.</p>	<p>FPL \$60,000</p>	<p>6 weeks</p>	<p>Road Commissioner</p>	<p>Continue to work through list of projects</p>
	<p>8) Improve drainage on Quaker Ridge Road north of Patton Road; blast ledge to move the ditch further from the travel way to minimize erosion on this steep road.</p>	<p>\$8,000</p>	<p>2 months</p>	<p>Town Manager and Road Commissioner</p>	<p>Completed and repaved</p>

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	9) Improve ditches, including armoring if required, on Morse Cemetery Road; road is very steep.	\$7,000	2 months	Town Manager and Road Commissioner	Completed
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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Leeds	1) Knapp Road: Improve drainage, upsize culverts and elevate portion of road.	Town Funds	N/A	Road Commissioner	Project done with town funds. 2007
	2) Jennings Road: Ditched and upsize culvert from 15" x 40' to 24" x 40'.	Town Funds	3 weeks	Road Commissioner	Project done town funds 2007
	3) Anson Road: Ditched and lined 300' and upsized culverts from 24" x 40' to 36" x 40'.	Town Funds	4 weeks	Road Commissioner	Project done FEMA PA and town funds. 2007
	4) Bishop Hill, Depot and Lake Shore Drive: Added 36" x 40' culvert and discontinued Depot Rd.	Town Funds	3 weeks	Road Commissioner	Project done with town funds. 2007
	5) Austin River Road: Upsized existing culvert from 24" x 40' to 36" x 40' and elevate 300' x 21' x 3'.	Town Funds	3 weeks	Road Commissioner	Project done with town funds. 2005
	6) River Road: Upsized existing box culvert to 60" x 60' and elevate 300' x 21' x 3'.	Town Funds	4 weeks	Road Commissioner	Project done with town funds. 2003

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	7) Sumner Road (paved): Ditch and stone line 500' and upsize existing culvert from 30" x 60' to 48" x 60' and riprap intake and outlet.	\$51,714	6 weeks	Road Commissioner	Newly listed project Completed with 2011 HMGP Grant
	8) Bernie Hartford Road: Install geotextile and elevate 2,500, 22' x 36" stabilize shoulders and add (5) 24" x 40' culverts.	\$45,000	5 weeks	Road Commissioner	Not done; lack of funding
	9) South end of Bishop Hill Road 300'	\$32,000	2 weeks	Public Works Director	Not done; lack of funding

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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Lewiston	1) Bartlett Street: Add 48" storm drain inlet	\$50,000	2 months	Public Works Director	New Project
	2) Protect Tall Pines and Randall Road sewage pump stations from flooding.	\$100,000	N/A	Director of Public Works	Project done with town funds.
	3) River Road: Elevate road 1000' x 24' x 3-4' and stabilize shoulder.	\$135,000	4 weeks	Director of Public Works	Done with City Funds 2012
	4) Wood, Nichols, Davis, White and Bardwell Streets: Improve drainage, separate storm water and sewer systems. Install 1,200' x 15", 900' x 10", 1,350' x 18", 115' x 12", 850' x 24", 1,200' x 36", 1,100' x 48" underground drainage and 1,900' of 22" x 44" brick sewer. Add (3) manholes.	\$2,850,000	3 months	Director of Public Works	Done with City Funds 2011
	5) Enterprise at Saratoga: Upsize existing triple 48" x 100' cmps with 6' x 12' x 100' bottomless box culvert and riprap intake and outlet.	\$98,000	5 weeks	Director of Public Works	Done with City Funds
	6) Lexington at	\$135,000	5 weeks	Director of	Done with

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Saratoga: Upsize existing triple 48" x 140' culverts with 6' x 12' x 140' bottomless box culvert and riprap intake and outlet.			Public Works	City Funds
7) River Road: Add catch basin and underground drainage 12" x 40'.	\$12,000	2 weeks	Director of Public Works	Done with City Funds
8) Lisbon by Foch Street: Upsize (3) 12" x 40' culverts with 18" x 40' hdpe and add (1) catch basin.	\$6,000	3 weeks	Director of Public Works	Done with City Funds 2017
9) Sabattus Street Install 12" x 40' overflow culvert, replace curb and sidewalk, repave and stabilize shoulders.	\$10,000	3 weeks	Director of Public Works	Done with City Funds
10) Webster @ Jeannette Ave: Upsize 30" x 150' culvert with 36" x 150' RCP.	\$15,000	5 weeks	Director of Public Works	Done with City Funds
11) Highland Spring Road: Ditch and line 600' and add (3) catch basins. Ditch is not deep enough for large diameter pipe, ledge in ditch needs blasting.	\$11,000	3 weeks	Director of Public Works	Done with City Funds

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12) Old Farm Road:	Town Funds	N/A	Director of Public Works	Project done with town funds.
13) Orestis Way: Add manhole	\$6,000	N/A	Director of Public Works	Project done with town funds.
14) Mower Ave:	Town Funds	N/A	Director of Public Works	Project done with town funds.
15) Lemay Ave:	Town Funds	N/A	Director of Public Works	Project done with town funds.
16) Bartlett Street:	Town Funds	N/A	Director of Public Works	Project done with town funds.
17) Dingley Street:	Town Funds	N/A	Director of Public Works	Project done with town funds.
18) East Ave:	Town Funds	N/A	Director of Public Works	Project done with town funds.
19) River Road past LAWPCA	N/A	N/A	N/A	South and Locust will be rehabbed by MDOT
20) Main Street by Switzerland Road and sewer upstream. Manhole cover gets blown off due to undersized sewer pipe.	N/A	N/A	N/A	No progress part of larger project
21) Birch Street behind Polar Paint.	N/A	N/A	N/A	Privately owned basin, problem resolved at this time
22) Pettingill Street	N/A	N/A	N/A	Done

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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Lisbon	1) Burrough River Road: Upsize culverts and rebuild road.	N/A	N/A	Road Commissioner	Project done with town funds 2009.
	2) Davis Street; Improve drainage. Elevate 3,000' x 21' x 3' and repave.	\$65,000	6 weeks	Road Commissioner	Project done with town funds 2009.
	3) River Road: Improve drainage.	Town Funds	N/A	Road Commissioner	Project done with town funds.
	4) Upland Road: Improve drainage and rebuild road.	N/A	N/A	Road Commissioner	Project done by MaineDOT
	5) Pump Station: Elevate generator and electronics at Route 196 Davis Street Station.	\$12,000	2 weeks	Road Commissioner	Project to be done with town funds 2010.
	6) Improve drainage on Ferry Road near Clay Corner to minimize erosion; enlarge culvert also, investigate drainage problems on Ferry Road between Marshall and Nason Streets	N/A	N/A	N/A	Project partially completed by town in 2009, still needs work.

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	7) Fischer Road: rebuild and replace bridge	\$252,000	1 month	Road Commissioner	Project done with Town Funds 2013
	8) Bowdoinham Road: Bridge #3530 Replacement.	\$150,000	1 month	Public Works Director	Culvert replaced in 2004
	9) Ferry Road: Culvert upgrade adjacent to 73 Ferry Road	\$150,000	1 month	Public Works Director	New Project
	10) Pump Station Generators: 7 single-phase generators 2 3-phase generators	\$8,000 each \$12,000 each		Public Works Director	New Project
	11) Treatment Plant Generator	\$150,000		Public Works Director	New Project

Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Livermore	1) Goding Road: Improve drainage add (3) culverts and elevate 600'.	Town Funds	N/A	Highway Foreman	Project done with town funds.
	2) Turkey Lane Road: Improve drainage.	\$153,200	4 weeks	Contractor Hwy Foreman	Completed 2006 HMGP grant

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	3) River Road: Mitigate flooding to a 50-year event standard by elevating approximately 600' of 21'- wide road (4' elevation suggested), and upsize existing galvanized culvert from 36" to 4' HDPE, stabilize shoulders and repave	\$50,000	4 weeks	Town Administrator, Highway Foreman & Road Committee	Deferred; lack of funding
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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Livermore Falls	1) Moose Hill Road: Upsize culvert.	PA/Town Funds	N/A	Road Commissioner	Project done with FEMA Public Assistance and town funds
	2) South Road: Upsized culvert to 48" x 60'.	\$25,000	N/A	Road Commissioner	Project done with town funds.
	3) Cargill Street: Upsize existing underground drainage from 1,000' x 12" to 1,000' x 18" and add two catch basins.	\$45,000	6 weeks	Road Commissioner	Town deleted from project list.
	3) Cargill Street: Slip line existing underground drainage	\$15,000	1 week	Road Commissioner	New Project
	4) Campground Road: Add 48" x 40' HDPE culvert and riprap intake and outlet.	\$4,500	3 weeks	Road Commissioner	Completed with Town Funds

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5) Baldwin Street: Add 6 a couple catch basins and improve drainage.	\$15,000	3 weeks	Road Commissioner	No Progress / Lack of Funds
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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Mechanic Falls	1) Standpipe Hill Road: Improve drainage upsize culverts.	PA/Town Funds	N/A	Road Commissioner	Project done with FEMA Public Assistance and town funds
	2) Riverside Drive: Upsize culverts and ditch.	\$6,000	Unknown	Road Commissioner	Completed
	3) North Street: Upsize culverts and elevate and ditch.	PA/Town Funds	N/A	Road Commissioner	Project done with FEMA Public Assistance and town funds
	4) Elm Street: Rebuild road bed and ditch 5,000'.	Unknown	6 weeks	Road Commissioner	No progress; lack of funds
	5) Libby Road: Add 18" x 40' HDPE and repave.	\$2,500	3 weeks	Road Commissioner	Deferred; lack of funds
	6) Lane Road: Removed twin culverts and installed open box culvert w/stream simulation and wingwalls	\$133,211	3 weeks	Contractors, Road Commissioner	Completed 2015 HMGP grant

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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Minot	1) Shaw Hill Road: Upsize existing 48" x 50' culvert with 6' x 8' 50' bottomless box culvert with integrated headwall and repave. Consideration is to be made to trailer parks.	\$51,051	4 weeks	Road Commissioner	Completed with Town Funds & HMGP Funds 2012
	1) Death Valley Road: Stream crossing, upsize culverts, install wing walls, lift road	\$35,000	2 weeks	Town Administrator	Newly listed project
	2) Bucknam Bridge Road: Elevate 1,000' x 4' x 21 stabilize shoulders and repave. Install (2) 24" cross culverts.	\$87,000	6 weeks	Road Commissioner	Costs revised but no funds at this time
	3) Center Minot Hill Road: Ditch and line 1, 700' add cross and driveway culvers with plunge pools as needed.	Town Funds	4 weeks	Road Commissioner	Project done with town funds. 2007

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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Poland	1) North Raymond Road: Elevate roadways 36"; add geotextiles; re- pave; stabilize shoulders; add (4) cross culverts (40' each). Section a, about 1/4 miles from Rte. 11 1800'x20' and section b, No. Raymond Rd. Extension 2500'x20'.	\$190,000	6 weeks	Road Commissioner	Deferred; lack of funds.
	2) Johnson Hill Road: Blast ledge ditches; 2 sections 1250' each. Armor and stabilize ditches; check dams; add (4) cross culverts (40' each). Section a between Heath Rd and Abrams Ln 1250'x20'and section b Johnson Hill to Casco Town Line 1250'x20'.	\$75,000	4 weeks	Road Commissioner	No Progress/ Lack of Funds Mostly complete; some ditching remains to be done.

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	3) Hardscrabble Road: Elevate two sections of road 500' x 20' x 24" and stabilize shoulders.	\$20,000	4 weeks	Road Commissioner	Deferred; lack of funds.
	4) Increase the size of the culvert and improve outlet conditions on Brown Road at the Mechanic Falls line.	N/A	N/A	N/A	Done
	5) Improve upslope ditches and add cross culverts on Birch Drive	N/A	N/A	N/A	Done

Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Sabattus	1) Long Beach Road: Retrofit pump station by raising or replacing with submersible pump.	\$12,000	2 weeks	Road Commissioner	Deferred; lack of funds.
	2) Marsh Road #1 (from the intersection of Route 126 and Marsh Road at .15ths): Upsize stone culvert with 4' x 6' x 50' bottomless box culvert, elevate 300' x 2' x 24' repave and stabilize shoulders.	\$37,000	4 weeks	Road Commissioner	Some work completed; more to do.
	3) Marsh Road #2 (from the intersection of Route 126 and Marsh Road at .4 to .6ths): Upsize stone culvert with 4' x 6' x 50' bottomless box culvert, elevate 600' x 2' x 24' repave and stabilize shoulders.	\$150,000	4 weeks	Road Commissioner	Deferred; lack of funds.

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<p>4) Marsh Road #3 (from the intersection of Route 126 and Marsh Road at 2.4 miles): Upsize stone culvert with 4' x 6' x 50' bottomless box culvert, elevate 600' x 2' x 24' repave and stabilize shoulders.</p>	<p>\$127,000</p>	<p>4 weeks</p>	<p>Road Commissioner</p>	<p>Deferred; lack of funds.</p>
<p>5) Maxwell Road (extension of Marsh Road) (from the intersection of Route 126 and Marsh Road at 3.0 miles): Upsize existing culverts with 4' x 5' x 50' bottomless box culvert, elevate 500' x 2' x 24' repave and stabilize shoulders.</p>	<p>\$110,000</p>	<p>3 weeks</p>	<p>Road Commissioner</p>	<p>Deferred; lack of funds.</p>
<p>6) Webster Corner Road: Improve drainage by upsizing existing (5) 15" x 20' culverts with 18" x 20' HDPEs, Ditch and line 2,000' remove ledge as needed and add check dams.</p>	<p>\$22,000</p>	<p>3 weeks</p>	<p>Road Commissioner</p>	<p>No Progress/ Lack of Funds</p>
<p>7) Dube Drive (intersection at Crowley Road): Upsize existing culvert with 4'x5'x50' bottomless box culvert, elevate 200' x 2'x24' repave, ditch along Crowley Road 750'.</p>	<p>\$30,000</p>	<p>4 weeks</p>	<p>Road Commissioner</p>	<p>Deferred; lack of funds.</p>

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Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Turner	1) Fish Street: Move road 300' x 21' 15 feet away from river. Bank Stabilization to halt slumpage; mitigated with bendway weirs (rock vanes) resloping, and plantings.	\$124,465	3 years	Road Commissioner Contractors	Completed in 2014 HMGP grant
	2) Tidswell Road: Upsize existing 14' x 50' culvert with 14' x 8' x 40' bottomless box culvert and with integrated headwalls and upsize (2) 18" x 30' culverts with 24" x 40' HDPE'S and repave.	\$65,000	4 weeks	Road Commissioner	Still evaluating engineering concerns
	2) River Road: Elevate road 1000' x 24' x 3-4' and stabilize shoulder.	\$135,000	4 weeks	Director of Public Works	Done with Town Funds 2012
	3) Allen Road: Elevate and repave 100' x 21' x 3' and stabilize shoulders.	\$22,000	4 weeks	Road Commissioner	Partially in Hebron; working to collaborate.
	4) County road near Walker Hill Road: Ditch and line 60', upsize (2) 15" x 20 culverts with 18" x 30' HDPE'S	\$6,000	3 weeks	Road Commissioner	Done
	5) Colony Drive: Ditch and line.	\$12,000	2 weeks	Road Commissioner	Project done with town funds. 2008
	6) Snell Hill Road: Upsize (4) culverts with 15" x 40' HDPE'S and elevate (2) sections of road 100' and elevate two sections of road 100' and 400' x 21' x 2' and repave.	\$31,000	4 weeks	Road Commissioner	Deferred; lack of funds.

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7) Harlow Hill Road: upsized existing 15" x 20' culvert with 18" x 30' HDPE, repave and ditch and line 80'	\$5,000	2 weeks	Road Commissioner	Done with town funds.
8) Mason Road: Ditch and line 2,500'.	\$7,500	4 weeks	Road Commissioner	Done
9) Conant Road: Upsize (4) culverts with 18" x 40' HDPE'S and ditch and line 400'.	\$8,000	4 weeks	Road Commissioner	Done
10) Young Road: Upsize (2) 15" x 40' culverts with 18" x 40' HDPE'S and riprap intake and outlet.	\$5,000	3 weeks	Road Commissioner	Done
11) East Hebron Road: Ditch and remove ledge as needed and line ditches. Upsize culvert and buildup road near entrance of Sable Drive.	\$28,000	4 weeks	Road Commissioner	Project done with town funds. 2008-9
12) Bennett Road: Upsize existing 12" x 20' culvert with 15" x 20' HDPE and ditch and line 60'.	\$4,000	3 weeks	Road Commissioner	Done
13) Retrofit dam and outlet structure on Pleasant Pond to protect the dam and minimize downstream erosion.	\$20,000	5 months	Town Manager and Public Works Director	Done 2006
14) Construct ditches and ditch turn-outs and install cross culverts and rip rap on Harlow Hill Road to minimize erosion on and to keep water from flowing to Route 219.	\$15,000	3 months	Town Manager and Public Works Director	Done 2008
15) Improve drainage on East Hebron Road through ditching, and placing rip rap.	N/A	N/A	Town Manager and Public Works Director	Done

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	16) Improve drainage on Colony Drive through ditching and placing rip rap.	N/A	N/A	Town Manager and Public Works Director	Done
	17) Improve drainage on the south end of Harlow Hill Road, including blasting, ditching and placing rip rap.	\$6,500	1 week	Town Manager and Public Works Director	Still working through list

Town	Projects (in priority order)	Cost Estimate 2017	Timeline	Responsible Agent	Status
Wales	1) Avenue Road: upsize bridge at jock stream and add "beaver deceiver" elevate intersection 450' x 21' x 12" and repave.	\$30,000	6 weeks	Road Commissioner	Town has done partial work. Minor paving more work still needs to be done.
	2) Bull Run Road: Install additional 15" x 40' cross culvert and repave.	\$2,500	3 weeks	Road Commissioner	Newly listed project

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SECTION 6 - PLAN MAINTENANCE PROCESS

Monitoring, Evaluating and Updating the Plan

Requirement 201.6(c)(4)(i): 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.

For any plan to be effective, it must be implemented and maintained. This plan provides the strategies which will make Androscoggin County more resistant to disasters; where appropriate, primary and support responsibilities have been assigned, particularly for the county-wide strategies. By adopting this plan, each community, as well as Androscoggin County, is agreeing to continue the process of implementing these strategies; the Emergency Management Director for each town will ensure that hazard mitigation remains on the radar screen in his/her town.

A. Monitoring the Plan

Annually, during the July or October meeting of the local Emergency Management Directors, the plan will be reviewed to monitor progress that has been made. The Director of the Androscoggin Unified Emergency Management Agency will be responsible for ensuring that the review is on the agenda and that the appropriate people are invited to attend.

[paragraph moved to “updating”]

B. Evaluating the Plan

The effectiveness of the strategies to meet the plan goals will be evaluated biannually. Criteria used to make this evaluation will include an analysis of dollar losses due to disaster declarations and/or significant natural hazard events that were localized but which may not have met declaration thresholds. A survey of county residents to gauge their disaster preparedness may also be conducted periodically if appropriate to the conditions.

The plan is also being evaluated through various measures at county and local levels. Annually and after each disaster declaration, Androscoggin Unified EMA will review the hazards risk assessment to determine if it is still valid. In addition, Androscoggin Unified EMA will contact towns in regards to Form 7 briefings and submittals, workshops on project applications, and for the status on existing projects and the addition of new projects.

The County Commissioners, municipal officials and the public will be invited to the annual review meeting. Municipal officials, such as the selectmen, town managers and road commissioners will receive a notice of the meeting. Information regarding the meeting will also be available through the press, and mailings. A disk copy of the hazard mitigation plan will be available at each municipal office and public library in the county

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and at Androscoggin Unified Emergency Management Agency for inspection by the public.

C. Updating the Plan

[This paragraph moved and re-ordered from “monitoring”] As part of the five-year update process, any disasters that occurred during the preceding years will be added to the relevant “occurrences” tables and will be analyzed to determine whether new strategies are needed to address those types of events. Actions and projects that have been completed will be noted in the “status” columns in the Strategy section. They may be removed from the list if no longer valid. New actions or projects may be added, if appropriate. Any strategies that have not been implemented will be evaluated and steps taken to get the strategy under way, such as assigning a specific person to be responsible, or to decide that it is no longer appropriate. Every town is notified annually about adding new projects or updating the status of existing projects via email and letters.

Incorporation into Existing Planning Mechanisms

Requirement 201.6(c)(4)(ii): The plan shall include processes by which local government incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Many of the municipalities within Androscoggin County have building codes to guide and control development in their communities. The municipalities are responsible for administering their own building codes in their communities.

Available planning mechanisms at the municipal level, and the extent to which they have incorporated hazard mitigation, include:

- Lewiston and Auburn have adopted local comprehensive plans;
- Capital improvement plans (some of the larger municipalities have capital improvement plans; most of the smaller ones do not, but they do have local budgeting processes which are used to examine potential expenditures in detail and establish overall spending priorities);
- Local flood plain management ordinances (all 14 communities);
- Road maintenance planning efforts;
- Emergency management and mitigation planning;
- Fire prevention planning; and
- Grant writing (most of the County’s municipalities have been active in applying for grants to address municipal priorities).

Most the mitigation measures that were identified, and all the projects selected by individual communities are either structural, educational, or emergency planning measures.

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After adoption of the Hazard Mitigation Plan, the Androscoggin Unified EMA will assist the municipal officers in implementing their selected mitigation measures through all available options. Androscoggin Unified EMA will also continue to assist municipalities with the completion of FEMA Hazard Mitigation Assistance (HMA) grant application packages by working one-on-one with town representatives, hosting grant workshops, facilitating contact with state agencies and disseminating notification of grant opportunities.

The individual or committee within each municipality that is responsible for the implementation and completion of each mitigation measure will notify Androscoggin Unified EMA whenever assistance is needed or whenever a measure is completed. Existing programs such as local comprehensive planning efforts, municipal road maintenance planning efforts, and HMA programs will be utilized to their greatest extent to complete the community's mitigation measures.

Continued Public Involvement

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

Plan maintenance is at the public service level; fire departments, road commissioners, local EMA directors, are all plugged into their community and are able to offer quality participation. The Androscoggin County Hazard Mitigation Plan will remain available on the AUEMA website.

AUEMA has 212 slides available that can be selectively displayed at appropriate times on the Great Falls TV cable access channel. This messaging technique has proven to be successful in keeping citizens aware of upcoming activities and hazard information.

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Maine's comprehensive planning law requires communities to include hazard assessment in their plans. Towns included in this hazard mitigation plan can reference this plan in their new or updated comprehensive plans and will discuss natural hazards during the planning process.

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The address and phone number of the Androscoggin Unified EMA office is:

**Androscoggin Unified Emergency Management
Agency**

2 College Street

Lewiston, ME 04240-7101

Tel: 207-784-0147

FAX: 207-795-8938 or 207-784-3365

E-Mail: jpotvin@androscoggincountymaine.gov

Web Site: <http://www.androscogginema.org>

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SECTION 6 - PLAN MAINTENANCE PROCESS

Monitoring, Evaluating and Updating the Plan

Requirement 201.6(c)(4)(i): 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.

For any plan to be effective, it must be implemented and maintained. This plan provides the strategies which will make Androscoggin County more resistant to disasters; where appropriate, primary and support responsibilities have been assigned, particularly for the county-wide strategies. By adopting this plan, each community, as well as Androscoggin County, is agreeing to continue the process of implementing these strategies; the Emergency Management Director for each town will ensure that hazard mitigation remains on the radar screen in his/her town.

A. Monitoring the Plan

Annually, during the July or October meeting of the local Emergency Management Directors, the plan will be reviewed to monitor progress that has been made. The Director of the Androscoggin Unified Emergency Management Agency will be responsible for ensuring that the review is on the agenda and that the appropriate people are invited to attend.

[paragraph moved to “updating”]

B. Evaluating the Plan

The effectiveness of the strategies to meet the plan goals will be evaluated biannually. Criteria used to make this evaluation will include an analysis of dollar losses due to disaster declarations and/or significant natural hazard events that were localized but which may not have met declaration thresholds. A survey of county residents to gauge their disaster preparedness may also be conducted periodically if appropriate to the conditions.

The plan is also being evaluated through various measures at county and local levels. Annually and after each disaster declaration, Androscoggin Unified EMA will review the hazards risk assessment to determine if it is still valid. In addition, Androscoggin Unified EMA will contact towns in regards to Form 7 briefings and submittals, workshops on project applications, and for the status on existing projects and the addition of new projects.

The County Commissioners, municipal officials and the public will be invited to the annual review meeting. Municipal officials, such as the selectmen, town managers and road commissioners will receive a notice of the meeting. Information regarding the meeting will also be available through the press, and mailings. A disk copy of the hazard mitigation plan will be available at each municipal office and public library in the county

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and at Androscoggin Unified Emergency Management Agency for inspection by the public.

C. Updating the Plan

[This paragraph moved and re-ordered from “monitoring”] As part of the five-year update process, any disasters that occurred during the preceding years will be added to the relevant “occurrences” tables and will be analyzed to determine whether new strategies are needed to address those types of events. Actions and projects that have been completed will be noted in the “status” columns in the Strategy section. They may be removed from the list if no longer valid. New actions or projects may be added, if appropriate. Any strategies that have not been implemented will be evaluated and steps taken to get the strategy under way, such as assigning a specific person to be responsible, or to decide that it is no longer appropriate. Every town is notified annually about adding new projects or updating the status of existing projects via email and letters.

Incorporation into Existing Planning Mechanisms

Requirement 201.6(c)(4)(ii): The plan shall include processes by which local government incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Many of the municipalities within Androscoggin County have building codes to guide and control development in their communities. The municipalities are responsible for administering their own building codes in their communities.

Available planning mechanisms at the municipal level, and the extent to which they have incorporated hazard mitigation, include:

- Lewiston and Auburn have adopted local comprehensive plans;
- Capital improvement plans (some of the larger municipalities have capital improvement plans; most of the smaller ones do not, but they do have local budgeting processes which are used to examine potential expenditures in detail and establish overall spending priorities);
- Local flood plain management ordinances (all 14 communities);
- Road maintenance planning efforts;
- Emergency management and mitigation planning;
- Fire prevention planning; and
- Grant writing (most of the County’s municipalities have been active in applying for grants to address municipal priorities).

Most the mitigation measures that were identified, and all the projects selected by individual communities are either structural, educational, or emergency planning measures.

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After adoption of the Hazard Mitigation Plan, the Androscoggin Unified EMA will assist the municipal officers in implementing their selected mitigation measures through all available options. Androscoggin Unified EMA will also continue to assist municipalities with the completion of FEMA Hazard Mitigation Assistance (HMA) grant application packages by working one-on-one with town representatives, hosting grant workshops, facilitating contact with state agencies and disseminating notification of grant opportunities.

The individual or committee within each municipality that is responsible for the implementation and completion of each mitigation measure will notify Androscoggin Unified EMA whenever assistance is needed or whenever a measure is completed. Existing programs such as local comprehensive planning efforts, municipal road maintenance planning efforts, and HMA programs will be utilized to their greatest extent to complete the community's mitigation measures.

Continued Public Involvement

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

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