

SOMERSET COUNTY ME HAZARD MITIGATION PLAN 2012 UPDATE

SECTION 4. RISK ASSESSMENT

Introduction

In compliance with 4 Code of Federal Regulations, Part 201.6(c)(2), this section of the Plan identifies, profiles and assesses the vulnerability of Somerset County to natural hazards. Our local risk assessments provide sufficient information to enable Somerset County to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. This plan includes detailed descriptions of all the potential hazards that could affect Somerset County, along with an analysis of Somerset County's vulnerability to those identified hazards. Specific information about numbers and types of structures, potential dollar losses, and an overall description of land use trends in Somerset County are included in this analysis. Because this is a multi-jurisdictional plan, the risks that affect only certain regions of the County were assessed separately in the context of the affected region.

This section includes the following eight subsections: (the numbering system begins with 5 to correspond to numbered sections of the Code of Federal Regulations):

- 5. Identifying Hazards (#5 below)
- 6. Profiling Hazards (#6 below)
- 7. Assessing Vulnerability: (#7 below)
- 8. Assessing Vulnerability: Addressing repetitive loss properties (#8 below)
- 9. Assessing Vulnerability: Identifying Structures (#9 below)
- 10. Assessing Vulnerability: Estimating Potential Losses (#10 below)
- 11. Assessing Vulnerability: Analyzing Development Trends (#11 below)
- 12. Multi-jurisdictional Risk Assessment (#12 below)

5. Identifying Hazards	
Requirement §201.6(c)(2)(i): (The risk assessment shall include a) description of the type...of all natural hazards that can affect the jurisdiction.	
Element	A. Does the new or updated plan include a description of the types of all natural hazards that affect the jurisdiction?

A. Description of All Natural Hazards potentially affecting Somerset County

The following table identifies all of the natural hazards that could potentially affect Somerset County. The list is based on FEMA's list of natural hazards, although some of the natural hazards have been grouped together. For example, blizzards, ice storms, nor'easters and snow storms are grouped under winter storms, even though nor'easters can occur at other times of the year.

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Summary of All Natural Hazards potentially affecting Somerset County		
Summary of Hazards Profiled in this Plan		
Natural Hazards	Applicability to Somerset County	Comments
Flooding and Dams	Review of FEMA flood studies, FIRM maps, input from residents, review of disaster declarations since 2005, identification of repetitive losses, review of SLOSH Maps, Committee knowledge and 2010 State Plan.	Flooding is associated with the effects of hurricanes, ice and snow build-up in the mountains and rivers, ice dams and spring runoff. Several repetitive loss properties and roadways are located in the County. The County contains eight major rivers and many streams and lakes, and is located in the foothills and mountains. It also has dams of high, significant and low hazard potential with some requiring FERC or MEMA EAPs.
Winter Storms	Review of disaster declarations since 2005, inputs from residents, risk assessments, review of library historical data, Committee and local knowledge, records from 1998 ice storm, 2010 State Plan.	Maine is frequently hit with major northeaster blizzards. In 1998, a major ice storm hit Maine, knocking out power in many locations for days. Being in the foothills and mountains, the County is subjected to a wide range of weather conditions. The impacts of winter storms include erosion and wind damage, road and culvert washouts.
Summer Storms	Review of disaster declarations since 2005, inputs from residents, risk assessments, review of library historical data, Committee and local knowledge, 2010 State Plan.	Somerset County is frequently hit with thunderstorms, heavy wind and rain storms, hail and lightning, and less frequently by hurricanes. Summer storms are often accompanied by high winds, road and culvert washouts.
Wildfires	Review of Maine Forest Service records since 2005, input from residents, risk assessments, Committee and local knowledge, 2010 State Plan.	Much of the County is covered with forests. In 1957, there were several large forest fires in our County involving over 3,800 acres. Between 2005 and 2010, there were 261 minor wild land fires in the County.

Hazards not Profiled in this Plan		
Natural Hazards	Applicability to Somerset County	Comments
Landslides/ Earthquake & Rain	Review of Historical Records, Maine Geological Survey records & State EMA records	No known major landslides.
Blight/ Infestation	Review of State Entomological Office historical records, Inputs from residents	Though the County is heavily dependent on its forest industry, there are no historical records of major damage to these products that have caused serious economic conditions.
Drought	Review of State EMA records, review of NOAA records	Severe, multi-year droughts occurred in Maine in the 1960's, 1980's and from

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Hazards not Profiled in this Plan		
Natural Hazards	Applicability to Somerset County	Comments
		2000 to 2003. However, the effects of drought, such as wells running dry in some areas, have never been sufficient to create disaster conditions in Somerset County, although they have increased the danger of wildfires.
Earthquake	Review of Maine Geological Survey records	Although Earthquakes are common in Maine, no significant damaging movement has occurred in 20,000 years. All of the earthquakes that occur in Maine are intra-plate earthquakes. Maine is far inland from the boundaries of the North American plate which extends from the Mid-Atlantic ridge on the east to the western boundary of the U.S. Maine is near the middle of the plate and is therefore not subject to the frequent, deep and large earthquakes that are generated by the edges of the tectonic plates bumping into each other.
Extreme Heat	Review of State EMA records Review of NOAA records	Extreme Heat is not common in Somerset County
Subsidence/ Avalanche & Sinkhole	Review of Maine Geological Survey records	There are many mountains in the County that hold large amounts of snow which could create avalanches in undeveloped areas. There have been no known cases of subsidence or sinkhole incidents in Somerset County.
Tornado	Review of NWS records	On average 1-2 tornadoes occur in Maine each year, yet there has been no loss of life or major damages in many years.
Urban Fire	Review of local Fire Dept. records; Historical records;	We have numerous towns with compact urban areas with very old structures. Several communities have experienced numerous urban fires but the damage is localized. This is a man-made hazard, which we are not addressing in this Plan.
Utility Interruption	Review of Historical Records; review of State EMA records	There are numerous incidents of utility outages but they are usually localized and not County-wide. In January 1998 there was massive Countywide outage during "Ice Storm of 1998". This hazard is included in the profiles of other hazards – flooding, severe winter and summer storms, and wild fires.

The Somerset County Hazard Mitigation Planning Team identified and rated four natural hazards which are addressed in this Hazard Mitigation Plan. These hazards were identified through an extensive process that utilized input from members of the Hazard Mitigation Planning Team

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(comprised of representatives from state, county and municipal governments, the regional planning commission, and private, business and legal sectors), public input, researching past disaster declarations in the County, a review of current maps, and a risk assessment completed by the Somerset County Emergency Management Agency and the Hazard Mitigation Planning Team. The four hazards, and their respective ratings, are shown in the following table.

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 | |

Rating of Hazards by Hazard Mitigation Planning Team				
Type of Hazard	Potential Damages	Source of Information	Rating	Priority
Flooding	Damages to structures in flood zones, bridges, culverts and roads	FIRM	3A	1
Severe Winter Storm	Downed power lines, blocked roadways And heavy snow damage	NWS	2.5A	2
Hurricanes, Thunderstorms and Severe Summer Storms	Localized flooding and high wind damage to roads buildings, trees and utility lines	NWS	2A	3
Wildfire	Timber lost, homes lost, businesses lost	Maine Forest Service/MEMA	2A	4

6. 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.	
Elements	<p>A. Does the risk assessment identify the location (i.e., geographic area affected) of each natural hazard addressed in the new or updated plan?</p> <p>B. Does the risk assessment identify the extent (i.e., magnitude or severity) of each hazard addressed in the new or updated plan?</p> <p>C. Does the plan provide information on previous occurrences of each hazard addressed in the new or updated plan?</p> <p>D. Does the plan include the probability of future events (i.e., chance of occurrence) for each hazard addressed in the new or updated plan?</p>

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FLOODING

Somerset County is subject to flooding. The Kennebec River and its tributaries (the Carrabassett and Sandy Rivers in the western part of the County, and Sebasticook Stream in the southern part of the County) create flooding conditions during spring runoff and as a result of ice jams.

Flooding is often caused by winter runoff from heavy rain events that melt the snow pack quickly. The runoff quickly overwhelms the wetlands, ponds, lakes, streams and rivers and spreads to the neighboring surface areas. The soil is still in a state of frozen permafrost, which eliminates any soil infiltration. This flooding undercuts or overtops adjacent roads. Typically, this road damage is not major, though it can absorb the municipal road maintenance budget for an entire year and does happen in several of the towns every year.

General Definition. A temporary inundation of normally dry land as a result of: 1) the overflow of inland or tidal waters; and/or 2) the unusual and rapid accumulation or runoff of surface waters from any source. Note: the nature of Somerset County's geology and hydrology is such that flooding is usually fast rising but of short duration.

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

- Beaver Dam Flooding: Flooding resulting from back-up and overflow of water resulting from beaver dams.
- Dam failure: The sudden release of water resulting from structural collapse or improper operation of the impounding structure. Dam failure can cause rapid downstream flooding, loss of life, damage to property, and the forced evacuation of people.
- Flash flood: A flood event occurring with little or no warning where water levels rise rapidly due to heavy rains, ice jam release, or rapid snow melt.
- Ice jam: An accumulation of floating ice fragments that blocks the normal flow of a river. During a thaw or rainstorm, the rapid increase in discharge from snow melt and/or rainfall can rapidly lift and break up a thick ice cover and carry it downstream as an ice run. Ice runs can jam in river bends or against the sheet ice covering flatter reaches. The resulting ice jams can block flow so thoroughly that serious flooding may result within an hour of their formation. Failure of an ice jam suddenly releases water downstream. Damages from ice jam flooding usually exceed those of clear water flooding because of higher than predicted flood elevations, rapid increase in water levels upstream and downstream, and physical damage caused by ice chunks. Moving ice masses can shear off trees and destroy buildings and bridges above the level of the flood waters.
- Lacustrine: (Lake Flooding) occurs when the outlet for the lake cannot discharge the flood waters fast enough to maintain the normal pool elevation of the lake. During a base flood event, normal increases in water surface elevations on most Maine lakes and ponds range from 1 to 5 feet. However, in Maine there are some examples where the base flood event will reverse the flow of the outlet stream. In such instances, river and base flood elevations can rise more than 15 feet above the normal pool. While this can impact individual sport camps built near the water's edge, there are no records of major damages so this type of flood will not be further addressed in the Plan.
- Riverine/riparian: Periodic overbank flow of rivers and streams, usually the result of spring run off, but can also be caused by major rain storms.
- Urban: Overflow of storm sewer systems, usually due to poor drainage, following heavy rain or rapid snow melt. 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

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increased due to a large amount of impervious surfaces such as roof tops, sidewalks and paved streets.

A. Location of Flooding Hazard

The Kennebec River is one of Maine's two most vulnerable rivers to flooding. The Kennebec River rises from the headwaters of Moosehead Lake in Piscataquis County and courses through five counties before joining the Androscoggin River in Merrymeeting Bay and emptying into the Atlantic Ocean. Dams such as Wyman Station Dam in Moscow control the upper part of the Kennebec River basin, which drains about one fifth of the State. The dams have also spawned a river rafting industry that depends on the timed releases of water. The basin below the dams is largely uncontrolled, however, and this affects the floodplains of downstream communities. The Flagstaff dam in The Forks Plantation, is the only dam with any capacity to store flood waters. This dam mitigated the damages caused by the flood of 1987.

Towns located along the Kennebec River, from south to north, include Skowhegan, Norridgewock, Starks, Anson, Madison, Embden, Solon, Bingham, Moscow and Caratunk. North of Embden, a number of plantations and a portion of Maine's Unorganized Territory also border the Kennebec.

B. Extent (Severity) of the Hazard

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. Dam failure is not a frequent occurrence, but it can and does occur. A major issue raised by attendees at a public hearing held on October 28, 2011, is that the owner of Wyman Dam (an earthen dam) has not taken responsibility for maintaining the dam-failure emergency notification siren; the siren would not be heard by everyone; and many people would not know what the siren meant or that they needed to evacuate their homes in a matter of minutes.

Regarding the possibility of flooding from dam failure, MRSA Title 37-B, Chapter 24, also known as Maine's Dam Safety Law, classifies dams into three hazard potential ratings: high, significant and low. Each rating carries different responsibilities for the dam owners 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 listed "call down area" when there is a threat of failure or actual breach. Copies are kept by the owner, relevant local, county and state agencies and must be updated regularly. See definition excerpts from the 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"

In Somerset County, there are six High Hazard dams and seven Significant Hazard dams, as shown in the following tables.

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High Hazard Dams in Somerset County						
MEMA ID	Dam Name	Other Name	Dam Owner	Town	River	Regulated By
570	Brassua	-	FPLE Maine Hydro LLC	Not applicable	Moose River	FERC
430	Flagstaff	Long Falls	FPLE Maine Hydro LLC	The Forks Plt	Dead River	FERC
370	Waverly	Upper	Pittsfield	Pittsfield	Sebasticook River	FERC
462A	Weston-North Channel	-	FPLE Energy Maine Hydro	Skowhegan	Kennebec River	FERC
462B	Weston-South Channel	-	FPLE Energy Maine Hydro	Skowhegan	Kennebec River	FERC
456	Wyman Station	-	FPLE Energy Maine Hydro LLC	Moscow	Kennebec River	FERC
Significant Hazard Dams in Somerset County						
MEMA ID	Dam Name	Other Name	Dam Owner	Town	River	Regulated By
223	East Madison	-	Madison	Madison	East Branch	MEMA
33	Great Moose Lake	Morgan Dam	Hartland	Hartland	Sebastocook River	MEMA
468A	Moosehead East Outlet	-	FPLE Maine Hydro	Solon	Kennebec River	FERC
468B	Moosehead West Outlet	-	FPLE Maine Hydro	Not Applicable	Kennebec River	FERC
470	Moxie	-	The Forks Plantation	The Forks Plantation	Moxie Stream	MEMA
691	Mulligan Bog		IFW/State of Maine	St. Albans	Mulligan Stream	MEMA
504	West Outlet	Moosehead Lake West	FPLE Maine Hydro	Taunton & Raynham Academy Grant	Kennebec River	FERC

Source: MEMA

A dam breach of one of the high hazard dams shown in the table could cause loss of life in the following communities:

- Brassua: a portion of the Unorganized Territory along the Moose River and along the shores of Moosehead Lake;
- Flagstaff: a portion of the Unorganized Territory south of The Forks Plantation and the Town of Moscow;
- Weston-North Channel: Skowhegan and Fairfield
- Weston-South Channel: Skowhegan and Fairfield
- Wyman Station: Moscow, Bingham, Embden, Solon, Anson and Madison
- Waverly: Pittsfield, Burnham (Waldo County) and communities in Kennebec County between Burnham Junction and Winslow

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A dam breach of one of the significant hazard dams shown in the table could cause property damage in the following communities:

- East Madison: Madison
- Great Moose Lake: Hartland, Paimyra
- Moosehead East Outlet: a portion of the Unorganized Territory
- Moosehead West Outlet: a portion of the Unorganized Territory
- Moxie: The Forks Plantation
- Mulligan Bog: St. Albans
- West Outlet: a portion of the Unorganized Territory

Extent (severity) of Flood Hazard other than Dam Failure. Severe flooding can cause loss of life, property damage, disruption of communications, transportation, electric service and community services, crop and livestock damage, health issues from contaminated water supplies, and loss and interruption of business. Ironically, fire fighting efforts can be compromised if fire fighters and equipment are responding to a flood emergency.

Because of Maine's geographic features, many rivers flow steeply from the mountains toward the sea. Rivers in mountainous regions tend to rise very quickly after heavy rainfall because of the gradient of the beds and the drainage areas. Generous precipitation (about 44 inches per year) contributes to the flood potential. Low pressure systems over the ocean and the tendency of some storms to follow one another in rapid succession provide heavy, combined moisture. According to the inter-agency Flood Management/River Basin Report, 2007, (State Planning Office) the Carrabassett and Sandy Rivers are major contributors to flooding in the Kennebec River. Both tributaries are considered hydrologically flashy and contribute about 40% to the peak discharge of the Kennebec River during flood events.

Records of past flood events indicate that the April 1, 1987 flood along the Kennebec River was one of the most significant in Maine history. Flood damage along the Kennebec River and in the Kennebec Basin was the greatest for any flood (including that of March, 1936) for which data are available. According to the Flood Management/River Basin Report cited above, Somerset County communities along the Kennebec River that experienced significant flood losses included Anson, Madison, Norridgewock Skowhegan and Fairfield. Communities along the Sebasticook River that experienced significant flood losses included Hartland and Pittsfield.

C. Previous Occurrences

The table below contains a summary of major historical floods in Somerset County, as reflected primarily in Presidential Disaster Declarations.

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Historical Summary of Flooding Events in Somerset County since 1970			
Year	Month	General Description	Presidential Disaster Declaration #
1970	Jan-Feb	Severe storms, ice jams, flooding	FEMA 284
1987	April 1	Major damage to homes, businesses, public buildings, sanitation facilities, erosion	FEMA 788
1992	March 27	Heavy rains, ice jams, road & culvert damage	FEMA 940
1993	April	Heavy rains, snow melt, road & culvert damage	FEMA 988
1996	Jan	Heavy rains, snow melt, flooding and ice jams	FEMA 1106
1998	Jun 13 – July 1	Heavy rains damaged public roads and drainage systems	FEMA 1232
2000	Mar 28- Apr 26	Flooding from heavy rains, spring run-off, ice jams	FEMA 1326
2004	Dec 10-31	Severe storms, flooding, snow melt & ice jams	FEMA 1508
2005	Mar 29 – May 3	Severe storms, snow melt, flooding and ice jams	FEMA 1591
2007	Apr 15-23	Severe storms and flooding	FEMA 1693
2008	Apr 28 – May 14	Severe storms and flooding	FEMA 1755
2009	June 18 – July 8	Severe storms, flooding and landslides	FEMA 1852

Source: MEMA

Flood Losses in Dollars by Municipality. Flood losses in Somerset County have been extensive. The following table contains a summary of flood losses by Town for various Federal Disaster Declarations since 1987. The table includes only public assistance losses and does not include individual and business losses which can be substantial.

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Flood Losses in Dollars by Town and Federal Disaster Declaration Since 1987

	1987 #788	1992 #940	1993 #988	1996 #1106	1998 #1232	2000 #1326	2003 #1508	2005 #1591	2007 #1693	2008 #1755	2009 #1852
Somerset County	98,349	24,899	31,485	13,834	7,633	17,772	8,175	93,128	11,567	6,936	0
Anson	74,506	17,726	13,268	0	0	24,623	6,835	9,308	23,711	0	0
Athens	25,554	17,932	0	10,490	0	32,726	9,469	10,301	0	0	0
Bingham	45,459	15,993	29,845	6,591	0	30,899	77,772	120,504	0	12,842	208,304
Brighton Plantation	7,689	0	3,781	0	0	4,917	0	0	16,372	0	0
Cambridge	3,098	9,409	7,791	4,636	0	0	8,102	2,690	1,964	0	0
Canaan	20,406	24,410	2,587	12,875	11,739	13,795	15,368	0	6,014	12,992	0
Caratunk	165,138	21,228	14,610	7,206	35,513	1,644	0	0	0	0	0
Cornville	10,723	13,389	1,294	20,432	40,237	16,182	15,046	19,596	14,277	68,661	0
Detroit	0	0	0	0	0	0	0	0	2,278	1,043	0
Embden	49,729	18,373	40,946	1,781	0	10,924	0	0	0	0	0
Fairfield	48,311	20,927	0	0	0	0	5,667	0	7,119	4,280	0
Harmony	34,013	14,070	0	9,271	0	19,571	12,869	0	22,656	15,856	0
Hartland	1,949,355	2,369	10,103	8,314	5,937	8,982	0	0	25,545	15,383	0
Highland Pit	0	0	4,384	0	0	0	0	0	0	0	0
Ironbound Pond	0	0	5,246	0	0	0	0	0	0	0	0
Jackman	3,868	0	0	2,781	7,967	2,946	0	0	0	0	0
Madison	11,248	47,545	0	0	0	47,086	25,758	0	11,350	0	0
Mercer	32,434	50,522	348,914	25,412	23,867	62,176	21,055	55,042	15,750	0	0
Moscow	59,631	13,686	155,613	0	26,366	6,072	5,763	2,340	0	0	0
New Portland	71,318	24,647	24,518	4,224	3,886	52,807	0	53,196	20,486	0	0
Norridgewock	22,753	32,763	0	12,498	0	12,469	0	33,504	11,993	0	46,993
Palmyra	6,120	4,903	0	6,790	4,977	4,061	12,496	8,106	26,486	45,972	0
Pittsfield	41,662	0	0	0	12,771	0	13,701	0	2,547	9,760	0
Pleasant Ridge Pit	23,049	0	0	0	0	0	0	14,575	0	0	0
Ripley	6,881	4,993	0	0	0	9,780	0	0	0	0	0
St. Albans	9,752	12,099	0	0	0	0	0	0	0	40,113	0
Skowhegan	1,409,517	20,173	909	14,873	0	0	7,875	56,987	5,728	10,488	0
Smithfield	4,036	8,894	0	0	6,743	11,621	8,338	0	40,228	0	0
Solon	13,587	8,092	11,101	0	13,275	62,149	140,617	94,297	62,958	23,359	0
Starks	154,564	33,559	11,241	0	0	18,917	12,509	0	0	0	0
The Forks	0	0	3,002	0	0	0	0	0	0	0	0
West Forks Pit	3,884	0	0	0	0	0	0	0	0	4,480	0
Total	4,406,634	462,601	720,638	162,208	200,911	472,119	407,415	573,574	329,029	272,165	255,297

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D. Probability of Occurrence

Based on the history of occurrences in Somerset County, it can be expected that a major flood event will cause mostly road damage in Somerset County every one to five years.

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 standards 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 flood of April, 1987 was one of the most significant flooding events in Maine's history. According to a U.S. Geological Survey paper #2424 ("The Flood of April, 1987 in Maine"), flood damage in the Penobscot and Kennebec River basins in 1987 was the greatest for any flood (including March of 1936) for which data are available. This flood caused over \$100,000,000 in damages statewide. Public disaster assistance grants in Somerset County amounted to over \$4.4 million.

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Severe Winter Storms

General Definition. Severe winter weather conditions that are characterized by low temperatures, strong winds, and often large quantities of snow.

Types of Winter Storms in Somerset County. Severe winter weather conditions are distinguished by low temperatures, strong winds, and often large quantities of snow. A single winter storm may include one or more of the following:

- Blizzard: Sustained winds of 40 mph (miles per hour) or more or gusting up to at least 50 mph with heavy falling or blowing snow, persisting for one hour or more, temperatures of ten degrees Fahrenheit or colder and potentially life-threatening travel conditions.
- Ice storms: Rain which freezes upon contact. Ice coatings of at least one-fourth inch in thickness are heavy enough to damage trees, overhead wires, and similar objects and to produce widespread power outages.
- Nor'easter: Nor'easters (or nor'easters) are extra-tropical coastal storms that can produce tremendous amount of precipitation and strong winds. When the precipitation is in the form of snow, sleet or freezing rain, it can damage overhead utility lines and become a highway driving hazard.
- Sleet storm: Frozen rain drops (ice pellets) which bounce when hitting the ground or other objects, but in accumulated depths of two inches or more, produces hazardous driving conditions.
- Heavy snow storm: A snowfall of fifteen inches or more within 12 to 24 hours, which disrupts or slows transportation systems and the response time of public safety departments.

A. Location of Severe Winter Storms

The entire County is subject to severe storms every winter.

B. Extent (Severity) of Hazard

Somerset County is subject to severe winter storm events in the form of ice storms and blizzards, accompanied by high winds and flooding. Winter storms can threaten Somerset County any time from November through April. The Gulf Stream follows a path up the eastern seaboard, bringing major storms with it to the Gulf of Maine. Air streams containing much colder air flow down from Canada and collide with the Gulf Stream over the New England region. Nor'easters, the most severe storm in Somerset County, occur during the winter, spring and fall. They rarely develop during the summer.

Precipitation amounts can exceed several inches of water equivalent (20-30 inches of snow or more), while wind speeds can be equal to or greater than those for hurricanes that reach Maine. Loss of electrical power and communication services can impede the response of ambulance, fire, police and other emergency services, especially to remote or isolated residents. Roads can become impassable 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 with respect to older structures built prior to the advent of snow-load design standards. Heavy snow loads can also result in the formulation of ice dams on roofs, leakage and damage to building interiors.

Total snowfall in the Southern Interior (roughly the southern one third of the County) ranges from between 60 to 90 inches, while that in the Northern Division (roughly the northern two thirds of the County) ranges between 90 to 110-plus inches. The largest average seasonal snowfall totals from lengthy records are 188 inches per winter season in Jackman. Higher snowfall totals may be found

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locally, particularly at higher elevations in the northwest mountains. January is usually the snowiest month throughout the State, with December usually averaging out to be the second snowiest month.

The snow pack makes an important contribution to both surface and groundwater supplies, and years with a low snow pack can lead to water shortages by late summer. Melting of the snow pack in March and April is often gradual enough to prevent serious flooding, but in Somerset County, melting snow, combined with rainstorms, often overwhelms watersheds, ditches and culverts, which can lead to road washouts.

The ice storm of January, 1998, is still the storm of record. It had a major impact on Somerset County, in part because the entire electrical grid feeding power from Central Maine Power was damaged. Ice accumulated on the utility lines, causing them to break. The costs of the ice storm were substantial. Utility crews from Maine and throughout the East Coast worked around the clock to clear downed trees and replace power lines. In some locations, more than three inches of ice coated the rural and urban landscape.

Many state and secondary roads were closed because of downed trees on power lines. Heat, electricity, refrigeration, running water and sanitary facilities were all interrupted by the power outage. Television and radio stations remained unavailable to most citizens for more than a week. Even the Emergency Alert System failed.

On average, the length of annual maximum snow cover is four months or more throughout the County.

C. Previous Occurrences

The following is a summary of some of the most severe winter storms in Somerset County during the past 30 years.

Key:

DR: Disaster Declaration
EM: Emergency Declaration

Historical Summary of Major Winter Storm Events in Somerset County Since 1978			
Year	Month	General Description	Presidential Declaration #
1978	Jan 10	Rain/snow/ice	n.a.
1993	Mar 13, 14	Blizzard	FEMA 3099-EM
1998	Jan 5-25	"Great Ice Storm of '98"	FEMA 1198-DR
2001	Mar 5-31	Severe winter storm	FEMA 3164-EM
2003	Dec 6-7	Snow, winter storms and extreme cold	FEMA 3190-EM
2003	Dec 14-15	Snow, winter storms and extreme cold	FEMA 3194-EM
2005	Feb 10-11	Snow, winter storms and extreme cold	FEMA 3206-DR
2005	Mar 9	Snow, winter storms and extreme cold	FEMA 3209-DR

The following table contains a summary of winter storm losses by Town for various Federal Disaster or Emergency Declarations since 1993. The table includes only public assistance losses and does not include individual and business losses. By far, the largest losses were from the ice storm of 1998 (#1198-DR).

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Severe Winter Storm Losses in Dollars by Town and Federal Disaster or Emergency Declaration Since 1993					
	1993 #3099-EM	1998 #1198-DR	2001 #3164-EM	2004 #3190-EM	2004 #3194-EM
Somerset County	0	18,713	0	0	0
Anson	3,696	75,599	19,086	10,034	11,589
Athens	2,550	23,547	4,222	4,196	5,827
Bingham	0	17,048	0	4,071	1,916
Brighton Plantation	0	3,943	0	0	0
Cambridge	0	18,091	0	0	0
Canaan	1,855	41,921	7,401	7,961	9,373
Caratunk	0	0	0	0	0
Cornville	1,685	13,912	13,973	4,707	3,554
Detroit	0	14,901	0	0	0
Emden	0	6,612	0	0	0
Fairfield	3,961	138,606	24,433	15,033	15,243
Harmony	1,315	20,160	0	0	0
Hartland	0	25,250	3,108	0	0
Highland Plt	0	0	0	0	0
Jackman	0	16,877	2,050	0	0
Madison	4,609	74,411	15,379	10,931	13,103
Mercer	0	37,352	7,517	4,052	3,866
Moscow	0	8,430	0	0	0
New Portland	0	7,894	0	0	0
Norridgewock	2,631	53,203	12,547	13,065	14,798
Palmyra	1,418	41,683	7,198	3,311	4,709
Pittsfield	0	49,566	6,023	3,224	8,362
Pleasant Ridge Plt	0	0	0	0	0
Ripley	0	10,855	0	0	0
St. Albans	2,295	41,613	8,887	4,306	6,388
Skowhegan	3,752	65,614	34,770	22,809	21,925
Smithfield	0	20,795	4,832	3,530	1,765
Solon	1,960	31,117	9,251	4,355	6,064
Starks	2,490	21,949	5,263	5,892	7,004
The Forks	0	0	0	0	0
West Forks Plt	0	0	0	0	0
Total	34,217	899,662	185,940	121,477	135,486

Source: MEMA

D. Probability of Occurrence

No probability studies have been done, but Somerset County's location in the Northeast, and its long experience with winter storms, indicate that between November and April of every year, there is a probability that a major winter storm will occur.

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Severe Summer Storms

Severe summer storm damages typically involve downed overhead utility lines, flooding from heavy rains, debris in the roads, and often erosion.

General Definition: A violent weather phenomenon producing winds, heavy rains, lightning, and hail that can cause injuries and destruction of property, crops and livestock.

Types of Summer Weather Events: There are several different types of summer weather events in Somerset County:

- Hurricane: An intense, tropical cyclone, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center called the "eye."
- Topical Storm: An intense, tropical cyclone with wind speeds of less than 74 miles an hour. Somerset County occasionally experiences tropical storms, sometimes as the result of hurricanes that lose strength by the time they get to the county.
- Lightning: An electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lighting appears as a "bolt." This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning reaches a temperature approaching 50,000 degrees Fahrenheit in a split second. The rapid heating and cooling causes thunder.
- Thunderstorm: A storm formed from a combination of moisture, rapidly rising warm air and a force capable of lifting air such as a warm or cold front or sea breeze. All thunderstorms have lightning and can occur singly, in clusters or in lines.
- Tornado: A violently rotating column of air extending downward from a thunderstorm to the ground. The distinctive, slender, funnel shaped cloud, with wind velocities up to 300 miles per hour at the central core, destroys everything along its narrow ground path.
- Microburst: A small, extremely intense downdraft which descends to the ground creating strong wind divergence. Microbursts are typically limited to areas less than 2.5 miles across. This weather phenomenon is capable of producing damaging surface winds in excess of 100 mph. Generally, a microburst event will last no longer than 15 minutes.

A. Location of Severe Summer Storms

All of Somerset County is subject to severe summer storms. The effects of severe summer storms are usually more common in the less populated areas of the western, mountainous region, than in southern parts of the County.

B. Extent (severity) of the Hazard

During summer months, southwest to southerly winds become quite prevalent across the County. When severe summer storms arrive in Somerset County, high winds can fell trees and branches onto power lines, causing power and communication outages. Heavy rains that often accompany thunderstorms can result in flash flooding or erosion. Lightning strikes can start fires. Any of these weather events can cause personal injury or property damage.

The impact of severe summer storms in Somerset County is usually restricted to flooding and erosion caused by the large amounts of moisture these storms can carry.

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C. Previous Occurrences

The most severe forms of summer storms, hurricanes and tornadoes, occur very infrequently in Somerset County. There have been three hurricanes that affected Somerset County, as shown in the table below

Historical Summary of Hurricanes in Somerset County					
Year	Month	Day	Name of Hurricane	Estimated Damages Somerset County	Declaration
1954	Sept.	11	Edna	Unknown	Presidential
1985	Sept.	17	Gloria	Unknown	N.A.
1999	Sept.	16-19	Floyd	\$175,563	Presidential

In terms of tornadoes, there have been no F3 or greater tornadoes reported in Maine. The only recorded F2 tornadoes reported in Somerset County were in 1961, 1962 1971 and 2000. F2 tornadoes include winds of 113 to 157 miles per hour, and are considered significant tornadoes. F2 tornadoes can tear roofs off frame houses, lift and move frame houses with weak foundations, demolish mobile homes and snap or uproot trees.

The following table provides a town-by-town summary of damages resulting from Hurricane Floyd in 1999.

Hurricane Floyd, 1999 Summary of Damages	
Jurisdiction	Damages
Somerset County	\$4,032
Bingham	4,936
Brighton Plantation	1,294
Caratunk	106,474
Fairfield	7,319
Jackman	4,378
Mercer	16,089
Solon	9,519
Starks	1,034
The Forks Plantation	16,818
West Forks Plantation	3,672
Total	\$175,563

D. Probability of Occurrence

Probability of Occurrence. There have been no probability studies to indicate the frequency of summer storms. However, Somerset County's location in the northeast, and its long experience with summer storms, indicate that each summer, there is a probability that summer storms will occur.

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Wildfires

Somerset County is subject to wildfires. The County is heavily forested and accessibility by vehicle to many areas is limited. The most severe wildfire in the State's recent history occurred in October of 1947. This fire burned 205,678 acres and caused 16 deaths. However, most of the damages were confined to Cumberland, Hancock, Oxford and York Counties.

All parts of the County could be subject to wildfires. However, the most northern portion of the County has the least accessibility to the productive forestland due to the lack of roads and development and the central and southern portion of the County has a larger number of homes and businesses within the Urban-Wildland Interface. In fact, the majority of the population is located within seven communities in the south central part of the County that contains most of the urban-wild land interface with a large number of homes and businesses (see County map).

General Definition. A wildfire is a fire that burns vegetative cover such as grass, timber, or slash. A wildfire is a natural phenomenon initially finding its origin in lightning. However, humans have become the greatest cause of wildfires in Maine.

Types of Wildfires: there are two types of wildfires:

- Wildland fires burn vegetative cover or forest fuel.
- Wildland Urban Interface Fires are created where homes meet with highly volatile forest fuels.

A. Location of Wildfire Hazard

The Department of Conservation, Maine Forest Service Forest Protection Division tracks all reported fire occurrences in the State on an annual basis. These are coded by cause: campfire, children, debris burning – which can include backyard burning as well as the agricultural practice of “burning over” blueberry fields, incendiary (includes arson), lightning, machinery, miscellaneous, railroad and smoking. The number of fires by cause is shown on the next page, followed a town-by-town summary of fires.

B. Extent (Severity) of the Hazard

The vast majority of the County is wooded with the greatest expanse of woodland and wood cover contained in the north and west of the County, spanned by a vast paper company and private road networks that allows open accessibility to outdoor recreation and therefore exposure to either natural fire occurrences or those with a human element involved, either planned or unplanned.

Well-distributed rainfall normally reduces forest fire risks, but seasonal variations, rapidly draining soils and unusually dry periods can induce major blazes. In addition, insect damage (such as the hemlock woolly adelgid and spruce budworm) diseases, severe weather, and residential and commercial developments in wooded areas greatly increase the potential for catastrophic fires. Over time, a considerable fuel supply can accumulate from the ignitable slash of some logging operations and/or from dead trees left standing on the forest floor after insect infestations.

C. Previous Occurrences

Based on information obtained from the Maine Forest Service, there have been no major fires in Somerset County in recent years. All of the wildfires known to have occurred were confined to relatively small land areas. There have been 261 minor wildfires from 2005 to 2010. The major causes of most wildfires during that period were machinery, railroad operations and debris burning.

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Somerset County Number of Fires by Cause 2005 – 2010							
	2005	2006	2007	2008	2009	2010	Total
Campfire	2	1	5	0	2	11	21
Children	0	6	1	1	0	0	8
Debris	10	14	5	1	11	10	51
Incendiary	0	1	1	0	3	5	10
Lightning	5	2	3	1	1	2	14
Machinery	4	13	14	10	17	9	67
Misc	4	10	5	1	3	3	26
Railroad	4	3	24	6	21	0	58
Smoking	4	1	0	0	1	0	6
Total	33	51	58	20	59	40	261

Source: Maine Forest Service

The following table provides a town-by-town summary of wildfires during the period 2005 – 2010, as well as a summary of total acres burned during that time period. The relatively large number of fires in Fairfield in 2007 and 2009 and in Pittsfield in 2005 and 2009 can be attributed to numerous railroad fires.

Somerset County Number of Fires by Jurisdiction 2005 - 2010								
Towns	2005	2006	2007	2008	2009	2010	Total Number	Total Acres
Anson	1	1		1	2	3	8	1.4
Athens		5					5	2.6
Bingham	1	1			2	1	5	1.1
Cambridge							0	0
Canaan	1		1			1	3	.31
Caratunk	2		1		1		4	.44
Cornville			1			1	2	.2
Detroit	2				1	3	6	21.6
Embden	3	2		1	2	2	10	22.46
Fairfield		6	25	4	13	5	53	45.38
Harmony	1				1	2	4	3.81
Hartland	1	2			3		6	1.1
Jackman	2		1				3	.1
Madison	1	6	2		5	2	16	6.4
Mercer		1			2		3	5.4
Moose River			2				2	1.2
Moscow			1	2		1	4	1.54
New Portland	2	4	2			1	9	1.5
Norridgewock					2		2	.76
Palmyra	1	2	3		1	2	9	4.75
Pittsfield	11	5	6	3	12		37	14.89
Ripley							0	0

SOMERSET COUNTY ME HAZARD MITIGATION PLAN 2012 UPDATE

Somerset County Number of Fires by Jurisdiction 2005 - 2010								
Towns	2005	2006	2007	2008	2009	2010	Total Number	Total Acres
St. Albans	1	2	2	1	1	3	10	7.31
Skowhegan	2	5	3	7	3		20	1.84
Smithfield		1					1	.2
Solon	1	3	1		1	1	7	1.01
Starks	2	3					5	2.8
Plantations								
Brighton Plt.					1		1	.01
Dennistown Plt.							0	0
Highland Plt.	1		1				2	.1
Pleasant Ridge Plt.							0	0
The Forks Plt.					1		1	.01
West Forks Plt							0	0
Unorganized	2	3	7	1	6	12	31	4.4

Source: Maine Forest Service

D. Probability of Occurrence

Probability of Occurrence. While probability studies have not been done, based on historical records of fires, the Maine Department of Conservation, Maine Forest Service, Forest Protection Division, anticipates that there will be, on average, about 44 low acreage fires (from all causes) each year in Somerset County.

7. 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.

Elements	A. Does the new or updated plan include an overall summary description of the jurisdiction's vulnerability to each hazard?
	B. Does the new or updated plan address the impact of each hazard on the jurisdiction?

A. Vulnerability of Somerset County to each hazard

Flooding. Some of the County's most serious flooding has been in areas where there are residential and/or commercial structures such as the Southside Bridge area of Skowhegan along the Kennebec River and a residential area in Pittsfield along the Sebasticook River. Other towns subject to severe flooding include Anson, Madison, Norridgewock and Fairfield. However, most of the developed areas in Somerset County are located outside of designated flood plains, and are thus not very vulnerable to flooding. On the other hand, many parts of the County are very rural in nature, and are served by a network of rural roads that do not have proper storm drainage systems. These roads are very vulnerable to flooding caused by heavy downpours and/or the blockage of drainage systems by ice or debris, even though these roads may not be in an identified flood plain. See also discussion of dam breach impacts on 4-8 and 4-9.

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Severe Winter Storms. Somerset County's location in Northern New England places it in a high-risk area for winter storms. While the majority of winter storms in Somerset County occur during the winter season of December through March, there are occasional winter storms in the late fall (November and early December) and in the spring (March – April). However, the severity of storms is typically most serious in January and February, with storms in the earlier and later parts of the seasons usually being of lesser magnitudes.

The time of day at which storms occur is also important, as overnight storms allow for the closure of schools and businesses, whereas storms during the day force people to travel home during storm conditions. Based on past experience, storms are most likely to occur overnight or during the morning, but afternoon storms are still somewhat likely.

A major ice storm of the severity that occurred in 1998 would impact nearly all of Somerset County and threaten the overhead electric and telephone lines. Roads may be closed due to washouts and debris in roads from trees and utility lines.

As noted earlier in this Assessment, Somerset County has been included in a number of Presidential Disaster Declarations for winter storms. Somerset County contains at-risk populations that could be impacted by a major winter storm. Somerset County maintains a list of people who are at risk, and contacts them by phone during winter storms to see if they need any assistance.

Severe Summer Storms. The entire County is vulnerable to thunderstorms, microbursts and high winds, especially from the very high winds that often accompany severe summer storms. Heavy rains that often accompany such storms can erode vulnerable shoreland areas.

Wildfires. Somerset County is heavily forested, and is vulnerable to forest fires. However, all of the organized municipalities in Somerset County are served by capable fire departments. The Maine Forest Service has been very active in forest fire prevention activities, and, through meetings convened by the Somerset County Emergency Management Agency, meets periodically with municipal fire chiefs on matters related to wildfire prevention and response activities.

B. Impacts of each hazard on Somerset County

Flooding. In addition to damages to residential and commercial structures in some locations, the typical damages resulting from flooding in Somerset County include damages to roads and their respective drainage systems. Historically, flood damages have included partial or complete road washouts, as well as severe erosion of roadside ditches, resulting in hazards to motorists if their vehicles go off the road. In some cases, entire communities have been partly or completely isolated because the only road serving the town has been damaged by floods. See also discussion of dam breach impacts on 4-8 and 4-9.

Severe Winter storms. The impacts of severe winter storms include road closures (and the subsequent inability of emergency vehicles to provide help), the loss of power for extended periods of time, high costs to local governments for snow removal efforts, and loss of income to businesses and individuals due to business closures. Roof collapses, both residential and commercial, are rare but they can occur when snow loads become extreme.

Severe Summer Storms. The damages from severe summer storms typically involve the washout of roads, downed utility lines and debris clearance. If severe enough, this can result in the loss of income to businesses and individuals due to business closures.

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Wildfires. The primary impacts include damages to homes located in the wildland-urban interface and loss of valuable timberland. A larger percentage of homes in rural towns are located in the wildland-urban interface than homes in village areas. The northern part of the County includes vast tracts of forestland that could be damaged by wildfires.

8. 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 (by) floods.	
Element	A. Does the new or updated plan describe vulnerability in terms of the types and numbers of repetitive loss properties located in the identified hazard areas?

Based on information obtained from the Maine State Planning Office, there are five repetitive loss properties in Somerset County, as shown in the table below (all five are residential structures). In accordance with the Federal Privacy Act, the Maine State Planning Office will not disclose the addresses, owner names or claim information of these repetitive loss properties.

Somerset Repetitive Loss Properties				
Town/City	Residential Structures		Non-Residential Structures	
	# Properties	# Losses	# Properties	# Losses
Anson	1	3		
Fairfield	1	2		
Hartland	1	2		
Norridgewock	1	2		
Skowhegan	1	2		

Source: Maine State Planning Office

9. 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 located in the identified hazard area.	
Elements	A. Does the new or updated plan describe vulnerability in terms of the types and numbers of existing buildings, infrastructure, and critical facilities located in the identified hazard areas?
	B. Does the new or updated plan describe vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities located in the identified hazard areas?

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

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Critical Facilities. The critical facilities identified in Somerset County are:

- Municipal offices
- Fire and police stations
- Public works facilities
- Water and wastewater treatment facilities
- Libraries
- Schools
- Shelters
- Hospitals and clinics
- Nursing homes
- Airports
- Power plants
- Dams
- Hazardous materials facilities
- Bridges
- Rail systems

The Somerset County Emergency Management Agency used existing Maine GIS map data and a hand-held GPS data collector to map and locate the County's critical facilities and determine which are most likely to be affected by hazards. The four hazards most likely to impact the County are flooding, winter storms, summer storms and wildfires.

A. Vulnerability of Existing Buildings, Infrastructure and Critical Facilities

Flooding. A 100-year flood would have an impact on many road surfaces and bridges. No critical facilities were identified as being in danger from flooding.

- **Buildings.** Some of the County's most serious flooding has been in areas where there are residential and/or commercial structures including locations in Skowhegan and Pittsfield.
- **Infrastructure.** Roads and their associated storm drainage systems are the most vulnerable category of infrastructure. Many parts of the County are rural in nature, and are served by a network of rural roads that do not have proper storm drainage systems. These roads are very vulnerable to flooding caused by heavy downpours and/or the blockage of drainage systems by ice or debris.
- **Critical facilities.** No critical facilities were identified as being in danger from flooding.

Severe Winter Storms

- **Buildings.** All buildings in Somerset County are vulnerable to winter storms. Damages can include burst water pipes during power outages, interior water damages due to ice dams forming on roofs, and occasionally, roof collapses due to heavy snow loads.
- **Infrastructure.** A "Northeaster," blizzard or ice storm of the severity that occurs once every 3-5 years, and/or a winter storm with severe winds, would have a negative impact on all roads in the County and on all overhead electrical power and telephone lines. Roads may be covered in snow, washed out or blocked with tree debris. Utility lines and poles may be felled.
- **Critical facilities.** No critical structures were identified as being in danger from a severe winter storm.

Severe Summer Storms.

- **Buildings.** All buildings in Somerset County are vulnerable to severe summer storms. Damages can result from debris like tree limbs, and from high winds and interior water damages due to wind-driven rain.

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- **Infrastructure.** A summer storm could cause erosion to local roads as well as flooding of some roads. They can also become temporarily blocked due to heavy rain and debris over a short period.
- **Critical facilities.** No critical structures were identified as being in danger from a severe summer storm.

Wildfires

- **Buildings.** Wildfires would have a large impact on homes located in the wildland/urban interface.
- **Infrastructure.** Power, phone and cable lines can be damaged during a wildfire. Roads and their storm drainage systems are much less vulnerable, although road access to certain areas can be blocked by fires and by emergency fire-fighting vehicles.
- **Critical facilities.** Wildfires in Somerset County have tended to be relatively small, and have not been a threat to critical facilities. In the event of a very large wildfire, some critical facilities could be damaged by fire and smoke.

County Asset Inventory. The chart on pages 4-27 and 4-28 identifies the type and number of critical facilities in each town in Somerset County. In addition to critical facilities, Somerset County contains at-risk populations that should be factored into the vulnerability assessment. These include a relatively large population of elderly residents who live alone in very rural areas and who have limited mobility. There are 17 Red Cross-approved shelters in the County that can serve at-risk populations, four of which have generators (two in Madison, one in Pittsfield and one in Jackman).

B. Vulnerability of Future Buildings, Infrastructure and Critical Facilities

There has been very little growth in Somerset County in the last 20 years, and very little growth is expected during the foreseeable future. Between 1990 and 2000, Somerset County's population increased from 49,767 to 50,888, a growth of 1,121 or 2.25%. Between 2000 and 2010, the County's population increased from 50,888 to 52,228, a gain of 1,340 people or 2.6%. The State Planning Office projects that by 2018, the County's population will stand at about 52,126 people, a gain of 1,238 people, or 2.4% from the 2000 population base (and a slight decrease from the 2010 Census count of 52,228 people).

Assessing where future development will occur in the towns in Somerset County is difficult due to a lack of municipal plans and zoning ordinances. Most municipalities in Somerset County are very small and rural and do not have planning departments, building codes or even a full time code enforcement officer. Many towns lack a town office. There is very little in the way of commercial, industrial or public construction in many of these communities. In most communities, the rules guiding residential development are limited to the State's subdivision law, shoreland zoning ordinances that apply to land areas within 250 feet of the region's lakes, major rivers and significant wetlands, floodplain management ordinances and the State's subsurface wastewater disposal rules. In December of 2010, a new, statewide building code went into effect. It is too early to predict whether or not this will have an impact on the vulnerability of future buildings and critical facilities, but it will regulate methods of construction.

The Maine State Planning Office has projected that Somerset County will experience a slight population decline, from 52,228 people in 2010, to 52,126 people in 2018 (a loss of 102 people, or -0.2%). Given this projected decline, there will be very few if any future buildings, infrastructure or critical facilities that will be vulnerable to the identified hazards.

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Flooding

- **Buildings.** The majority of damages from flooding is to roads, not structures. All municipalities except Athens and Moose River have floodplain ordinances that provide control over development in flood prone areas.
- **Infrastructure.** Future roads and their associated storm drainage systems would seem to be the most likely category of infrastructure that would be vulnerable to flooding. However, State and local road construction standards generally ensure that new roads are properly constructed with adequate storm drainage systems. Most if not all roads in the public domain must be designed by a registered professional engineer. Therefore, flooding of future roads is not likely to be a serious issue in Somerset County.
- **Critical facilities.** Because of the requirements of the Flood Insurance Program, as well as shoreland zoning requirements and a greater awareness of flooding in all communities, future critical facilities will continue to be located outside floodplain areas. The exception may be wastewater treatment plants, due to the need to locate these facilities at lower elevations.

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County Asset Inventory by Municipality

Towns	Municipal Office	Fire Station	Police Station	Public Works	Water Treatment	Wastewater Treat.	Library	Schools	Red Cross Shelters	Hospital/Clinic	Nursing Home	Airport	Power Plants	Dams	Hazmat Facilities	Bridges	Rail System
Anson	1	2		1				3	1				1	1		1	1
Athens	1	1		1				1	1	1							
Bingham	1	1		1		1		2	1	1	1	1				6	
Cambridge	1																
Canaan	1	1		1				1									
Caratunk									1								
Cornville	1	1		1				2									
Cornville	1	1		1													1
Detroit	1	1											1				
Embden								1									
Fairfield	1	1	1	2	1	1	1	3	4		1				1	3	1
Fairfield	1	1						1	1								
Harmony	1	1		1			1	4	1	1	2			1		8	
Hartland	1	1		1	1	1	1	1	1	1	2	2			4	1	1
Jackman	1	1		1	1	1	1	1	1	1	1				5	1	1
Madison	1	2	1	1	1	1	1	5	2	1	1		1	1	1	1	1
Madison	1						1	1						1		3	
Mercer	1																
Moose River																	
Moose River								1					1	1		11	
Moscow	1			2				1									
New Portland	1	1						1									
New Portland	1	1		1	1	1	1	2		1		1		2	4	3	1
Norridgewock	1	1		1				1									
Norridgewock	1			1			1	1						1		3	
Palmyra	1			1			1	1									
Palmyra	1	1	1	1	1	1	1	5	1	2	2	1	1	2		4	1
Pittsfield	1	1															
Pittsfield	1																
Ripley	1																
Ripley	1				1			1						3		7	
Saint Albans	1																
Saint Albans	1	1	1	1	1	1	1	7	3	1	3		1	3	18	5	1
Skowhegan	1	1															
Skowhegan	1	1						1									
Smithfield	1	1						1									

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	Municipal Office	Fire Station	Police Station	Public Works	Water Treatment	Wastewater Treat.	Library	Schools	Red Cross Shelters	Hospital/Clinic	Nursing Home	Airport	Power Plants	Dams	Hazmat Facilities	Bridges	Rail System
Towns																	
Solon	1	1		2			1	1						1	1	3	
Starks	1							1	1								
Plantations																	
Brighton																	
Denniston																	
Highland																	
Pleasant Ridge																	
The Forks																	
West Forks	1	1															
Unorganized																	
Central				1												4	
Northeast	1	1						1						7		12	
Northwest								1						9		4	
Seboomook												1		1		2	
TOTAL	26	21	4	21	6	8	10	48	17	9	12	6	6	34	33	81	8

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Severe Winter Storms

- **Buildings.** New buildings in Somerset County should be less vulnerable to winter storms. Damages may include burst water pipes, but many newer buildings will be better insulated than older ones, thus being better able to retain heat during longer periods of time when there is a power outage. There will be less interior water damage due to ice dams forming on roofs because the roofs of newer buildings generally are properly vented, which allows the roofs to remain cold. Roof collapses due to heavy snow loads will be very rare because newer roofs are designed to withstand heavy snow loads.
- **Infrastructure.** Roads will continue to be the most vulnerable category of infrastructure. New roads can be just as easily blocked on a temporary basis due to heavy snowfall, ice building up on the road surface, and debris such as tree limbs accumulating on the road surface during a storm event. However, in the present economy, it is unlikely that Somerset County will experience much new road construction, with the possible exception of small road segments serving subdivisions.
- **Critical facilities.** Future critical facilities in Somerset County will be vulnerable to winter storms in the same manner that individual buildings will be vulnerable. However, some of them will have back-up generator systems which will allow heating systems to continue operating during a power outage.

Severe Summer Storms

- **Buildings.** New buildings in Somerset County will be less vulnerable to severe summer storms because they are built to meet modern code requirements. Damages may include roof damage from falling trees and debris. There will be less interior water damage due to wind-driven heavy rains because the roofs of newer buildings generally are properly designed and roofing materials are more resistant to water infiltration. It is unlikely that a Category 1 Hurricane (which is all that has hit Somerset) or high winds will have any impact on future structures. This hazard primarily creates road debris and downed overhead utility lines.
- **Infrastructure.** Roads will continue to be the most vulnerable category of infrastructure. New roads can be blocked on a temporary basis due to heavy rainfall, and debris such as tree limbs accumulating on the road surface during a storm event.
- **Critical facilities.** Future critical facilities in Somerset County will be vulnerable to summer storms in the same manner that individual buildings will be vulnerable. However, some of them will have back-up generator systems which will allow building systems to continue operating during a power outage.

Wildfires

- **Buildings.** Wildfires in Somerset County primarily threaten residential structures in the wildland/urban interface. In most Somerset County communities, homes are allowed to be constructed in most locations in the community. Forest fires seldom burn out of control because most towns have a dedicated group of volunteer fire fighters who know their community and work hard to keep their fire fighting equipment in good condition and their fire fighting skills up-to-date.
- **Infrastructure.** Future power, phone and cable lines can be damaged during a wildfire, although the level of future development is expected to be minimal, primarily because of the future population losses projected for the County.
- **Critical facilities.** Future critical facilities may be vulnerable to a very large wildfire. However, the expectation is that there will be very few new critical facilities constructed during the life of this plan.

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10. 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)(ii)(A) of this section and a description of the methodology used to prepare the estimate.	
Elements	A. Does the new or updated plan estimate potential dollar losses to vulnerable structures?
	B. Does the new or updated plan describe the methodology used to prepare the estimate?

Overview. This section of the Plan relies on historical damages as the basis for estimating future losses, subject to the following:

- Historical damage estimates have been updated, using the Consumer Price Index shown below;
- Presidential Disaster Declarations have been used where possible, updated for inflation using the Consumer Price Index below;
- Where statewide or county damages are used to determine damages for a specific jurisdiction, the damages are pro-rated using the 2010 Census.

The average annual Consumer Price Index for various years is shown below based on a value of 100 for the years 1982-1984.

Consumer Price Index 1982-1984 = 100		
1947 = 22.3	1989 = 124.0	
1954 = 26.9	1990 = 130.7	2000 = 172.2
1980 = 82.4	1991 = 136.2	2001 = 177.1
1981 = 90.9	1992 = 140.3	2002 = 179.9
1982 = 96.5	1993 = 144.5	2003 = 184.0
1983 = 99.6	1994 = 148.2	2004 = 188.9
1984 = 103.9	1995 = 152.4	2005 = 195.3
1985 = 107.6	1996 = 156.9	2006 = 201.6
1986 = 109.6	1997 = 160.5	2007 = 207.3
1987 = 113.6	1998 = 163.0	2008 = 215.3
1988 = 118.3	1999 = 166.6	2009 = 214.5
		2010 = 218.1

Flooding

This plan uses worst-case, real-life damages to calculate potential flood losses, and assumes that historic patterns will hold for the future. The worst case flood is the April Fool's Day flood of 1987, which resulted in a Presidential Disaster Declaration of \$100,000,000 in damages to 14 counties. Using the Consumer Price Index (CPI), the damages in 2010 dollars would be \$191,989,000 (multiply \$100 million by 218.1 – the CPI for 2010, and divide by 113.6 – the CPI for 1987).

The methodology for calculating potential losses in Somerset County is to assume the greater of:

SOMERSET COUNTY ME HAZARD MITIGATION PLAN 2012 UPDATE

- 1) Actual damages from the 1987 flood updated using the Consumer Price Index (column B in the table below),
- 2) Actual damages from flooding other than the 1987 flood, updated using the Consumer Price Index, when they are greater than the updated damages from the 1987 flood (column C in the table below),
- 3) Flood losses based on \$157 per capita (column D in the table below). The \$157 is calculated by taking the 2010 population of the counties that suffered damages in 1987 (1,223,635) and dividing it into total 1987 flood damages in 2010 dollars (\$191,989,000) to get a per capita cost of \$157. Each town's population is multiplied by \$157 to get potential damages.

The maximum flood loss (column E) is the greater of columns B, C or D. In most cases, column D results in the greatest maximum potential flood losses.

Potential Flood Losses in Somerset County					
	A. Actual 1987 Flood Losses	B. Updated 1987 Flood Losses Using CPI	C. Other Flood Losses Updated with CPI when Higher than 1987	D. Flood Losses Based on \$157/Capita	E. Maximum Potential Flood Loss
Towns					
Anson	\$74,506	\$143,043		\$394,227	\$394,227
Athens	25,554	49,060		159,983	159,983
Bingham	45,459	87,276	\$211,800 ⁰⁵	144,754	144,754
Cambridge	3,098	5,948	14,627 ⁹²	72,534	72,534
Canaan	20,406	39,177		357,175	357,175
Caratunk	165,138	317,047		10,833	317,047
Cornville	10,723	20,587	69,554 ⁰⁸	206,298	206,298
Detroit	0	0	2,397 ⁰⁷	133,764	133,764
Embden	49,729	95,474		147,423	147,423
Fairfield	48,311	92,752		1,057,395	1,057,395
Harmony	34,013	65,301		147,423	147,423
Hartland	1,949,355	3,742,547		279,774	3,742,547
Jackman	3,868	7,426	10,660 ⁹⁸	135,334	135,334
Madison	11,248	21,595	73,910 ⁹²	762,235	762,235
Mercer	32,434	62,270	526,631 ⁹³	104,248	526,631
Moose River	0	0		34,226	34,226
Moscow	59,631	114,485	234,873 ⁹³	80,384	234,873
New Portland	71,318	136,923		112,726	136,923
Norridgewock	22,753	43,683	50,931 ⁹²	528,619	528,619
Palmyra	6,120	11,750	46,570 ⁰⁸	311,802	311,802
Pittsfield	41,662	79,986		661,755	661,755
Ripley	6,881	13,211		76,616	76,616
St. Albans	9,752	18,723	40,635 ⁰⁸	314,785	314,785
Skowhegan	1,409,517	2,706,118		1,348,473	2,706,118
Smithfield	4,036	7,749	42,324 ⁰⁷	162,181	162,181
Solon	13,587	26,086	166,677 ⁰³	165,321	166,677
Starks	154,564	296,746		\$100,480	296,746
Total, Towns	\$4,273,663	\$8,204,963			\$13,936,091
Plantations					
Brighton Plt.	\$7,689	\$14,762	17,225 ⁰⁷	\$10,990	
Dennistown Plt.	0	0		5,181	
Highland Plt.	0	0	6,617 ⁹³	11,461	
Pleasant Ridge Plt.	23,049	44,252		14,601	

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Potential Flood Losses in Somerset County					
	A. Actual 1987 Flood Losses	B. Updated 1987 Flood Losses Using CPI	C. Other Flood Losses Updated with CPI when Higher than 1987	D. Flood Losses Based on \$157/Capita	E. Maximum Potential Flood Loss
The Forks Plt.	0	0	4,531 ⁹²	5,809	
West Forks Plt	3,884	7,457		\$9,420	
Total, Plantations	\$34,622	\$66,471			
Unorganized	\$98,349	\$188,819		\$131,566	
Total, Somerset	\$4,406,634	\$8,460,253			

⁹² 1992 flood damages, updated using CPI

⁹³ 1993 flood damages, updated using CPI

⁹⁸ 1998 flood damages, updated using CPI

⁰⁵ 2005 flood damages, updated using CPI

⁰⁷ 2007 flood damages, updated using CPI

⁰⁸ 2008 flood damages, updated using CPI

Severe Winter storms

This plan uses worst-case, real-life damages to calculate potential winter storm damages, and assumes that historic patterns will hold for the future. For Somerset County, the worst storm is the ice storm of 1998, which resulted in a statewide Presidential Disaster Declaration of \$47,748,466. The actual damages were closer to \$100,000,000 because the Disaster Declaration did not cover damages to power lines and private structures. Using the Consumer Price Index, the \$47.7 million in damages would be \$63.8 million in 2010 dollars (multiply \$47.7 million by 218.1 – the CPI for 2010, and divide by 163.0 – the CPI for 1998). The 1998 damages in Somerset County totaled \$899,662, which would be \$1,203,781 in 2010 dollars.

The methodology for calculating potential losses in Somerset County is to assume the greater of:

- 1) Actual damages updated using the Consumer Price Index (column B in the table below), or
- 2) Winter storm losses based on \$48 per capita (column C in the table below). The \$48 is calculated by taking the 2010 population of the State (1,328,361) and dividing it into total 1998 ice storm damages in 2010 dollars (\$63,800,000) to get a per capita cost of \$48. Each town's population is multiplied by \$48 to get potential damages.

The maximum winter storm loss (column D) is the greater of column B or C. In most cases, column C results in greater potential damages.

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Potential Winter Storm Losses in Somerset County				
	A. Actual 1998 Ice Storm Damages	B. Updated Ice Storm Losses Using CPI	C. Winter Storm Losses Based on \$48 Per Capita	D. Maximum Potential Winter Storm Loss
Towns				
Anson	\$75,599	\$101,154	\$120,528	\$120,528
Athens	23,547	31,507	48,912	48,912
Bingham	17,048	22,811	44,256	44,256
Cambridge	18,091	24,206	22,176	24,206
Canaan	41,921	56,092	109,200	109,200
Caratunk	0	0	3,312	3,312
Cornville	13,912	18,615	63,072	63,072
Detroit	14,901	19,938	40,896	40,896
Embden	6,612	8,847	45,072	45,072
Fairfield	138,606	185,460	323,280	323,280
Harmony	20,160	26,975	45,072	45,072
Hartland	25,250	33,785	85,536	85,536
Jackman	16,877	22,582	41,376	41,376
Madison	74,411	99,565	233,040	233,040
Mercer	37,352	49,978	31,872	49,978
Moose River	0	0	10,464	10,464
Moscow	8,430	11,280	24,576	24,576
New Portland	7,894	10,562	34,464	34,464
Norridgewock	53,203	71,188	161,616	161,616
Palmyra	41,683	55,773	95,328	95,328
Pittsfield	49,566	66,321	202,320	202,320
Ripley	10,855	14,524	23,424	23,424
St. Albans	41,613	55,680	96,240	96,240
Skowhegan	65,614	87,794	412,272	412,272
Smithfield	20,795	27,824	49,584	49,584
Solon	31,117	41,636	50,544	50,544
Starks	21,949	29,369	30,720	30,720
Total, Towns	\$877,006	\$1,173,466	\$2,449,152	\$2,469,288
Plantations				
Brighton Plt.	\$3,943	\$5,276	\$3,360	\$5,276
Dennistown Plt.	0	0	1,584	1,584
Highland Plt.	0	0	3,504	3,504
Pleasant Ridge Plt.	0	0	4,464	4,464
The Forks Plt.	0	0	1,776	1,776
West Forks Plt	0	0	2,880	2,880
Total, Plantations	\$3,943	\$5,276	\$17,568	\$19,484
Total, Unorganized	\$18,713	\$25,039	\$40,224	\$40,224
Total, Somerset	\$899,662	\$1,203,781	\$2,506,944	\$2,528,996

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Severe Summer Storms

Hurricane damages are included in the Severe Summer Storm Events category profiled in this Plan, and not as a separate category due to the low occurrence of hurricanes in Somerset County, as noted earlier in this Plan. Worst case, real life damages were used to calculate potential damages from hurricanes. The most recent hurricane to hit Somerset County was Hurricane Floyd in 1999 which produced only \$175,563 in Somerset County (only \$1,210,205 total in the five counties that reported damages).

The most devastating hurricane to hit Somerset County may have been Hurricane Edna in 1954. While county damage estimates are not available, statewide hurricane damages amounted to \$7,000,000 and eight deaths. If a similar hurricane were to hit Maine today, hurricane damages would amount to \$56,754,000 in 2010 dollars (multiply \$7,000,000 by the 2010 CPI of 218.1 and divide by the 1954 CPI of 26.9). This would result in average per capita damages of \$43 (divide \$56,754,000 by the State's 2010 population of 1,328,361).

For Somerset County as a whole, potential hurricane damages from a hurricane could be as high as \$2,248,384 (multiply the 2010 population of 52,288 by \$43).

The breakdown of potential hurricane losses is shown in the same table as potential wildfire losses on the next page.

Wildfires

This plan uses worst-case, real-life damages to calculate potential wildfire losses, and assumes that historic patterns will hold for the future. The 1947 fire was the worst on record, although it was actually a series of wildfires that flared over Eastern and Southern Maine. The 1947 fire caused an estimated \$30,000,000 in damages to Cumberland, Hancock, Oxford and York Counties. The damage in 2010 dollars would be about \$293,000,000 (multiply \$30 million by 218.1 – the CPI for 2010, and divide by 22.3 – the CPI for 1947). While there is significantly more development in each of these counties today than there was in 1947, fire-fighting capabilities have also increased substantially since that time so there may be no need to further increase the damage estimate. The probability that a wildfire such as the 1947 fire will hit Somerset County during the five-year period covered by this Plan is low.

The methodology for calculating potential wildfire losses in Somerset County is based on the damages that occurred in the 1947 fire in Cumberland, Hancock, Oxford and York Counties. The population of these counties is 591,056. Divide \$293,000,000 (the 1947 fire in 2010 dollars) by 591,056 to get a per capita cost of \$496. Multiply each town's population by \$496 to get potential wildfire damages.

The breakdown of potential wildfire losses is shown in the same table as potential hurricane losses on the next page.

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Potential Hurricane and Wildfire Losses in Somerset County

	Year-Round Population 2010	Potential Hurricane Damages (Population x \$43)	Potential Wildfire Damages (Population x \$496)
Towns			
Anson	2,511	\$107,973	\$1,245,456
Athens	1,019	43,817	505,424
Bingham	922	39,646	457,312
Cambridge	462	19,866	229,152
Canaan	2,275	97,825	1,128,400
Caratunk	69	2,967	34,224
Cornville	1,314	56,502	651,744
Detroit	852	36,636	422,592
Embden	939	40,377	465,744
Fairfield	6,735	289,605	3,340,560
Harmony	939	40,377	465,744
Hartland	1,782	76,626	883,872
Jackman	862	37,066	427,552
Madison	4,855	208,765	2,408,080
Mercer	664	28,552	329,344
Moose River	218	9,374	108,128
Moscow	512	22,016	253,952
New Portland	718	30,874	356,128
Norridgewock	3,367	144,781	1,670,032
Palmyra	1,986	85,398	985,056
Pittsfield	4,215	181,245	2,090,640
Ripley	488	20,984	242,048
St. Albans	2,005	86,215	994,480
Skowhegan	8,589	369,327	4,260,144
Smithfield	1,033	44,419	512,368
Solon	1,053	45,279	522,288
Starks	640	27,520	317,440
Total, Towns	51,024	\$2,194,032	\$25,307,904
Plantations			
Brighton Plt.	70	\$3,010	\$34,720
Dennistown Plt.	33	1,419	16,368
Highland Plt.	73	3,139	36,208
Pleasant Ridge Plt.	93	3,999	46,128
The Forks Plt.	37	1,591	18,352
West Forks Plt	60	2,580	29,760
Total, Plantations	366	\$15,738	\$181,536
Total, Unorganized	838	\$36,034	\$415,648
Total, Somerset	52,228	\$2,245,804	\$25,905,088

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11. 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 descriptions.

Element	A. Does the new or updated plan describe land uses and development trends?
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Somerset County is located in the western Maine and is largely rural. A majority of the land consists of forests, wetlands and water bodies, although there are some areas devoted to farming. The largest community is Skowhegan, which contains 8,589 people. Other communities with a population in excess of 2,000 people include Anson (2,511), Canaan (2,275), Fairfield (6,735), Madison (4,855), Norridgewock (3,367), Pittsfield (4,215) and St. Albans (2005).

According to the 2010 Municipal Status Report prepared by the Kennebec Valley Council of Governments, only seven municipalities in Somerset County have town-wide zoning ordinances (Cambridge, Caratunk, Fairfield, Harmony, New Portland, Palmyra and Pittsfield). Land use controls consist primarily of municipal and State-imposed shoreland zoning ordinances that apply to the land area within 250 feet of lakes, larger rivers and certain wetlands, floodplain management ordinances, and some subdivision review ordinances. The State's Land Use Regulation Commission (LURC) has adopted a comprehensive set of land use regulations for the 83 townships that comprise Somerset County's portion of the Unorganized Territory. LURC's land use controls include land use districts that are comparable to town-wide zoning. In December of 2010, a statewide building code went into effect which regulates methods of construction in all jurisdictions.

A number of communities have prepared comprehensive plans, and many of these can be used to support municipal zoning ordinances in the event that these communities choose to enact such controls. The following table, based on KVCOG's 2010 Municipal Status Report, lists communities that have adopted comprehensive plans that have been found by the Maine State Planning Office to be consistent with Maine's growth management law:

Towns with Consistent, Locally adopted Comprehensive Plans	
Anson	Madison
Athens	New Portland
Bingham	Norridgewock
Cambridge	Pittsfield
Caratunk	Ripley
Detroit	St. Albans
Fairfield	Skowhegan
Harmony	Solon
Jackman	

Source: KVCOG Municipal Status Report, 2010

Development Trends

According to the Comprehensive Economic Development Strategy for Kennebec, Somerset, and Western Waldo Counties, 2007, prepared by the Kennebec Valley Council of Governments (KVCOG), there are a number of economic constraints that are currently impacting Somerset County:

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Constraints on Growth in the Regional Economy.

The principal impediments identified in this analysis include:

1. Statewide Business Climate.
 - a. High Workers Compensation Insurance costs.
 - b. Outmoded and inefficient State and local tax structure.
 - c. Inefficient Regulatory Environment.
 - d. Rapidly and sharply escalating costs of health care and health Insurance.
2. Transportation limitations and freight costs.
3. Distance to market for the major manufactured products of the region.
4. Insufficient capital to finance new enterprises.
5. Competition from Canadian lumber and other wood products.
6. Continuing dependence upon a few, large mature manufacturing industries that account for a substantial portion of relatively high wage manufacturing employment.
7. The ongoing decline in manufacturing employment.
8. A comparatively low level of educational attainment.
9. The out-migration of persons under 35.
10. Slow population growth.

As noted earlier in this Assessment, there has been very little growth in Somerset County in the last 20 years, and very little growth is expected during the foreseeable future. Between 1990 and 2000, Somerset County's population increased from 49,767 to 50,888, a growth of 1,121 or 2.25%. Between 2000 and 2010, the County's population increased from 50,888 to 52,228, a gain of 1,340 people or 2.6%. The State Planning Office projects that by 2018, the County's population will stand at about 52,126 people, a gain of 1,238 people, or 2.4% from the 2000 population base (and a slight decrease from the 2010 Census count of 52,228 people).

Impact of Hazards on Future Development

Flooding continues to be the primary cause of shutting down transportation in some areas, since it is primarily the roads that are affected. Flooded roads can impact businesses, industry, commerce and schools, and can also delay many social and emergency services.

A total of 25 municipalities and five plantations in Somerset County have joined the Federal Flood Insurance Program (NFIP) and, as a condition of participation in the program, have enacted floodplain management ordinances that limit new development in floodplain areas. According to information obtained from FEMA's Community Status Book, there are only three communities that are not in the NFIP: Athens, Moose River, and Brighton Plantation.

There are some homes and seasonal dwellings in Somerset County that are in the 100-year floodplain. As these properties are sold and mortgaged, owners may be required to upgrade these

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homes in order to meet the requirements of local floodplain management ordinances as well as the demands of lenders.

Severe winter and summer storms will have an impact on all land areas within the 27 organized municipalities, six plantations and Somerset County's portion of the Unorganized Territory (83 townships in Somerset County). These two hazards have the primary impact of shutting down transportation and power which, in turn, will shut down businesses, industry, commerce and schools and will stop or impede social and emergency services.

Wildfires will continue to have an impact on residential properties located within the wildland/urban interface. Because Somerset County is a very densely forested, sparsely populated area, there are a large number of homes that are at risk of destruction by forest fires. Currently, no municipality in Somerset County has imposed wildfire restrictions on residential development.

12. Multi-Jurisdictional Risk Assessment	
Requirement §201.6(c)(2)(iii): For multi-jurisdictional plans, the risk assessment must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.	
Element	A. Does the new or updated plan include a risk assessment for each participating jurisdiction as needed to reflect unique or varied risks?

Somerset County is a large, sparsely populated, rural County located in Western Maine. There are 52,228 people living in 3,927 square miles. There are 27 municipalities in the County, as well as six plantations and 83 unorganized townships in Somerset County's portion of the Unorganized Territory.

The Somerset County Hazard Mitigation Team analyzed multi-jurisdictional risks for flooding, winter storms, summer storms and wildfires. The team identified flooding as the most significant risk to the entire County (see page 4-11 for a town-by-town summary of damages from various floods). The Team rated severe winter storms as the 2nd most significant risk (see page 4-15 for a town-by-town summary of damages), followed by summer storms (see damage table on page 4-17) and wildfires (see town-by-town summary of fires on page 4-21).

Although all areas are at risk from forest fires, it is the less densely-populated areas of the smaller communities that face extensive acreage losses. This is due to the lack of roadways (accessibility) within the forest land. Additionally, the resources of municipal fire departments for fighting wildfires are extremely limited, due to the small population base.

MAPS

The following pages contain maps of the entire geographic area of Somerset County, as well as maps of the 27 towns, six plantations and 83 unorganized territories.