

Chapter 1

Introduction

Communities everywhere face different hazards and have different resources and interests to handle these situations. Planning is one of the best ways to recognize the hazards and to produce a program of activities that will best mitigate the impact of hazards on the community.

This natural hazards mitigation plan, required for Federal mitigation funds, is being developed to recognize the needs for Luce County and provide a basis for obtaining pre-disaster mitigation funds.

This plan identifies activities that can be undertaken by both the public and the private sectors to reduce safety hazards, health hazards, and property damage caused by natural hazards. The plan focuses on the major hazards that face Luce County, fills the Federal mitigation planning requirements, and provides the County and its municipalities with a blueprint for reducing the impacts of these natural hazards on people and property.

Planning Approach

The Eastern U.P. Regional Planning and Development along with Luce County Office of Emergency Management have undertaken the project of developing a hazard analysis of Luce County, the past history of disasters, the hazard risks and vulnerabilities of the County and developing goals and objectives to mitigate these disasters.

The Luce County Board of Commissioners passed a resolution to have the Eastern Upper Peninsula Regional Planning and Development Commission undertake this Hazard Mitigation Plan. Upon meeting with the Director of Office of Emergency Management a list of contact people was developed which is included as Appendix A. The Luce Co. Emergency Management Board (see Appendix B) served as the Hazard Analysis Committee.

During the planning process a survey was sent out to the list of contacts requesting information on any known hazards, past history and concerns. Seven surveys were returned and reviewed and incorporated into the Plan. The Survey results are presented in Appendix C at the end of this plan.

Existing plans were reviewed including the Luce County Comprehensive Plan of 2002; Luce County Zoning Plan; Natural River Plan – Two Hearted River, 1973; Natural River Plan -Fox River, 1988; and Manistique River Watershed Plan.

Other information was gathered from several sources including the Michigan State Police – Emergency Management Division, National Weather Service, USDA Resource Development, Federal Emergency Management Agency, Michigan DNR and DEQ, US Coast Guard, US Army Corps of Engineers, Lake Superior State University and the Newberry News.

Several departments within the County were contacted for information. These departments included the Planning Department, Health Department, Building Department, Equalization Department and Road Commission.

Public Participation

As well as contacting community leaders and citizens who have direct interests in the Plan, the planning process also included an announcement in the area's newspaper the Newberry News seeking participation and including information on who to contact for more information on the Hazard Mitigation Plan, why it is important, and how to be involved in the planning process.

Although Luce County has a county-wide zoning ordinance and enforcement, the draft Plan was sent to all units of government and municipalities within the County and was available at those locations for public review prior to the public hearing. The Plan was also made available to the public at the Luce County Government Building in the Village of Newberry. A public hearing was held on May 20, 2005 to review the draft Plan and receive comments. All comments received were recorded and incorporated into the Plan. (See Appendix D.) A copy of the plan was also sent to Central Upper Peninsula Planning and Development and Northeast Michigan Council of Governments as neighboring communities for review.

Hazard Assessment

A comprehensive hazard analysis was made to determine 1) what hazards threaten the community, 2) how often they are likely to occur, 3) how severe the situation is likely to get, and 4) the impact on the community.

During the development of this hazard analysis, all events which could pose a threat to Luce County were analyzed and rated according to the following aspects:

- 1) Likelihood of Occurrence = Low (1-3), Medium (4-6), High (7-10)
- 2) Casualty potential = Low (1-3), Medium (4-6), High (7-10)
- 3) Local capability = Low (1-3) (not very capable), Med (4-6) (somewhat capable), High (7-10) (very capable)
- 4) Population affected = Low (1-3) (less than 5% of population), Medium (4-6) (5% - 25% of population), High (7-10) (more than 25% of population)
- 5) Economic impact = Low (1-3) (less than \$5,000), Medium (4-6) (\$5,000 – \$25,000), High (greater than \$25,000)

The Hazard Analysis Committee reviewed the information on the hazard analysis. Since some criteria were considered more important than others, each of these aspects was assigned a weight as determined by the Hazard Analysis Committee to balance the total score. The following weight was assigned to each criterion: the likelihood of occurrence and casualty potential were weighted at 35%, local capability at 15%, population affected at 10% and economic impact at 5%.

Based upon these criteria, the hazards that could affect Luce County were ranked as follows:

Hazard	Likelihood of Occurrence	Casualty Potential	Local Capability	Population Affected	Economic Impact	Total Score	Ranking
Hazmat Transportation Incidents	2.1	1.05	0.75	0.1	0.15	4.15	1
Structural Fires	2.8	0.7	0.15	0.1	0.15	3.9	2
Infrastructure Failure	1.1	0.7	1.05	0.4	0.5	3.7	3
Transportation Accidents	2.8	.35	.15	0.1	.25	3.65	4
Thunderstorms, Lightning, Hail, Tornadoes	2.1	0.35	0.45	0.4	0.3	3.6	5
Wildfires	2.5	0.35	0.3	0.1	0.25	3.45	6
Terrorism/Sabotage/WMD	1.4	0.7	0.75	0.3	0.25	3.4	7
Extreme Temperatures	2.1	0	0.6	0.5	0.15	3.35	8
Public Health Emergencies	1.4	.35	0.9	0.2	0.25	3.1	9
Drought	1.1	0	0.75	1	0.25	3.05	10
Fixed Site – Hazardous Material Incident	1.4	0.35	0.75	0.2	0.25	2.95	11
Severe Winter Weather Hazards	1.4	0	0.3	0.6	0.35	2.65	12
Pipeline Accidents	1.8	0.35	0.3	0	0.1	2.5	13
Civil Disturbances	.7	0.35	.9	0.3	0.1	2.35	14
Flooding Riverine/Shoreline/Dam Failures	1.1	0	0.3	0.1	0.2	1.65	15
Scrap Tire Fires	0	0	.75	0	.25	1.4	16
Subsidence	0	0	0	0	0	0	

Luce County is susceptible to numerous potential natural and man-made hazards. Technological or man-made hazards rank the highest. The majority of the technological hazards are due to the natural hazards that affect the County, for example, power outages are often due to lines down from wind or ice damage or transportation accidents due to severe winter weather. This Plan concentrates more on the natural hazards that can affect the County. Chapter 2 discusses each hazard, what causes it, the likelihood of occurrence, the impact of the hazard on human development, and how vulnerable Luce County is to damage.

Issues: Based upon the hazard analysis section, the Hazard Analysis Committee brainstormed on the issues that face the County. These issues are discussed in Chapter 3.

Action Plan: Once the issues were determined and goals set for the County, the Committee as well as the OEM Director and Luce Co. Planner brainstormed on how to achieve those goals and drafted an “action plan” which is discussed in Chapters 4, 5 and 6. This action plan specifies recommended

projects, the hazards that would be addressed, specific vulnerable areas, who is responsible for implementing the action, potential costs and benefits, and a time line for achieving the goals. Governmental officials were contacted for discussion of specific projects in their jurisdiction.

Chapter 4 identifies issues and actions that would be eligible for FEMA funding under the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Program. Chapter 5 identifies issues and actions that could be taken but may not be funded through these two programs. Chapter 6 identifies the administrative actions needed to be taken to adopt this plan and to implement the action items.

The action plan developed in this plan serves only to recommend mitigation measures. Implementation of these recommendations depends on the cooperation and support of the offices designated as responsible for each action item.

Historical Overview

Originally part of the Indiana Territory, the area that is now Luce County became part of the Michilimackinac Region in 1818. In 1828 the Upper Peninsula was divided into two counties, Michilimackinac, which included parts of the Lower Peninsula, and Chippewa. This included most of the area that is now Luce County. By 1852 the Upper Peninsula was divided into five counties: Chippewa, Mackinac, Marquette, Houghton, and Ontonagon.

When Luce County was formed out of Chippewa County and a small portion of Mackinac County in 1887, Newberry became the county seat, it being the major population center of the area. The County was named after one of Michigan's governors, Cyrus Luce, who served from 1887 to 1890.

The County first came to being as a result of the Detroit, Mackinac & Marquette Railroad building a rail line through the area from St. Ignace to Marquette in 1881 for the purpose of transporting lumber. This attracted investor John S. Newberry, a former congressman and Detroit entrepreneur, who built the Vulcan Furnace Company in the town that was named after him. This Company became the first industrial development in the area, an iron smelting works.

In the years that followed, the industry changed to logging and then to farming. After the Newberry Lumber and Chemical Company (earlier called the Lake Superior Iron and Chemical Plant) closed down in 1945, the major role in the county economy was filled with the Newberry Regional Mental Health Center.

In the 1940's and 50's and into the early 60's, the Newberry/Luce County area was prospering. According to the 1960 census, the area's per-capita income was among the highest of Michigan's communities.

The local prosperity was due, in large part, to the community's largest employer, the Regional Mental Health Center, a State institution that employed about half of the county's 2,200-person work force.

However, the community's over-reliance on a single employer turned into a curse, starting in 1962 when the first of a series of substantial cutbacks occurred. By 1980, employment at the State hospital had dwindled to less than 400 and the area ranked as one of Michigan's most economically distressed communities. The State Mental Hospital closed in 1992, resulting in the loss of the 300 remaining employees and a business with a \$13,000,000 annual budget.

In 1994, Michigan Department of Corrections started investigating the possibility of renovating the former State Mental Hospital in Newberry and converting it into a prison. Today, the Newberry Correctional Facility has replaced the former Mental Hospital and is the County's largest employer.

Sparsely populated, 40% of the county is in the Tahquamenon River basin, which includes the well-known Upper Tahquamenon Falls, and Lake Superior state forests. This is the land of Longfellow's Hiawatha: "by the rushing Tahquamenaw" where Hiawatha built his canoe. Created through a glacial movement 8,000 years ago, the Tahquamenon River rises from springs north of McMillan and drains an area of more than 790 square miles. From its source, it meanders 94 miles before emptying into Whitefish Bay. The Upper Falls is one of the largest waterfalls east of the Mississippi. It has a drop of nearly 50 feet and is more than 200 feet across. A maximum flow of more than 50,000 gallons of water per second has been recorded cascading over its precipice.

The State of Michigan designated 40,000 acres covering over 13 miles of northern Luce and Chippewa County as the Tahquamenon State Park, the second largest state park in Michigan. Luce County's economy relies heavily on this major tourist attraction, which brings over 640,000 day visitors and campers to the area annually.

Luce County has recognized the value of their land with all the recreation activities it provides throughout each season of the year. The County is home to 16 state campgrounds and a County-owned campground, many of which are along lakes and rivers throughout the area. The area provides recreational activities such as hunting, fishing, camping, hiking, swimming, trail riding (both summer and winter), canoeing, bird watching, and fall color tours.

Setting

Luce County lies in the Upper Peninsula of Michigan approximately 73 miles north and slightly west of the Mackinac Bridge. It is bordered on the north by Lake Superior, and the northern part is primarily State owned forest. It is bordered by Chippewa County on the east and Alger and Schoolcraft Counties on the west. Mackinac County borders the southern County line. (See Map 1 – Location)

Four townships and one Village make up the government of Luce County. McMillan Township is the largest in area of all townships in Luce County and in the entire State of Michigan, encompassing 597 square miles. The Village of Newberry falls within McMillan Township. Columbus Township on the western edge is the next largest township encompassing an area of 143 square miles and includes the community of McMillan. Pentland Township

along the southeast corner is the next largest in land area of 107 square miles and adjacent to the west, Lakefield Township, the smallest in the County at 63 square miles. (See Map 2 - Township Lines) Information on each unit of government is listed below.

Government Unit	Phone Number	Office Location	Community
Luce County	(906) 293-5521	407 W. Harrie	Newberry
Columbus Township	(906) 293-5386	24531 Hwy. M-28	McMillan
Pentland Township	(906) 293-8261	15474 M-28	Newberry
McMillan Township	(906) 293-8798	405 Newberry Ave.	Newberry
Lakefield Township	(906) 586-6971	26344 CO RD 98	Lakefield
Newberry Village	(906) 293-3433	McMillan St.	Newberry

Luce County covers an area of 930 square miles. The City of Marquette lies 105 miles west, Sault Ste. Marie 67 miles to the east and Escanaba 115 miles southwest. The distance to travel to larger cities below the Mackinac Bridge such as Traverse City is approximately 177 miles south, or Detroit over 300 miles south. (See Map 3 -City Distance Map)

Land Use Patterns

Luce County is made up of mostly rural, forested land. Historically, the County has depended upon its natural resources as a major component of its economy.

Forests and wetlands combined make up more than 93 percent of the County’s land area. Approximately 293,700 acres are covered in forests, basically 50 percent of the County. Wetlands encompass almost 266,000 acres or about 45 percent of the County’s land area. Wetlands are most predominant in the east half of the County, but large areas of wetlands also run in an east-west direction along the southern edges of Columbus and McMillan townships and in a northwest-southeast direction through McMillan Township. (See Map 4 - Land Use Map)

About 177,000 acres, or 66 percent of all wetlands are covered with lowland conifers or hardwoods, with another 81,000 acres (30%) containing shrub wetlands. Only 8,000 acres (3%) of all wetlands are non-wooded or aquatic beds. (See Map 5 – Wetland Types)

Open space, including shrubbed and herbaceous open fields, are found scattered around the County, and mixed in with surrounding forests. Most open space fields are found in Pentland Township, Lakefield Township and south of the Village of Newberry. Some limited extractive (gravel pits) land uses occur in various areas. Most of these sites are scattered in Lakefield Township including Smeder pits in east Lakefield Township. Four others are found around the Village of Newberry, in northern McMillan Township, and in Pentland Township. There are 3,500 acres of undeveloped open space, comprising 0.6 percent of the County's land area. Agricultural lands are located primarily north of Manistique Lake as well as along M-28 between McMillan and Newberry. The produce from the agriculture is mainly grains, potatoes, other field crops and cattle.

The residential use in Luce County is primarily single-family houses. Some of those houses are seasonally-occupied lodges and cabins. Clusters of those seasonally –occupied houses are found in north McMillan Township by Bodi Lake, Pike Lake, on the East Branch of the Two Hearted River, and all along the Lake Superior shoreline. Others are found southeast of the Village of Newberry and around North Manistique (Round) Lake, and Big Manistique Lake.

The heaviest concentrations of single family homes are found in and around the Village of Newberry, along M-123, in Pentland Township south of the Village, in Dollarville west of Newberry, and around Big and North Manistique Lakes in Lakefield Township. Clusters of single family homes are also found along all the major corridors in Lakefield and Pentland townships, around Muskalonge Lake, East Lake, Little Lake, Perch Lake and Pike Lake and along the Lake Superior shoreline in the northwest corner of McMillan Township. (See Map 6 – Population Clusters)

Over 60 retail, service and commercial businesses are largely found in clusters in the Village of Newberry, the M-123 corridor, and on M-28 southeast of the Village. The heaviest concentration of commercial activities is found in the Village's traditional central business district along M-123 and south of the Village along the M-123 corridor, as well as at the intersection of M-28 and M-123. Other commercial activities outside of the Village include convenience stores around Muskalonge Lake, a lodge and convenience store on the Lake Superior shoreline at the mouth of Two Hearted River and two convenience stores along County Road 407. In and around McMillan there are four grocery stores, two gas stations, and several resorts. There are 17 motels, lodges and resorts in the County, generally located along the M-123 corridor and on M-28 between Manistique and Round lakes in Lakefield Township.

New commercial development is most evident along M-123 around the intersection of M-28 and M-123 in Pentland Township, three miles south of Newberry. The businesses in this area are tourist oriented, including motels and restaurants.

Overall, commercial uses encompass over 208 acres, or less than 0.1 percent of the County's land area.

Corporations own a number of larger parcels within the County or by individuals that are involved either directly or indirectly in tourism or recreation. These include the Newberry Country Club 160 acres, 80-acre campground in McMillan Township, 80-acre camp/wild animal

viewing area around Oswald Lake, a 480 acre outdoor resort around Halfway Lake and a 40-acre outdoor camp in section 27 (T50N, R9W) of McMillan Township.

In total, there are 1,400 acres devoted to private recreation facilities. The majority of private outdoor recreation facility activity is located in McMillan Township.

Industrial uses in Luce County are largely focused in and around Newberry. The largest manufacturers are in the wood products industry, including Louisiana Pacific, which produces oriented strand board and employs approximately 130 people. Around the Village there is approximately 577 acres of land that are in industrial use or zoned for industrial use. Included is the 115-acre County Economic Development Corporation Industrial Park located on Co. Road 403, about a mile south of the Village and east of the State Correctional Facility.

The new industrial park contains 25 lots ranging in size of 1.9 acres to 13.1 acres. The site is developed with paved roads, water, sewer, and electric and natural gas services.

Topography

The 930 square miles that make up Luce County lie almost entirely on a low plain, ranging from 600 to 1,000 feet above sea level. Around the Village of Newberry, little topographic variation is found. (See Map 7 - Contour Map)

Soils

Soil types found in Luce County include clays, loam, wet fine sands, sandy muck, and wet course sands. Sandy soils predominate in the western and southern portions of the County, and near Lake Superior. Mucks and wet coarse sands predominate in the eastern part of the County. The Village of Newberry is made up of mostly loamy and muck type soils.

Climate

The County's location on the Lake Superior shoreline has a significant impact on the local climate. Winters are characterized by more snowfall than other northern inland areas due to the temperatures of the surrounding large bodies of water ("lake effect" snow); although, the climate in the Eastern U.P. is not as harsh as those inland areas of the Upper Peninsula further west of Luce County.

The average annual snowfall ranges from 100 to 120 inches. In the extreme northern areas, which border on Lake Superior, snowfall as much as up to 300 inches is not uncommon. This snowfall generally covers the ground from November through April each year and offers many economic advantages for winter sports. These sports include snowmobiling, cross-country skiing and dog-sledding.

Annual precipitation in the County ranges between 30 and 32 inches. Summer days are long, lasting approximately 16 hours in June and July compared to less than nine hours in late December. Freezing occurs as late as June and begins as early as September. The growing season is approximately 140 days. The average year round temperature ranges from 38 to 42 degrees. The average winter temperature ranges between 16 to 18 degrees and the average summer temperature ranges between 63 and 66 degrees.

Population and Economic Information and Statistics

The following sections provide a great deal of information about Luce County, much of it has been derived from the 2000 Census, which was released in April of 2000.

Population and Housing

The County has seen great fluctuations in population over the past three decades; much of this is attributed to the closure of a State mental health facility within the county, and the subsequent opening of a State Correctional Facility in Newberry.

LUCE POPULATION 1960 – 2000							
Luce County		% Diff/		% Dif/		MI % Growth	
1970	1980	1970*	1990	1980*	2000	1980-2000	1980-2000
6,660	6,659	0.0%	5,763	-13.5%	7,024	5.5%	32.77%

*Figure shows percent difference from year indicated. Source: U.S. Bureau of the Census

Overall the population has increased nearly seven percent since the 1980 Census. This followed a sharp decrease in population from 1980 to 1990 over 13 percent. According to population projections, developed by the U.S. Bureau of the Census, by 2010, the County will decrease to around 5,600 persons, or 20.3%.

The age of the residents in Luce County continues to rise, as evidenced by the table below, 29.6 percent of the total population falls between the ages of 35-54 years old, and this represents an increase of 73.2 percent since the 1990 Census. The County continues to lose its younger population, as the age group of 10-19 year olds decreased by 30.6 percent in 2000. The median age in the County is 38.6, compared to 35.8 for the State of Michigan.

LUCE COUNTY 2000 POPULATION BY AGE			
2000	#	%	% DIFF.
Under 5	354	5.0%	-5.9%
5 to 9 yrs.	399	5.7%	-5.2%
10 to 14 yrs.	429	6.1%	-13.0%
15 to 19 yrs.	475	6.8%	-17.6%
20 to 24 yrs.	448	6.4%	73.6%
25 to 34 yrs.	1,021	14.5%	38.0%
35 to 44 yrs.	1,122	16.0%	35.2%
45 to 54 yrs.	953	13.6%	53.5%
55 to 59 yrs.	372	5.3%	19.2%
60 to 64 yrs.	369	5.3%	17.5%
65 to 74 yrs.	578	8.2%	1.0%
75 to 84 yrs.	364	5.2%	10.0%
85 +	140	2.0%	53.8%
Total	7,024	100.0%	100.00%

LUCE COUNTY MEDIAN AGE 1970-1990			
1980	1990	2000	MI: 2000
32.4	37.1	38.6	35.8
Source: U.S. Bureau of the Census, Census 2000			

The 2000 Census counted 2,481 households in the County, an increase of 15.2 percent since 1990. On average, there were 2.34 persons in each household, owner-occupied units housed 2.44 persons and renter-occupied units housed 2.24 persons. The average owner occupied household unit size decreased by 7.9 percent from 1990, and renter-occupied decreased 0.9 percent.

Renter-occupied housing accounts for 8.7 percent of the housing in the County, this is nearly twice below the percentage at the State level (15%), and 80.3% were owner-occupied. Because the vast area the County covers, one could presume that more residents own their homes as opposed to renting. Median mortgage costs (in dollars) for Luce County in 2000, were \$639, compared to \$972 for the State, during this same period, median rent costs were \$430 in the County, compared with \$546 for the State. In 2000, the County had 1,527 vacant housing units, which translated into 38.1% of the total housing stock, of these vacancies though, 1,255 (or 82.2%) were seasonal, recreational or occasional use facilities. This information is important for estimating the number of persons at risk in any areas identified as hazard-prone.

The 2000 Census counted 7,024 residents in Luce County, 5,965 lived in households, and 1,059 lived in group quarters. Of this group quarters population, 996 (94.1%) were institutionalized, 938 (88.5%) in correctional institutions, 51 (4.8%) in nursing homes, 8 (0.8%) in some other type of institution. There were 63 persons residing in some other non-institutional group quarters (5.9%), compared to the State level of persons in group quarters (2.5%), the County's rate is significantly higher, due to the large volume of prisoners housed in the State correctional facility in Pentland Township just outside of the Village of Newberry. Of the 2,481 households, 70.1 percent were families, 57.9 percent married couples, and 29.9 percent were non-family households. There were 301 households with individuals 65 and over, accounting for roughly 12 percent of the total.

The majority of the County's 4,008 housing units were 1-unit, detached structures (83.0%), and a much smaller number of denser living arrangements (2 units or above attached), that made up for roughly 5.3% of the total. There were a significantly higher number of units listed under the mobile home heading, with 10.2% compared to the State's 6.5 percent. The age of the housing structures in the County is another statistic that should be considered when factoring in hazard risks. The vast majority of the structures within Luce County were constructed prior to 1960, with 2,191 falling into this category (54.7%). Extreme weather circumstances or other naturally occurring hazards could have a significant impact upon these aging structures.

The median value of owner-occupied housing units, according the 2000 Census, was \$67,800, considerably less than the State's median value of \$115,600 (-70.5%). The distribution of values compared to the State's can be found in the table on the next page:

Housing Characteristics - 2000	Luce County		DIFF%	Michigan	
	Number	%		Number	%

Specified owner-occupied units					
units	4,008	100.0		2,269,175	100.0
VALUE					
Less than \$50,000	442	32.4	22.5%	224,603	9.9
\$50,000 to \$99,999	619	47.5	16.1%	711,648	31.4
\$100,000 to \$149,999	186	14.3	-12.3%	603,454	26.6
\$150,000 to \$199,000	43	3.3	-12.3%	339,716	15.0
\$200,000 to \$299,999	25	0.2	-10.9%	252,044	11.1
\$300,000 to \$499,999	2	0.2	-4.4%	104,079	4.6
\$500,000 to \$999,999	4	0.3	-0.9	27,642	1.2
\$1,000,000 or more	3	0.2	-0.1	5,989	0.3
Median (dollars)	\$67,800			\$115,600	

Source: U.S. Bureau of the Census, Census 2000, DP-4.

The most valuable of these properties were located in Lakefield, and Pentland Township. Within the County, there were 39 lacking complete plumbing facilities (1.6%), 33 that lacked complete kitchen facilities (1.3%) and 114 without telephone service (4.6%). All of the aforementioned percentages are comparable to the State’s levels. This is due to the vast geography and natural features found in this area, some areas are not capable of hosting the necessary infrastructure needed to have telephone service. These areas are prone to isolation in emergency situations and will require special efforts to ensure their needs are met. This is increasingly important given the frequency and severity of winter weather situations throughout the region.

In the entire State of Michigan, 78.2% of all occupied housing units use natural gas as the primary heating source. In Luce County this home heating fuel type accounted for 44.5%. The other primary types of heating fuels used were: Bottled, Tank or LP Gas 25.4%, Electricity 5.5%, Fuel Oil, Kerosene 11%, Wood 12.9%, and other 0.7%. It could be said the because the county has less reliance on utility fuel, it might be less prone to infrastructure failures than urban areas, the nature of these heating sources requires education and awareness of both maintenance and handling, in order to reduce the risks of structural or other fires.

Seasonal Population Analysis

In 2000, there were 1,527 housing units (38.1% of the county’s total) listed as “seasonal, recreational or occasional use”, this indicates a substantial seasonal flow of people within the county, depending on the time of year (season). Throughout the County, the percentage of seasonal homes continued to be high, with the lowest percentages found in the Village of Newberry (3.0%) and Pentland Township (10.1%). The highest percentages were found in Columbus Township (63.5%), Lakefield Township (45.6%), and McMillan Township (28.7%). The influx of population is believed to be highest during the summer months, and can be directly correlated with the holidays (Memorial Day, Independence Day and Labor Day). However, in areas such as Columbus, Lakefield and McMillan Townships, seasonal increases are also being found during the winter months, as snowmobiling has increased exponentially in popularity in recent years. Another seasonal increase can be found during the late fall when hunting season formally begins statewide.

Assuming that there are 2.34 persons per seasonal, recreational or occasional households in Luce County when utilized, and that the vacancy rate of these units at the peak of their occupancy is

equivalent to the rental vacancy rate of 8.4%, the second table illustrates the resulting population estimates for each minor civil division, and for the county as a whole.

Housing Units for Seasonal, Recreation or Occasional Use	Number	%
Columbus Twp.	195	63.5
Lakefield Twp.	409	45.6
McMillan Twp.	543	28.7
Newberry Village	25	3
Pentland Twp.	83	10.1
TOTAL	1255	31.3

Source: U.S. Bureau of the Census, Census 2000.

Given the projected population estimates listed below, the County could expect to see an increase of over 2,000 people, especially during peak tourism times.

Close consideration should also be given to camps and campground facilities throughout the county, which also temporarily house large numbers of people throughout the peak times in the tourism season. These individuals are not accounted for in the Census figures because they do not reside in housing unit structures. Rather, persons and families would be staying in the County in tents or campers or other makeshift or portable shelters. The nature of many of these recreational shelters makes them more vulnerable to certain weather and hazard events.

Population Estimates	Perm. Pop	Seasonal Housing Units	Seasonal Pop. Inc.	Estimated Peak Pop.	% DIFF
Columbus Twp.	215	195	400	615	186.1%
Lakefield Twp.	1074	409	839	1913	78.1%
McMillan Twp.	1261	543	1114	2375	88.4%
Newberry Village	2686	25	51	2737	1.9%
Pentland Twp.	1788	83	170	1958	9.5%
TOTAL	7024	1255	2575	9599	36.7%

Luce County is home to a state correctional facility, located in Pentland Township just outside the Village of Newberry, along Hwy M-123. According to the 2001 Statistical Report published by the Michigan Department of Corrections, this facility housed 938 inmates. Other major group quarters populations include 51 persons in nursing care facilities, primarily located in the Village of Newberry, 31 persons in homes or halfway houses for drug/alcohol abuse (Pathways-Newberry), and 27 persons in some “other” type of group home. These groups could be especially vulnerable in the case of a severe weather event, such as a tornado, because they primarily reside in above ground quarters and would need advance notification in order to seek adequate shelter. In the case of the prisons, the primary hazard that would most likely be identified there would be civil unrest or some other large-scale social type disturbance.

Transportation Network

Approximately 64 miles of State highways serve Luce County, 388 miles of County roads, and 28 miles of local public streets. The three main arterial highways in Luce County are M-28 running east to west, M-123 traveling north from M-28, and M-117 traveling south from M-28. Highway M-28 is the main east-west corridor running from Sault Ste. Marie to the western end of the Upper Peninsula in Ironwood. Highway M-117 connects Highway M-28 to US-2. Highway M-123 connects the Village of Newberry to Paradise in Chippewa County and is in part a State Scenic Heritage Route. Many county roads are seasonal and are closed in the winter months due to the high cost of maintenance and level of use.

Average daily traffic counts recorded by MDOT for 2002 indicate that the highest volume of traffic within the County occurs on M-123 between downtown Newberry and the Newberry Correctional Facility with an average of 8,100 vehicles per day. The stretch of M-28 west of M-117 has an average of 4,000 vehicles per day.

There are approximately 21 bridges found in Luce County. Most are in remote areas and some constructed from wood. McMillan Township has nine bridges, four are found in Lakefield Township, four in Columbus Township, two near Newberry and two in Pentland Township.

The County has one railroad line serving the area. The rail service provided is vital to future industrial development and current industrial activities. The primary rail line serving Newberry passes through the north side of the Village of Newberry. A spur line runs from the primary line to the Luce County Industrial Park and Louisiana-Pacific Corporation.

The Luce County Airport, located five miles southeast of the Village, serves Luce County. It is classified as a medium utility facility according to the 1990 Michigan Aviation System plan. The facility consists of a paved and lighted 4,300-foot by 75 foot NW-SE primary runway and a 2,900-foot by 200 foot NE-SW turf crosswind runway. Small, private planes use it.

There is a Dial-A-Ride bus service provided through the Eastern Upper Peninsula Transportation Authority for a five-mile radius around Newberry. (See Map 8 - Transportation Network Map and Map 9 - Traffic Counts)

Critical Facilities

When dealing with natural disasters, some development is more important than others, and these are considered to be “critical facilities.” Critical facilities are buildings and infrastructure whose exposure or damage can affect the well being of a large group. For example, the impact of a flood or tornado on a hospital is greater than on a home or most businesses.

Generally, critical facilities fall into two categories:

1. Buildings or locations vital to public safety and the disaster response and recovery effort, such as police and fire stations and telephone exchanges, and
2. Buildings or locations that, if damaged, would create secondary disasters. Examples of such buildings or locations are hazardous materials facilities and nursing homes.

Critical facilities are not strictly defined by any agency. For this mitigation planning effort, seven categories of critical facilities were used:

1. Hazardous materials sites.
2. Health facilities: hospitals and nursing homes.
3. Emergency response facilities: police and fire stations, public works sites, etc.
4. Utilities: water and wastewater treatment plants, electrical substations, etc.
5. Schools.
6. Places of assembly, such as township halls, community buildings or campgrounds.
7. Bridges and dams.
8. Significant Historical Sites

The distribution of these facilities by municipality is shown in the table below and located on Map 10 - Critical Facilities. A complete listing is shown in Appendix E.

Critical Facilities								
	Hazard Material Sites	Health Facilities	Emergency Facilities	Utilities	Schools	Assembly	Bridges & Dams	Historical Sites
Village of Newberry	2	1	3	5	3	2	6	1
Pentland Township	1		2	9		5	8	
Columbus Township					1	2	9	
McMillan Township	1	1	1	4		15	25	2
Lakefield Township						2	2	

