

INTRODUCTION

Part 2 of the Juneau County All-Hazard Mitigation Plan Update provides general geographical information on Juneau County including demographic and economic characteristics. The general development patterns of the County are described in terms of current land use and future development trends.

In addition to developing an understanding of the planning area, this chapter represents the beginning stages of assessing vulnerability by inventorying the numbers, types and values of existing buildings, infrastructure and critical facilities within each participating jurisdiction in the planning area. This overall summary of each jurisdiction's vulnerability to hazards describes the potential impact on the community.

Land use and development trends are analyzed to project the number and type of potential future buildings, infrastructure and critical facilities within each jurisdiction so that mitigation options can be considered in future land use decisions.

The resulting information is an important element of the update process, since sound alternative mitigation strategies cannot be formulated and evaluated without an in-depth knowledge of the relevant conditions in the study area.

GENERAL GEOGRAPHY

LOCATION

Juneau County is located in central Wisconsin (See Map 1). The largest urban area is the City of Mauston which is located in the south-central area of the County within the I-90/94 corridor. This corridor has cultivated several other incorporated areas including the Village of Camp Douglas, the City of New Lisbon and the Village of Lyndon Station. The City of Wisconsin Dells is encroaching into the southeast corner of the County, along the corridor as well, but is covered under Columbia County's mitigation plan. Other incorporated areas in Juneau County include the Village of Necedah in the northern half of the County and the Village of Hustler, the City of Elroy, the Village of Union Center and the Village of Wonewoc which are situated in the southwestern corner of the County. The County is bounded on the north by Wood County, on the east by Adams, on the south by Columbia and Sauk, and on the west by Vernon, Monroe and Jackson

Juneau County lies 146 miles northwest of Milwaukee; 142 miles southwest of Green Bay; 69 miles east of La Crosse and 78 miles north of Madison. Major metropolitan areas outside of Wisconsin with transportation linkages to Juneau County are Chicago, 218 miles southeast; Minneapolis-St. Paul, 195 miles northwest; and Duluth, 254 miles north.

CIVIL DIVISIONS

There are 29 municipalities (19 towns, 6 villages, and 4 cities) in the Juneau County planning area. The City of Mauston is the county seat. These units of government provide the basic structure of the decision-making framework. The County has a total surface area of about 804 square miles, of which 4.8 % is water. The area and proportion of the County within each civil division is presented in Table 1. The County recently rectified some ambiguity in its boundaries with Adams County due to the river and flowages between them which may explain some variation in comparing data sets on land area.

Minor Civil Division	Area in square miles			Area as % of County
	Total area	Water area	Land area	
Armenia town	77.72	11.69	66.02	9.67%
Camp Douglas village	1.01	0	1.01	0.13%
Clearfield town	35.76	0	35.76	4.45%
Cutler town	54.07	2.05	52.02	6.72%
Elroy city	1.98	0	1.98	0.25%
Finley town	38.58	0.3	38.28	4.80%
Fountain town	30.76	0	30.76	3.83%
Germantown town	45.01	11.81	33.2	5.60%
Hustler village	0.69	0	0.69	0.09%
Kildare town	28.17	0.5	27.67	3.50%
Kingston town	56.96	2.62	54.35	7.08%
Lemonweir town	42.22	0.05	42.17	5.25%
Lindina town	32.9	0.03	32.86	4.09%
Lisbon town	28.22	0.05	28.17	3.51%
Lyndon town	29.21	1.5	27.71	3.63%
Lyndon Station village	1.99	0	1.99	0.25%
Marion town	24.41	0.95	23.46	3.04%
Mauston city	4.8	0.4	4.4	0.60%
Necedah village	3.1	0.31	2.79	0.39%
Necedah town	82.82	4.56	78.26	10.30%
New Lisbon city	2.9	0.19	2.72	0.36%
Orange town	35.08	0.01	35.06	4.36%
Plymouth town	34.53	0.02	34.5	4.29%
Seven Mile Creek town	36.42	0	36.41	4.53%
Summit town	36.93	0.01	36.91	4.59%
Union Center village	0.75	0	0.75	0.09%
Wisconsin Dells (part)	0.44	0	0.44	0.05%
Wonewoc village	1.11	0	1.11	0.14%
Wonewoc town	35.47	0.02	35.46	4.41%
Juneau County	804.03	37.1	766.93	100.00%

Source: U.S. Census, 2010 and & NCWRPC, 2016

Insert Map 1 Location

To reduce file size for ease of emailing and downloading, the maps are omitted from this draft. To view the maps go to <http://www.ncwrpc.org/juneau/hazard/index.html>

TOPOGRAPHY

Juneau County is split between the Wisconsin Central Plain and the Western Upland. The northeastern three-quarters of the County is part of the Central Plain. This area was part of a glacial lake basin and is characterized by flat or gently undulating topography, except for an occasional sandstone butte. The buttes typically rise above the surrounding plain between 100 to 300 feet, with a maximum elevation of 1,262 feet at Sheep Pasture Bluff.

The basin slopes gradually to the southeast. Elevations range from about 980 feet in the northwest corner to about 840 feet in the southeast at the Wisconsin River. The basin has extensive areas of wetlands resulting from flat topography, slowly permeable layers of silt or clay and a high water table.

The southwestern quarter of the County is part of the Western Uplands. This is an unglaciated, hilly area which is mostly well drained. Steep sandstone escarpments mark the northern and eastern boundaries of this area. The hill valleys are typically 200 to 350 feet below the ridgetops and are long and V-shaped with relatively narrow bottoms. In this area, the highest elevation is 1,380 feet at Johnson Hill.

Surface drainage is toward the Wisconsin River. The Lemonweir, Little Yellow and Yellow rivers drain most of the plain area. The Baraboo River is the main tributary in the upland area.

CLIMATE

Juneau County has a continental climate that is characterized by long, cold, snowy winters; warm summers; and springs and falls that are often short. From late fall through spring, the weather changes every few days because of air masses that are part of pressure systems moving eastward and northeastward over the northern states.

In winter, the average temperature is about 20 degrees F., and the normal minimum temperature is about 10 degrees. The lowest temperature on record is -43 degrees, which occurred in 1951. The greatest number of days at or below 0 degrees was 57 in 1978. In summer, the average temperature is about 69 degrees and the normal maximum temperature is about 80 degrees. The highest recorded temperature is 107 degrees, which occurred in 1948. The greatest number of days at or above 90 degrees was 37 in 1955.

Average total annual precipitation is 33.46 inches. Of this, about 70% usually falls in April through September. The heaviest 1-day rainfall on record was 5.22 inches on July 15, 2010. Thunderstorms occur on about 39 days each year. Hail falls on an average of two days a year. Average seasonal snowfall is 47.5 inches, with 89.5 inches (2007-8) being the greatest total on record.

Prevailing winds are southerly in the summer and westerly in the winter. Average wind speed is highest in the spring at about 10 miles per hour

DEMOGRAPHIC AND ECONOMIC PROFILE

POPULATION AND HOUSEHOLDS

The official state 2015 population estimate for Juneau County shows a population of 26,987 people for the County. This represents a 1.21 percent increase from the 2010 Census reported population of 26,664 people, which matches the State of Wisconsin. Since 2000, the population of Juneau County has increased by 10.98 percent or by 2,671 people. If the growth rate continues at the current level, there will be approximately 27,644 people in Juneau County in 2025 and 28,317 people in 2035.

County	2010	2015	# Change	%Change
Adams	20,875	20,857	- 18	- 0.1%
Columbia	56,833	57,028	195	0.3%
Jackson	20,449	20,735	286	1.4%
Juneau	26,664	26,987	323	1.2%
Monroe	44,673	45,494	821	1.8%
Sauk	61,976	62,207	231	0.4%
Vernon	29,773	30,049	276	0.9%
Wood	74,749	74,965	216	0.3%
Wisconsin	5,686,986	5,753,324	66,338	1.2%

Source: U.S. Census, 2010, WisDOA, 2015 and NCWRPC, 2016

Population concentrations and trends are important when prioritizing hazard mitigation strategies. Mauston City is one of the most densely populated and developed areas in the County. The other cities and villages in the County are also notable areas of population concentration. However, the towns of Germantown, Lemonweir, Lyndon, and Necedah also have significant population numbers. Map 2 (below) shows areas of residential population concentrations in the County. Overall population density of the County is 34.8 persons-per-square-mile and ranges from a high of 1,006 in the City of Mauston to a low of 1.7 in the Town of Kingston.

Between 2010 and 2015, most communities within Juneau County have experienced an increase in their population base (refer to Table 3). The greatest amount of growth occurred in Germantown with an 8.91 percent increase between 2010 and 2015. The towns of Armenia, Fountain, Kildare and Necedah also had significant growth. Some communities have experienced minor declines in growth. The City of Wisconsin Dells figures are skewed due to the relatively small numbers involved.

Minor Civil Division	2010	2015	2010	2015	'10-'15 % Population	'10-'15 % Households
	Population	Population	Households	Households		
Armenia town	699	733	302	327	4.86%	8.28%
Clearfield town	728	735	304	316	0.96%	3.95%
Cutler town	326	331	142	151	1.53%	6.34%
Finley town	97	97	40	43	0.00%	7.50%
Fountain town	555	568	231	241	2.34%	4.33%
Germantown town	1,471	1,602	678	766	8.91%	12.98%
Kildare town	681	700	262	287	2.79%	9.54%
Kingston town	91	89	43	44	-2.20%	2.33%
Lemonweir town	1,743	1,759	714	751	0.92%	5.18%
Lindina town	718	714	286	295	-0.56%	3.15%
Lisbon town	912	916	375	392	0.44%	4.53%
Lyndon town	1,384	1,398	541	581	1.01%	7.39%
Marion town	426	426	200	207	0.00%	3.50%
Necedah town	2,327	2,377	887	956	2.15%	7.78%
Orange town	570	575	223	233	0.88%	4.48%
Plymouth town	597	598	245	253	0.17%	3.27%
Seven Mile Creek town	358	355	155	157	-0.84%	1.29%
Summit town	646	654	250	263	1.24%	5.20%
Wonewoc town	687	690	270	279	0.44%	3.33%
Camp Douglas village	601	607	244	261	1.00%	6.97%
Hustler village	194	195	84	90	0.52%	7.14%
Lyndon Station village	500	491	220	230	-1.80%	4.55%
Necedah village	916	919	376	400	0.33%	6.38%
Union Center village	200	198	95	96	-1.00%	1.05%
Wonewoc village	816	809	359	371	-0.86%	3.34%
Elroy city	1,442	1,399	590	596	-2.98%	1.02%
Mauston city	4,423	4,499	1,779	1,925	1.72%	8.21%
New Lisbon city	2,554	2,553	631	677	-0.04%	7.29%
Wisconsin Dells city (part)	2	0	1	0	-100.00%	-100.00%
Juneau County	26,664	26,987	10,527	11,188	1.21%	6.28%

Source: U.S. Census, 2010 and NCWRPC, 2016

The median age in Juneau County is 44.1, and characterizes it as relatively old in comparison to the State's median age of 38.8. The County has been identified as a retirement area resulting from being a vacation spot for many seasonal homeowners. Location of seasonal housing is a strong indicator in terms of retirement location. In Juneau County, about 21.6 percent of all housing units

have been identified as seasonal/recreational, compared to 7 percent for the State of Wisconsin.

SEASONAL POPULATION

The impact of this seasonal population cannot be overlooked when planning for hazards. Table 4 shows potential seasonal residents by municipality estimated based on seasonal housing data presented in the 2014 American Community Survey. Determining when and for how long these seasonal residents will be in the County is problematic, but the numbers give some indication of what weekend or other peak period population levels might be.

Minor Civil Division	Seasonal Housing Units	Estimated Seasonal Population
Armenia town	242	542
Clearfield town	154	376
Cutler town	141	338
Finley town	72	156
Fountain town	38	95
Germantown town	827	1,877
Kildare town	172	447
Kingston town	21	52
Lemonweir town	65	170
Lindina town	23	56
Lisbon town	26	64
Lyndon town	142	389
Marion town	112	245
Necedah town	643	1,665
Orange town	82	231
Plymouth town	70	168
Seven Mile Creek town	75	172
Summit town	32	72
Wonewoc town	29	78
Camp Douglas village	12	27
Hustler village	0	0
Lyndon Station village	65	188
Necedah village	29	83
Union Center village	6	16
Wonewoc village	4	10
Elroy city	8	20
Mauston city	78	193
New Lisbon city	19	45
Wisconsin Dells (part)	0	0
Juneau County Total	3,187	7,968

Source: U.S. Census, 2014 and NCWRPC, 2016

Another component of the seasonal population includes short-term accommodations such as campgrounds or hotel-style lodging. The scope of this

plan did not provide for a detailed inventory of accommodations, however the Juneau County Outdoor Recreation Plan identifies about 3,049 campsites including 13 at Allen Thompson Memorial Park in the City of Elroy, 300 at Castle Rock County Park near Mauston, 150 at Wilderness County Park in the Town of Armenia, 30 at Kennedy County Park near the City of New Lisbon and 673 private sites in various campgrounds across the County. In addition, there are hundreds of resort / motel type rooms within the County in various inns, motels, cabin resorts and bed & breakfasts.

EMPLOYMENT

The County's employment is more seasonal than the state as a whole, being significantly influenced by hospitality, tourism, agriculture, and seasonally based manufacturing. However, the Manufacturing Sector is still a major part of the County's economy. About one-fourth of the County's workers are employed in manufacturing industries and account for 31 percent of the total payroll. Only the Education and Health Services Sector accounts for more employment, comprising 29 percent of jobs in Juneau County. The leisure and hospitality sector represent 8.6 percent of the County's employment.

Employer Name	Location	Industry
Brunner Mfg Inc.	Mauston	Bolt Nut Screw Rivet & Washer Mfg
Festival Foods	Mauston	Supermarkets & Grocery Stores
Freudenberg-Nok	Necedah	Gasket Packing/Sealing Device Mfg
Juneau County	Mauston	General Government Support
Kwik Trip Inc.	Various	Gas Station / Convenience Stores
Leer Inc	New Lisbon	Electric Appliance Wholesalers
Legacy Power Conversion Sales	Necedah	Misc. Electric Equipment Mfg
MVP	Necedah	Real Estate Agents / Brokers
Mastermold	Mauston	Plastics Material & Resin Mfg
Mauston School District	Mauston	Elementary & Secondary Schools
Mile Bluff Medical Center	Mauston	General Medical & Surgical Hospitals
Necedah School District	Necedah	Elementary & Secondary Schools
New Lisbon Correctional Institution - DOC	New Lisbon	Correctional Facility
New Lisbon School District	New Lisbon	Elementary & Secondary Schools
Parker-Hannifin Refrigeration Specialties	Mauston	AC Refrigeration & Forced Air Heating
Sand Ridge Treatment Center - DHS	Mauston	Psychiatric & Substance Abuse Hospitals
Shopko	Mauston	Discount Dept. Stores
Volk Field - Dept. of Defense	Camp Douglas	National Security
Walker Stainless Equipment Co	New Lisbon	Plate Work Mfg

Source: WisDWD 2013, WI Worknet 2013, NCWRPC 2016.

The manufacturing, education and health services are well represented on the list of top employers in the County, refer to Table 5. There are a number of notable manufacturers, with 100 or more employees located in Mauston and other areas of the County. Mauston is also home to two major facilities in the Mile Bluff Medical Center and the Sand Ridge Treatment Center, while several of the school districts serving the County have significant staff levels.

Identifying locations of large employment is important when prioritizing hazard mitigation strategies. Analyzing employment within the County confirms that Mauston is the primary employment and service hub in Juneau County, however, other places like Necedah, New Lisbon and Camp Douglas are also significant employment centers.

In addition to the seasonal swells in employment, the number of people working in a given locality fluctuates on a daily basis. Workers travel jobs within Juneau from surrounding counties and residents flow out of the County for employment. Overall about twice as many residents flow out of the County for work than workers flowing in from surrounding areas. The most significant connection is with Sauk County to the south with 1,800 Juneau residents traveling into Sauk for work while 421 Sauk County residents come into Juneau. Monroe County is also a notable link with 880 to 1,200 workers traveling between each county.

Economic Impact of Job Loss in Juneau County

To help determine the potential impact of a hazard occurrence on the economy of the County, EMSI economic modeling software was used to estimate the cumulative effects of job losses in the some of the top industry sectors of the County. A catastrophic, worst case, scenario is examined. Actual impacts would vary by degree of severity of the event. APPENDIX C contains a detailed printout of the analysis, and Table 6 shows a summary.

Sector	Multiplier	Potential Jobs Impacted	Earnings Lost
Metal Tank Manufacturing	1.24	468	\$ 31,517,522
All Other Metal Product Fabrication	1.09	255	\$ 11,075,626
Gasoline Stations w/ Convenience Stores	1.06	303	\$ 6,112,550
General Medical and Surgical Hospitals	1.14	478	\$ 28,373,585

Source: EMSI Economic Modeling Specialists and NCWRPC, 2016.

LAND USE/LAND COVER AND DEVELOPMENT PATTERNS

Land use is an important determinant in the potential impact a particular hazard may have, and in action which may be taken to mitigate the hazard impacts. An understanding of the amount, type, and spatial distribution of urban and rural land uses within the County is an important consideration in the development of a sound hazard mitigation plan.

Aerial photos were used by the NCWRPC to digitize a land use Geographic Information System (GIS) coverage of Juneau County. Map 2 shows the land use and development concentrations within the County. Table 7 shows the acreage and percent of each classification.

Use	Acres	% of County
Agriculture	106,679	20.74%
Commercial	1,722	0.33%
Cranberry Bog	2,857	0.56%
Governmental/Institutional	3,949	0.77%
Industrial	785	0.15%
Open Lands	56,666	11.02%
Outdoor Recreation	6,106	1.19%
Residential	10,695	2.08%
Transportation	14,380	2.80%
Water	27,522	5.35%
Woodlands	282,918	55.01%
Total	514,280	100.00%

Source: NCWRPC, 2015

FORESTRY AND AGRICULTURE

The dominant land uses in Juneau County are forestry and agriculture. Land area in the County is approximately 55 percent forested, comprised of 282,918 acres of woodland. Agricultural land covers another 21 percent of the County's land area. According to UW-Extension, the main agricultural practices in the County are dairy farming but is very diversified with beef, sheep, bison, goat, and emu farms, complement forage and grain production. Specialty crops include cranberries, potatoes, grapes, blueberries, apples and Christmas trees. According to the U.S. Census of Agriculture, Juneau County has only lost five percent of its farmland since 1978.

The County is extensively forested throughout. Although ag-land is scattered across much of the County except the northwest corner, it is more heavily concentrated along and south of the I-90/94 corridor, as well as the Town of Armenia in the northeast corner.

RESIDENTIAL DEVELOPMENT

Land in residential development makes up about 2 percent of the total county area. Residential concentrations are scattered throughout the County (see "Population and Households" above). Much of the scattered rural development is related to direct recreational demand as various types of housing have clustered along streams and lakes.

There are a number of mobile home parks in the county. According to the U.S. Census, there were 3,114 mobile homes in 2015. This is about 21 percent of

housing units for the County compared to about 4 percent for the entire state. This is significant due to their vulnerability in natural hazards especially tornados. Map 8 displays the mobile home concentrations within the County.

COMMERCIAL AND INDUSTRIAL DEVELOPMENT

Commercial and industrial development makes up only about 0.48 percent of the total area of the County. Land use for commercial and industrial development is also scattered throughout the County (see "Employment" above). There are six industrial parks located around the County. There are also designated business parks in Mauston and New Lisbon. Commercial activity is concentrated in these cities as well as the other cities and villages around the County.

SURFACE WATER

Juneau County is within the Central and Lower Wisconsin River Basins. The basins are divided between ten main watersheds, refer to Map 3. In the Central Wisconsin River Basin, watersheds include Cranberry Creek, Lower Yellow River, and Wisconsin Rapids. In the Lower Wisconsin River Basin, watersheds include Beaver Creek, Crossman Creek/Little Baraboo River, Dell Creek, Little Lemonweir River, Lower Lemonweir River, and Seymour Creek/Upper Baraboo River.

The total surface water area of lakes and streams in Juneau County exceeds 27,000 acres. The many streams, rivers, and flowages in Juneau County furnish an abundant supply of surface water for power generation, irrigation, recreation, and fish & wildlife habitats. Juneau County has a total of about 57 lakes and 73 streams. Many lakes are impoundments to generate power, used for waterfowl, or as cranberry flowages. Nearly all of the lakes are used for recreation. The two largest lakes are Petenwell and Castle Rock; both are flowages on the Wisconsin River. Juneau County has about 378 linear miles of streams; all of which drain to the Wisconsin River.



Castle Rock Lake

Insert Map 2 Land Use

To reduce file size for ease of emailing and downloading, the maps are omitted from this draft. To view the maps go to
<http://www.ncwrpc.org/juneau/hazard/index.html>

Floodplains and wetlands are important subsidiary components to the surface water system as described below.

Floodplain

The primary value of floodplains is their role in natural flood control. Flood plains represent areas where excess water can be accommodated whether through drainage by streams or through storage by wetlands and other natural detention/retention areas. Specific areas that will be inundated will depend upon the amount of water, the distance and speed that water travels, and the topography of the area. If uninterrupted by development, the areas shown on a map as floodplains should be able to handle the severest (regional) flood, i.e. those that have a probability of occurring once every one hundred years.

There is a value in preserving and protecting these natural flood control areas from encroachment. First, by preventing development in the floodplain, the cost of building dikes, levies, or other man-made flood control devices will be saved. Second, for each structure that is constructed in a flood-prone area, that flood-prone area expands, potentially subjecting other structures originally built outside the delineated flood hazard area to the risk of flooding. Each new structure (or modification to existing) placed in the flood plain puts more life and property in danger.

Counties, cities, and villages are required to adopt reasonable and effective floodplain zoning ordinances. The requirement is found in section 87.30 of the Wisconsin Statutes and Chapter NR 116 of the Wisconsin Administrative Code. Floodplain zoning is designed to protect individuals, private property, and public investments from flood damage.

Floodplain zoning maps identify areas where major floods occur. Regulations prohibit development in the floodway, the most dangerous flood area. In other flood areas, the flood fringe, development that is built above flood levels and otherwise flood-protected is allowed if it is in accordance with local ordinances. For regulatory purposes, a floodplain is generally defined as land where there is a 1% chance of flooding in any year (also known as the 100-year floodplain).

In order to participate in the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP), Juneau County and its incorporated cities and villages have a completed Flood Insurance Study and a Flood Insurance Rate Map (FIRM) that encompasses the County, see Table 8 for summary of NFIP status. This FIRM delineates the "A" Zones including the floodway and flood fringe which are those areas inundated by the 100-year flood within the County. FEMA has updated Juneau County's FIRM to digital standards. The digital FIRMs are referred to as DFIRM. The NCWRPC downloaded the DFIRM from FEMA's website for use in this plan. Although unofficial, the digital files indicate there are 58,889.4 acres of floodplain in

Juneau County, or 11.5 percent of the land area. Map 4 shows the approximate floodplains in Juneau County. Floodplains in Juneau are extensive in some areas, and flooding is a recurring problem. Currently, there are two repetitive loss structures, those with multiple flood insurance claims, in Juneau County.

Table 8: FEMA Community Status Book Report Communities Participating in National Flood Insurance Program Wisconsin - Juneau County				
Community	Initial FHBM	Initial FIRM	Current Map	Program Entry
Juneau County	09/18/1981	9/18/1991	10/16/2012	9/18/1991
V. of Hustler	08/23/1974	9/18/1991	10/16/2012	8/24/2012
V. Lyndon Station*	05/24/1974	09/01/1986	10/16/2012	12/17/1986
V. of Necedah	01/09/1974	9/18/1991	10/16/2012	1/27/1992
V. of Union Center	11/15/1974	9/18/1991	10/16/2012	3/13/2013
V. of Wonewoc	12/07/1973	9/30/1988	10/16/2012	9/30/1988
C. of Elroy	06/07/1974	9/18/1991	10/16/2012	9/18/1991
C. of Mauston	12/17/1973	9/18/1991	10/16/2012	9/18/1991
C. of New Lisbon	12/17/1973	9/18/1991	10/16/2012	9/18/1991

Source: FEMA, 2016 *Withdrawn from participation.

The Biggert-Waters Flood Insurance Reform Act was signed into law in July, 2012. This act implemented significant reforms to the structure of flood insurance under the National Flood Insurance Program (NFIP). Then, on March 21, 2014, President Obama signed the Homeowner Flood Insurance Affordability Act of 2014 (HFIAA) into law amending the NFIP further. These new laws impact the various elements of the NFIP, including Insurance, Flood Mapping, Mitigation, and Floodplain management.

HFIAA repeals and modifies certain provisions of the Biggert-Waters Flood Insurance Reform Act, and makes additional program changes to other aspects of the program not covered by that Act. Many provisions of the Biggert-Waters Flood Insurance Reform Act remain and are still being implemented. The new law lowers the recent rate increases on some policies, prevents some future rate increases, and implements a surcharge on all policyholders. The Act also repeals certain rate increases that have already gone into effect and provides for refunds to those policyholders. Both of these laws are important to local floodplain managers and planners because rate structure increases may increase interest of policy holders that own floodprone properties in alternatives to mitigate both flood risk and flood insurance costs for those properties.

Insert Map 3 Surface Water and Wetlands

To reduce file size for ease of emailing and downloading, the maps are omitted from this draft. To view the maps go to
<http://www.ncwrpc.org/juneau/hazard/index.html>

Insert Map 4 Floodplains and Dams

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Wetlands

Wetlands perform many indispensable roles in the function of the hydrologic cycle and local ecological systems. In terms of hazard mitigation, they act as water storage devices in times of high water. Like sponges, wetlands absorb excess water and release it back into the watershed slowly, preventing flooding and minimizing flood damage. As more impermeable surfaces are developed, this excess capacity for water runoff storage becomes increasingly important.

The DNR has also identified the location of wetlands on their WISCLAND database. According to this, Juneau County has 100,606.22 acres, or 19.6 percent of its total area. Map 3 shows these wetland areas in Juneau County. There are concentrations of wetlands in Juneau County, particularly in the northwest associated with the Necedah National Wildlife Refuge and surrounding natural areas. Additional wetlands are associated with the floodplains discussed above, however, smaller wetlands are scattered throughout the County.

Eradication of wetlands can occur through the use of fill material. This can destroy the hydrological function of the site and open the area to improper development. The Wisconsin Department of Natural Resources (DNR) has promulgated minimum standards for managing wetlands.

OTHER LAND COVER/USES

Recreational lands including parks and outdoor sports facilities total about 6,106 acres or 1.2 percent of the County land area. Other lands may have recreational aspects, particularly woodlands. Governmental, public and institutional lands total about 3,949 acres or about 0.77% of the County land area. The transportation category is primarily the roadway travel corridors for federal, state, county and local highways and roads. Sometimes overlooked, transportation land use can be significant. In Juneau County, surface transportation facilities consume about 14,379 acres of land or about 2.8 percent of total land area. Note that this is almost six times as much land area as is used for commercial and industrial uses in the County.

FUTURE GROWTH AND DEVELOPMENT IN JUNEAU COUNTY

Juneau County's population has increased 1.21 percent over the last five years for a net gain of 323 residents. The County's rate of growth has declined from the very high rates observed during the previous decades. However, with the economy continuing to improve following the downturn, growth is expected to rebound. The County's rate of growth has been similar to the State's overall rate in the past. For example, the County grew about 9 percent during the past decade compared to the state's growth of 10% over this same period. By 2035, Juneau County will have grown to a population of about 28,317 in 2035, a gain of about 1,330 residents if the growth rate continues at its current level. This equates to approximately 536 additional structures (housing units), assuming consistent conversion and vacancy rates.

From a net growth perspective, residential migration into Juneau County has been responsible for most of its population growth because natural growth has been low (births vs. deaths). This growth pattern is reflective of an aging population and booming seasonal-to-permanent housing markets.

A market analysis of land use was conducted by UW-Extension that concluded that one of the largest land use trends was the secondary home market and with the economic recovery, this trend should continue and also influence the construction sector. The Towns of Armenia, Germantown, Kildare, Lyndon, and Necedah on the east side of the County are projected to see strong growth as the primary lakeshore/riverfront development areas. More retired persons are expected to migrate in to the County looking to convert vacation homes into permanent residences.

The urban areas such as the Cities of Mauston and Camp Douglas as well as the Village of Necedah will also likely see continued development due to employment opportunities and other local amenities.

New commercial and industrial development is expected to be gradual over time, paralleling population growth. The most significant concentrations of this development will likely be in the incorporated communities and the industrial and business parks in the area. These parks have significant space available and are mostly ready for development with sewer, water, gas, and electric utilities in place. New private sector construction/expansion projects include expansion of the hospital in Mauston and a number of retail and restaurant chain stores. Industrial expansion projects in Mauston include Mastermold and Brunner Manufacturing. In Wonewoc, a new Gunderson Clinic is being planned and Land o' Lakes is expanding production. In Elroy, a small retail, "box" chain is planning a new store, and Brunner Wire is building an expansion.

New infrastructure or public facilities will be somewhat minimal, excepting limited replacement of existing facilities. Despite a rebounding economy local government budgets are expected to remain constrained well into the future. These budget constraints will curtail local governments' ability to develop new facilities and result in a tendency to make do with existing infrastructure and delay expansion plans. Projects that are currently underway include planning for a rehabilitation of City Hall which includes the City's police department. Plans include adding a community center element as well as emergency shelter accommodations. A new fire department is also on the drawing board. In New Lisbon a new wastewater treatment plant and a new well are being constructed. In Elroy, they are planning an expansion of the City campground, and the electric utility is planning system upgrades including a solar array. Juneau County is constructing a new, 2-story office building in Mauston which will house human services, health department and the ADRC (aging and disability resource center).

As identified in the 2009 Juneau County Comprehensive Plan, there are a number of impediments to development in the County. The Necedah National Wildlife Refuge covers 73,928 acres, or 14 percent of the County. Camp Williams/Volk Field and the Hardwood Range are federally owned military lands and comprise 1.9 percent of the County. About a quarter of all lands in the County are publically owned, including right-of-ways. The Comp Plan also identified large amounts of wetlands and floodplains, as well as steep slopes and prime farmland as obstructions to development.

Any new buildings and facilities, including new housing units, will be subject to each hazard addressed in this Plan. Even best efforts to keep new building out of flood plain and dam shadow areas cannot guarantee new construction will be exempt from flooding due to the nature of flooding within the County.

The County's population is generally older, with a median age of 44 years, versus statewide median age of 39 years. Over the next few decades, the residential base will become even older, aging more quickly than the state as a whole. In fact, the number of persons 60 and older will likely exceed the population 19 and under by 2040. This will have implications affecting the demand for emergency services.

PUBLIC FACILITIES AND SERVICES

TRANSPORTATION

The transportation system of Juneau County provides the basis for movement of goods and people into, out of, through, and within the County. An efficient transportation system is essential to the sound social and economic development of the County and the Region. The analysis of transportation routes should be considered in the possible event of a disaster (See Map 5).

The principal highways serving the County are Interstate 90/94 and U.S. Highway 12. The Interstate connects Wisconsin Dells, Lyndon Station, Mauston, New Lisbon, and Camp Douglas, while U.S. Highway 12 serves as an alternative route. STHs 21 and 82 provide the main east-west routes, and state highways 80, 16, and 173 also serve the County. These highways link the County with neighboring communities and are vital to the manufacturing and tourism sectors of the County's economy.

Networks of county trunk highways collect traffic from rural land uses. These county highways serve an important role in linking the area's agricultural and timber resources to the County's major highways and population centers. Local roads provide access to local development, farming and forest areas, as well as to the County's recreation areas.

Aging and Disability Resource Center of Eagle Country coordinates transit service for elderly and disabled in the County. Vans and mini-buses provide

transportation for medical appointments, shopping, banking, and other business during the week for seniors. A volunteer driver network is also available for the elderly and those with disabilities. The City of Mauston has a subsidized shared-ride taxi service.

The Union Pacific Railroad, Canadian Pacific Railway, and the Canadian National all pass through Juneau County with interconnections at Camp Douglas, Necedah and New Lisbon. The Amtrak passenger train also travels through the County; there is a stop in nearby Wisconsin Dells.

There are five airports within Juneau County. The Volk Field Air National Guard Base is located near Camp Douglas. This field can accommodate most modern military aircraft on its single asphalt and concrete paved runway measuring 9,000 ft. The Mauston-New Lisbon Union Airport is jointly owned by its municipal namesakes. It is classified as a basic utility airport and has a 3,686 foot asphalt runway. The Necedah Airport is owned by the Village and is appropriate for small engine planes with its single 2,700 foot asphalt runway. Three Castle Airpark is located northwest of Wonewoc and is privately owned and operated, but open to the public. There is a 2,740 grass runway appropriate for small engines. Lastly, Eloy Municipal Airport is also privately owned, and its 2,550 foot gravel and turf runway is open to the public.

UTILITIES

Utility systems are important in hazard mitigation planning because of the dependency on water, wastewater treatment, gas service, electricity, and communications. Because of this reliance and vulnerability to hazards, utility systems must be identified for this Plan, see Map 6.

The protection of the public water supply facilities from potential contamination from hazards such as flooding is a consideration for hazard mitigation planning. There are 10 water suppliers for domestic and commercial use, including each city and village and the Wisconsin Air National Guard Volk Field.

The protection of the wastewater facilities is an important consideration for hazard mitigation planning because of their potential to contaminate nearby waterbodies in the event of high water. Also of concern during periods of flooding is the threat of damage to infrastructure and associated facilities. There are twelve wastewater treatment centers in the County; the 10 public and 2 serving private developments.

Natural gas service is provided to much of the County by Alliant Energy, Wisconsin Gas Company and Madison Gas & Electric.

The infrastructure of electric and telephone lines should be considered in the events of high wind, ice storms, tornados, flooding, and fire. Alliant Energy and Oakdale Electric Cooperative provide Juneau County with electric service. As of

2001, an independent company, American Transmission Company (ATC), owns, maintains, and operates the major transmission facilities located in the State of Wisconsin, including Juneau County. The general locations of the major electrical transmission facilities, owned by ATC are shown on Map 6. There are several companies providing telephone service in the County including Frontier and Charter.

Nationwide, cellular telephones account for more than half of all 911 calls. Service coverage is based upon the handset receiving a direct line-of-sight signal from a system provider's antenna on a tower. Limitations for receiving a signal include topography and the thickness & type of building materials. Signals generally cannot travel well in dense forest cover, over tall hills, or through thick or multiple cement walls. Cell service coverage within Juneau County is very good, however, there remain some areas where service can be spotty.

EMERGENCY SERVICES AND FACILITIES

The type and location of public emergency services are an important consideration in hazard mitigation planning, because of the potential direct involvement of such facilities in certain hazard situations. The location of fire stations, police departments, and ambulance services in Juneau County are shown on Map 7. Juneau County operates the 911-call center providing dispatch for virtually all of the emergency services discussed below.

There are eight fire departments that serve the local units of governments in Juneau County. All of the departments rely on volunteers for this service. Additionally, the Volk Field Air National Guard Base in Camp Douglas is home to the Volk Field Combat Readiness Training Center Fire Department which employs career firefighters. The Department of Natural Resources also has two fire protect units: the Babcock Fire Response Unit and the Necedah Fire Response Unit. Four departments are located outside the County – the Cities of Reedsburg and Wisconsin Dells and the villages of LaValle and Lyndon. Juneau County also has a HazMat Team located at Camp Douglas (Volk Field), and there is also a New Lisbon Fire Department HazMat Team.

There are seven ambulance/EMS service providers within the County, including the Village of Lyndon Station, the Village of Wonewoc, the City of New Lisbon, the Village of Necedah, the City of Elroy, the City of Mauston, and the Village of Camp Douglas. There are also several outside stations that provide service within the County.

The Juneau County Sheriff's Department provides service to all of the towns as well as the villages of Hustler and Union Center. The Sheriff's Department's office is located in the City of Mauston. The Villages of Necedah, Camp Douglas, Lyndon Station, and Wonewoc as well as the cities of Mauston, Elroy, and New Lisbon operate and maintain their own law enforcement units.

The American Red Cross maintains agreements with the owner/operators of various facilities around the County to act as shelters in the event of an emergency. Schools and churches are the most common shelter facilities. Juneau County is part of southwest chapter of the American Red Cross with ten other counties. The chapter's administrative office is located in Madison, but a volunteer disaster action team is maintained locally.

CRITICAL COMMUNITY FACILITIES

In addition to emergency service facilities, other community facilities are also important in hazard mitigation planning. Government administration buildings serve as the headquarters that link to resources in helping solve potential problems. Hospitals are very important for knowing where injured residents have to be transported and as to how many people each hospital can handle if a hazard would breakout.

There are six hospitals and clinics located throughout the County. The main hospital is the Mile Bluff Medical Center. Outlying clinics include the Elroy Family Medical Center, the Gundersen Clinic, Mile Bluff Clinic, Necedah Family Medical Center, and the New Lisbon Clinic.

Heritage Manor in Elroy is the primary nursing home within the County. Fair View home is based in Mauston while Crest View operates in New Lisbon. Nursing homes are vulnerable, because of the high level of assistance needed with the residents that live there. In addition, there are a number of assisted living facilities within the County. The schools are another facility that are important, since hundreds of the County's children are there for most of the year. Map 7 shows the location of selected types of critical community facilities within Juneau County.

Insert Map 5 Transportation

To reduce file size for ease of emailing and downloading, the maps are omitted from this draft. To view the maps go to <http://www.ncwrpc.org/juneau/hazard/index.html>

Insert Map 6 Utilities

To reduce file size for ease of emailing and downloading, the maps are omitted from this draft. To view the maps go to
<http://www.ncwrpc.org/juneau/hazard/index.html>

Insert Map 7 Critical Facilities

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INVENTORY & VALUE - STRUCTURES & PROPERTY IN JUNEAU COUNTY

The value of the real estate and personal property in a community reflects the upper end of the potential for property damages in each community. The annual equalized value of each municipality represents the Department of Revenue estimate of market value (Agricultural land is included at Use Value) of all taxable property. Property tax levies of jurisdictions are apportioned to each municipality on the basis of equalized value. Table 9 lists each municipality's total equalized values for real estate, personal property, and all property and the percent each municipality represents of the county total.

MCD	Real Estate	Personal Property	Total	% Total
Armenia town	\$ 126,934,100	\$ 477,600	\$ 127,411,700	6.56%
Clearfield town	\$ 63,066,200	\$ 134,500	\$ 63,200,700	3.25%
Cutler town	\$ 30,579,100	\$ 909,400	\$ 31,488,500	1.62%
Finley town	\$ 16,695,500	\$ 187,800	\$ 16,883,300	0.87%
Fountain town	\$ 33,107,600	\$ 127,700	\$ 33,235,300	1.71%
Germantown town	\$ 329,091,400	\$ 2,779,500	\$ 331,870,900	17.08%
Kildare town	\$ 67,057,900	\$ 272,500	\$ 67,330,400	3.47%
Kingston town	\$ 3,538,600	\$ 71,700	\$ 3,610,300	0.19%
Lemonweir town	\$ 110,517,100	\$ 1,733,600	\$ 112,250,700	5.78%
Lindina town	\$ 48,605,000	\$ 150,000	\$ 48,755,000	2.51%
Lisbon town	\$ 60,840,800	\$ 824,800	\$ 61,665,600	3.17%
Lyndon town	\$ 106,189,700	\$ 899,300	\$ 107,089,000	5.51%
Marion town	\$ 48,518,300	\$ 115,600	\$ 48,633,900	2.50%
Necedah town	\$ 172,011,500	\$ 5,132,600	\$ 177,144,100	9.12%
Orange town	\$ 36,659,500	\$ 45,000	\$ 36,704,500	1.89%
Plymouth town	\$ 52,472,800	\$ 79,900	\$ 52,552,700	2.71%
Seven Mile Creek town	\$ 29,854,000	\$ 28,700	\$ 29,882,700	1.54%
Summit town	\$ 47,827,100	\$ 64,500	\$ 47,891,600	2.47%
Wonewoc town	\$ 42,308,800	\$ 275,800	\$ 42,584,600	2.19%
Camp Douglas village	\$ 19,731,200	\$ 489,700	\$ 20,220,900	1.04%
Hustler village	\$ 9,432,200	\$ 107,400	\$ 9,539,600	0.49%
Lyndon Station village	\$ 22,484,000	\$ 694,900	\$ 23,178,900	1.19%
Necedah village	\$ 39,850,700	\$ 1,456,100	\$ 41,306,800	2.13%
Union Center village	\$ 9,628,600	\$ 707,300	\$ 10,335,900	0.53%
Wonewoc village	\$ 21,520,000	\$ 401,900	\$ 21,921,900	1.13%
Elroy city	\$ 47,232,600	\$ 1,493,100	\$ 48,725,700	2.51%
Mauston city	\$ 191,271,700	\$ 11,794,800	\$ 203,066,500	10.45%
New Lisbon city	\$ 68,720,600	\$ 2,665,500	\$ 71,386,100	3.67%
Wisconsin Dells city	\$ 433,000	\$ -	\$ 433,000	0.02%
Juneau County	\$1,856,179,600	\$ 34,121,200	\$1,890,300,800	100%

Source: WisDOR 2014 Totals may not add due to rounding.

The valuation of property in a community reflects the potential for property damages across the community. However, only taxable properties are included in this valuation. Tax exempt government properties are not included. With

Juneau County owning many critical facilities that are needed in times of disaster, the potential for damages to these structures could be devastating for the county. In Table 10a, the county owned critical facilities are listed with the general location they are in and the value of the facilities. Estimates for local government facilities are given in the remainder of Table 10.

Name	Value*	Location
Courthouse	\$8,516,187	Mauston
Courthouse Annex	\$5,657,108	Mauston
Hickory Street Center	\$5,903,237	Mauston
Justice Center	\$22,355,050	Mauston
Landfill	\$712,875	Mauston
Highway Department	\$12,964,961	Various Locations
Necedah Barn	\$727,307	Necedah
New Lisbon Salt Shed	\$407,922	New Lisbon
Wonewoc Barn	\$298,706	Wonewoc
Tower Sites	\$312,632	Various Locations
Forestry/Parks/Zoning	\$1,842,125	Mauston
Park Facilities	\$3,346,104	Various Locations
Meal / Other Remote Sites	\$217,409	Various Locations
Total	\$63,261,623	Above Locations

*=Includes insured buildings, contents, and property in the open.
 Source: Statement of Values Local Property Insurance Fund, 2016.

Property	Value*
City Hall	\$1,060,514
Library	\$2,641,585
City Park	\$1,693,303
Elroy Commons	\$698,432
Wastewater Treatment Plant	\$5,461,544
Museum	\$1,697,784
Public Works Facility	\$663,880
Water Booster Stations (2)	\$434,151
Wellhouses (2)	\$1,665,320
Water Treatment Plant	\$1,219,416
Reservoir	\$794,664
Liftstation	\$270,592
Electric Dept./Powerhouse	\$1,258,360
Misc. Other	\$199,817
Total	\$19,759,362

*includes insured buildings, contents and property in the open.
 Source: Local Government Property Insurance Statement of Values, 2016.

Property	Value*
City Hall	\$3,096,207
Parks and Recreation	\$1,291,351
Pump Houses (3)	\$1,001,126
Wastewater Treatment Facilities	\$2,988,364
Liftstation	\$291,607
Library	\$4,301,250
Water Tower	\$961,069
North Road Farm	\$517,863
Public Works Facility	\$3,357,063
Visitor Information Center	\$64,495
Misc. Other	\$4,264,339
Total	\$22,134,734

**includes insured buildings, contents and property in the open.*

Source: Local Government Property Insurance Statement of Values, 2016.

Property	Value*
Library	\$1,961,411
Parks and Recreation	\$831,160
Cemetery	\$11,575
City Hall	\$1,292,720
Fire Station	\$1,460,244
City Garage	\$1,877,728
Water System	\$1,035,262
Municipal Pool	\$1,110,422
Wastewater Treatment Plant	\$8,655,041
Lift Stations (12)	\$1,058,908
Electric Shop	\$476,270
Public Works	\$699,872
Misc. Other	\$3,018,646
Total	\$23,489,259

**includes insured buildings, contents and property in the open.*

Source: Local Government Property Insurance Statement of Values, 2016.

Table 10e Value of Village of Camp Douglas Owned Properties	
Property	Value*
Village Hall	\$500,000
Water System	\$500,000
Wastewater Treatment System	\$1,000,000
Library	\$750,000
Misc. Other	\$100,000
Total	\$2,850,000

**includes insured building, contents and property in the open.
Source: NCWRPC estimate, 2017.*

Table 10f Value of Village of Hustler Owned Properties	
Property	Value*
Village Hall	\$494,150
Water System	\$494,150
Wastewater Treatment System	\$988,300
Museum	\$680,000
Total	\$2,656,600

**includes insured building, contents and property in the open.
Source: Local Government Property Insurance Statement of Values and NCWRPC estimate, 2016.*

Table 10g Value of Village of Lyndon Station Owned Properties	
Property	Value*
Village Hall	\$500,000
Water System	\$500,000
Wastewater Treatment System	\$1,000,000
Misc. Other	\$100,000
Total	\$2,100,000

**includes insured building, contents and property in the open.
Source: NCWRPC estimate, 2017.*

Table 10h Value of Village of Union Center Owned Properties	
Property	Value*
Village Hall	\$500,000
Water System	\$500,000
Wastewater Treatment System	\$1,000,000
Misc. Other	\$100,000
Total	\$2,100,000

**includes insured building, contents and property in the open.
Source: NCWRPC estimate, 2017.*

Property	Value*
Village Hall / Fire Station	\$2,000,000
Library	\$2,000,000
Parks and Recreation	\$1,000,000
Public Safety Building (Police/Amb.)	\$1,500,000
Wastewater Treatment Plant	\$5,000,000
Public Works Facility	\$600,000
Water Treatment Plant	\$1,200,000
Wellhouses (2)	\$1,500,000
Reservoir	\$800,000
Liftstation	\$250,000
Water Tower	\$950,000
Misc. Other	\$200,000
Total	\$17,000,000

**includes insured buildings, contents and property in the open.
Source: NCWRPC Estimate, 2017.*

Property	Value*
Village Hall	\$500,000
Water System	\$500,000
Wastewater Treatment System	\$1,000,000
Library	\$750,000
Misc. Other	\$100,000
Total	\$2,850,000

**includes insured building, contents and property in the open.
Source: NCWRPC estimate, 2017.*

Table 10k: Value of Town Owned Properties		
Municipality	Property	Value*
Armenia town	Town Hall	\$550,000
Clearfield town	Town Hall	\$550,000
Cutler town	Town Hall	\$550,000
Finley town	Town Hall/Garage/Recycle Bldg	\$412,812
Fountain town	Town Hall	\$550,000
Germantown town	Town Hall	\$1,102,296
	Town Park	\$149,664
	Town Maint. Bldg/Shop/Garage	\$650,556
Kildare town	Town Hall	\$550,000
Kingston town	Town Hall	\$550,000
Lemonweir town	Town Hall	\$163,526
Lindina town	Town Hall	\$550,000
Lisbon town	Town Hall	\$550,000
Lyndon town	Town Hall/Park	\$161,595
Marion town	Town Hall	\$550,000
Necedah town	Town Hall	\$550,000
Orange town	Town Hall	\$550,000
Plymouth town	Town Hall	\$550,000
Seven Mile Creek town	Town Hall	\$550,000
Summit town	Town Hall	\$550,000
Wonewoc town	Town Hall	\$803,832
*includes insured building, contents and property in the open. Source: Local Government Insurance Policy Declarations and NCWRPC estimate, 2016.		