



FEBRUARY 2016

**BURT COUNTY APPENDIX**  
PAPIO-MISSOURI RIVER NRD MULTI-JURISDICTIONAL  
HAZARD MITIGATION PLAN

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## ***PLAN OVERVIEW***

This plan is an update to the Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Hazard Mitigation Plan (HMP) approved in 2011. The plan update was developed in compliance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000).

Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. The goal of the process is to reduce risk and vulnerability, in order to lessen impacts to life, the economy, and infrastructure. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and manmade disasters.

The potential for disaster losses and the probability of occurrence of natural and manmade hazards present a significant concern for the communities participating in this plan update. The driving motivation behind the update of this hazard mitigation plan is to reduce vulnerability and the likelihood of impacts to the health, safety, and welfare of all citizens in the planning area. To this end, the Regional Planning Team and participating jurisdictions reviewed, updated, and approved goals and objectives which helped guide the process of identifying both broad-based and community specific mitigation strategies and projects that will, if implemented, reduce their vulnerability and help build stronger, more resilient communities. The goals and objectives for this plan update are as follows:

### **Goal 1: Protect the Health and Safety of the Public**

*Objective 1.1: Continued compliance with National Flood Insurance Program (NFIP) for participating communities; join NFIP if not currently participating*

*Objective 1.2: Construct safe rooms in schools, public buildings, and in select locations, at public outdoor venues*

*Objective 1.3: Update or obtain additional outdoor warning sirens, as needed, in the project area*

*Objective 1.4: Develop additional emergency notification methods to alert the public of potential hazards*

*Objective 1.5: Provide educational opportunities for the public to promote preparedness in the project area*

*Objective 1.6: Reduce flooding of developed residential and commercial areas*

### **Goal 2: Reduce or Prevent Future Damage to Critical Facilities, Critical Infrastructure, and Maintain Their Operation after a Hazard**

*Objective 2.1: Protect power lines throughout the NRD by burying them or reinforcing them*

*Objective 2.2: Obtain generators and other backup power systems required to keep critical facilities, critical infrastructure, and emergency operations running after a hazard event*

*Objective 2.3: Evaluate and identify infrastructure systems that require improvements in order to reduce or prevent damage from hazards*

*Objective 2.4: Protect all existing public infrastructure from flooding*

**Goal 3: Reduce or Prevent Future Damage to Existing Properties and Natural Resources**

*Objective 3.1: Enforce regulations and building codes promoting wise development and construction that reduces the potential for damage to existing or future structures and property*

*Objective 3.2: Protect existing streambanks and beds from erosion/downcutting*

*Objective 3.3: Perform studies to determine locations of concern and evaluate projects to mitigate against the damage caused by hazards*

*Objective 3.4: Develop projects to reduce or prevent damage to public structures*

*Objective 3.5: Improve local drainage and stabilize creeks where necessary*

*Objective 3.6: Improve protection procedures for structures throughout the planning area to reduce damage from hazard events*

*Objective 3.7: Implement a mitigation plan for tree trimming and tree removal*

*Objective 3.8: Improve and protect area roads and drainage structures against hazards*

*Objective 3.9: Maintain and improve surface water quality*

**Goal 4: Promote Efficient Use of Public Funds**

*Objective 4.1: Maximize funding opportunities through grant money and other outside sources*

*Objective 4.2: Prioritize projects based on greatest risk*

*Objective 4.3: Encourage individual property owners to develop independent measures to protect their property and not rely on public funding*

***PLAN ORGANIZATION***

This HMP is comprised of three primary components:

- The regional overview, analysis, and plan documentation
- Seven participant appendices (One for each of the six participating counties plus one for the Papio-Missouri River NRD)
- An appendix of procedural documentation and resolutions of participation and adoption

This participant appendix includes all of the participating jurisdictions from Burt County, which includes jurisdictional specific information for each participant. Additional information regarding the planning process, demographics and asset inventory, regional risk assessment and methodology, mitigation strategy, and plan implementation and maintenance can be found in the regional portion of the plan.

PARTICIPANT SECTION  
FOR

BURT COUNTY

Papio-Missouri River NRD  
Multi-Jurisdictional Hazard Mitigation Plan

February 2016

***INTRODUCTION***

The 2016 Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the P-MRNRD in August 2011. This HMP includes two primary sections: the Regional Hazard Mitigation Plan and the Participant (i.e. County, Municipal, and School District) Sections. Participant Sections include similar information that’s also provided in the Regional section, but rather is specific information for Burt County, including the following elements:

- Participation
- Location /Geography
- Climate
- Transportation
- Demographics
- Future Development Trends
- Parcel Improvements and Valuations
- Critical Infrastructure and Key Resources
- Historical Hazard Events
- Hazard Identification and Risk Assessment
- Governance
- Capability Assessment
- Plan Integration
- Mitigation Actions

***PARTICIPATION***

***LOCAL PLANNING TEAM***

Table BRT.1 provides the list of participating members that comprised the Burt County local planning team. Members of the planning team attended Round 1 and Round 2 meetings and provided important information including but not limited to: confirming demographic information, critical facilities, hazard history and impacts, identifying hazards of greatest concern for the county, and prioritization of mitigation actions that address the hazards at risk to the county.

**Table BRT.1: Burt County Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Department / Jurisdiction</b>
Peggy Smith	Highway Superintendent	Burt County
Terry M. Schroeder	Emergency Manager	Burt County (Region 5/6)
Bill Pook	Emergency Management Director	Region 5/6

***PUBLIC PARTICIPATION***

The local planning team made efforts to notify the public of this planning effort and how they could participate in the development of the plan update. The following table identifies the dates and types of public outreach notifications.

**Table BRT.2: Public Notification Efforts**

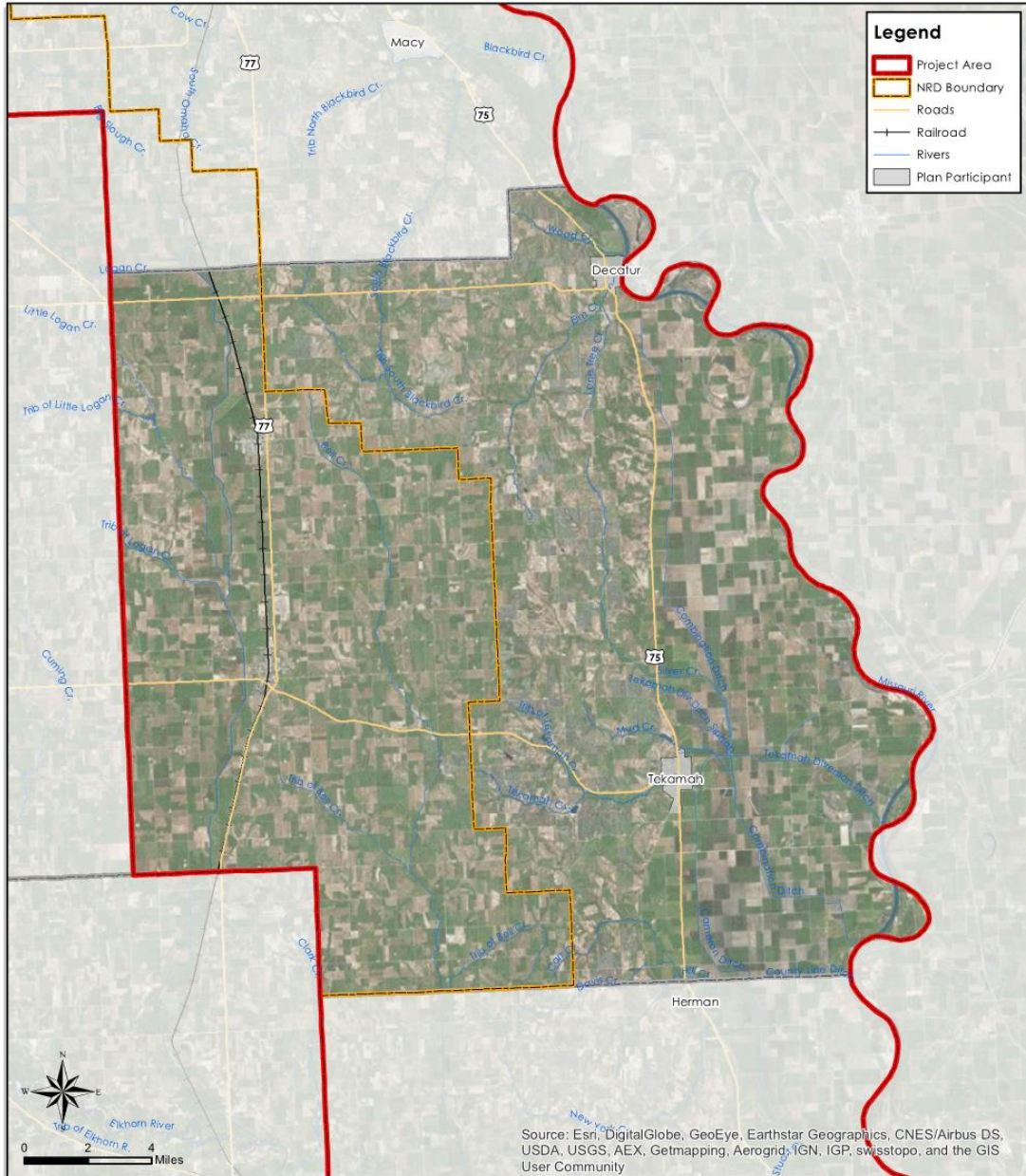
<b>Date</b>	<b>Notification</b>	<b>Location</b>
February 17, 2015	Project Website	<a href="http://jeo.com/papiohmp/">http://jeo.com/papiohmp/</a>
March 31, 2015	Passed Resolution of Participation	Burt County Courthouse
December 22, 2015 – January 30, 2016	Community Profile available for public comment and review	<a href="http://jeo.com/papiohmp/">http://jeo.com/papiohmp/</a>



**LOCATION AND GEOGRAPHY**

Burt County is located in northeast Nebraska. The counties adjacent to it are: Thurston, Washington, Dodge and Cuming Counties, Nebraska; and Monona and Harrison Counties, Iowa. The total area of Burt County is 497 square miles. Major waterways within the county include the Missouri River, which forms the eastern border of the county, Logan Creek, Silver Creek, and Summit Lake. The county is not heavily forested, and the vast majority of the county’s land is characterized by agricultural fields.

**Figure BRT.1: Burt County Map**



**Burt County, Nebraska**

**Papio-Missouri River NRD**

Created By: JFB  
 Date: 10/03/2014  
 Updated: 4/2/2015  
 Software: ArcGIS 10.2  
 File: P:\Planning\131338.00 - Papio-Missouri River NRD Map Update 03\_Draft Mapping\Figures\Burt\_Communities.mxd

This map was prepared using information from record drawings supplied by JEC and/or other applicable city, county, federal, or public or private entities. JEC does not guarantee the accuracy of the map or the information used to prepare this map. This is

### ***CLIMATE***

For Burt County, the normal high temperature for the month of July is 85.3 degrees Fahrenheit, and the normal low temperature for the month of January is 11.8 degrees Fahrenheit. On average, Burt County gets 30.57 inches of rain and 24.7 inches of snowfall per year. The following table compares these climate indicators with those of the planning area and the entire state.

**Table BRT.3: Climate Data for Burt County**

<b>Age</b>	<b>Burt County</b>	<b>Planning Area</b>	<b>State of Nebraska</b>
July Normal High Temp	85.3°F	85.6°F	88.0°F
January Normal Low Temp	11.8°F	11.8°F	12.0°F
Annual Normal Rainfall	30.57 inches	30.64 inches	30.3 inches
Annual Normal Snowfall	24.7 inches	31.2 inches	25.9 inches

*Source: NCDC Climate Data Online, 1981-2010 Climate Normals*

### ***TRANSPORTATION***

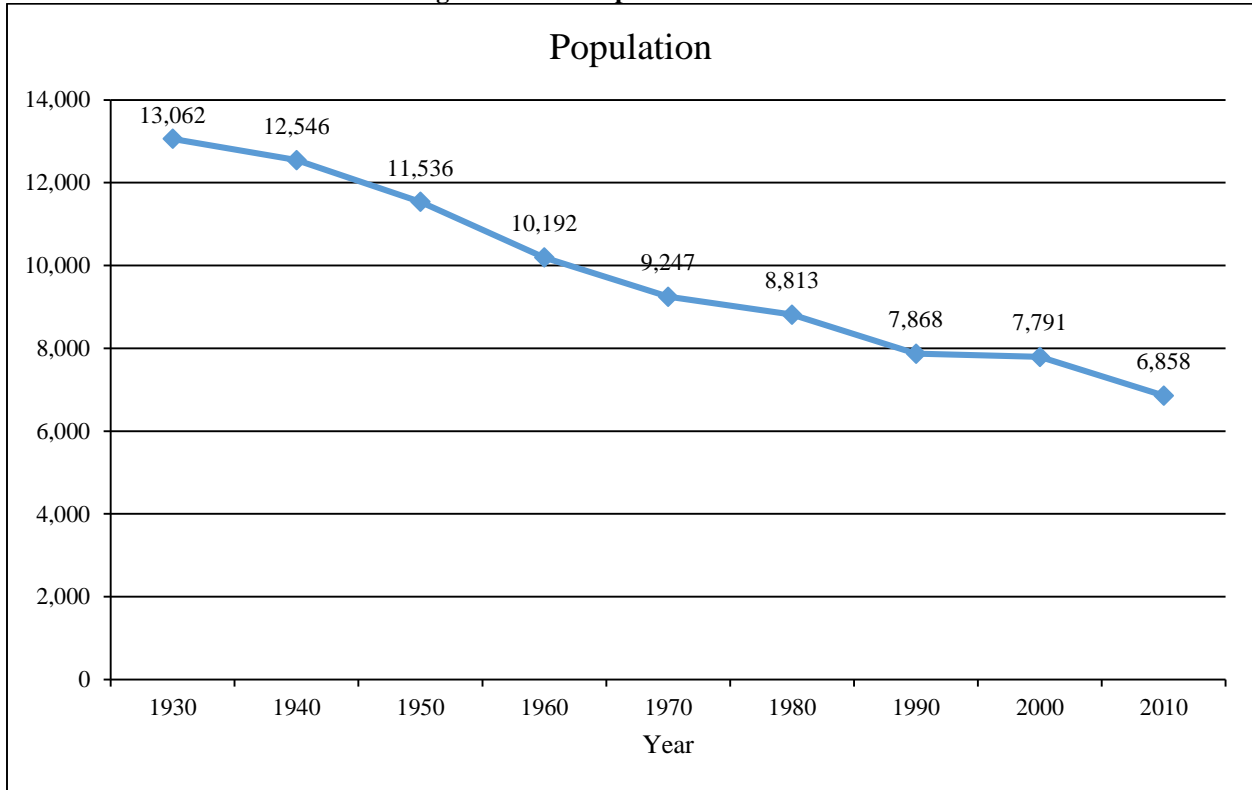
Burt County sits on the eastern edge of Nebraska, on the Missouri River. Hwy-75 runs north/south through the eastern half of the county, and accommodates on average 4,080 vehicles, 305 of which are heavy commercial vehicles. On the western half of the county, Hwy-77 runs north/south through Oakland, NE. Hwy-77 accommodates on average 3,510 vehicles daily, 600 of which are heavy commercial vehicles. NE-51 runs east/west near the northern border of Burt County, it accommodates on average, 1,145 vehicles daily, 170 of which are heavy commercial vehicles. On the southern half of the county, NE-32 runs east/west to connect Tekamah, NE and Oakland, NE. NE-32 accommodates on average 2,110 vehicles, 365 of which are heavy commercial vehicles.

The Burlington Northern Santa Fe Railroad also runs north and south through the center of the county. Transportation routes suggest possible evacuation corridors in the county, as well as areas more at risk to transportation incidents.

### ***DEMOGRAPHICS***

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Burt County has been declining since 1930. This is notable for hazard mitigation because communities with declining population may also have a higher level of unoccupied housing that is not being maintained. Furthermore, areas with declining population will be less prone to pursuing residential/commercial development in their areas, which may reduce the number of structures vulnerable to hazards in the future. Burt County’s population decline is primarily due to the migration of residents away from rural areas toward Nebraska’s more metropolitan areas, such as Omaha and Lincoln.

**Figure BRT.2: Population 1930 – 2010**



Source: U.S. Census Bureau

The following table indicates Burt County has a lower percentage of people under the age of 5 than the State of Nebraska. However, Burt County has a higher percentage of residents over the age of 64 as compared to the state, and the median age is 11 years older. Elderly populations may be at greater risk from certain hazards than other population groups. For a more elaborate discussion of this vulnerability, please see *Section Four: Risk Assessment*.

**Table BRT.4: Population by Age**

Age	Burt County	State of Nebraska
<5	5.5%	7.2%
5-64	71.4%	79.2%
>64	23.1%	13.6%
Median	47.3	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that the median household income is nearly \$5,000 less than the state as a whole. Burt County also has a significantly lower median home value relative to the state. This discrepancy is primarily due to the lower cost of living in rural areas and may be indicative of the older housing age in the county. These economic indicators are relevant to hazard mitigation because they indicate the relative economic strength compared to the state as a whole. Areas with economic indicators which are relatively low may influence a community’s resiliency to hazardous events.

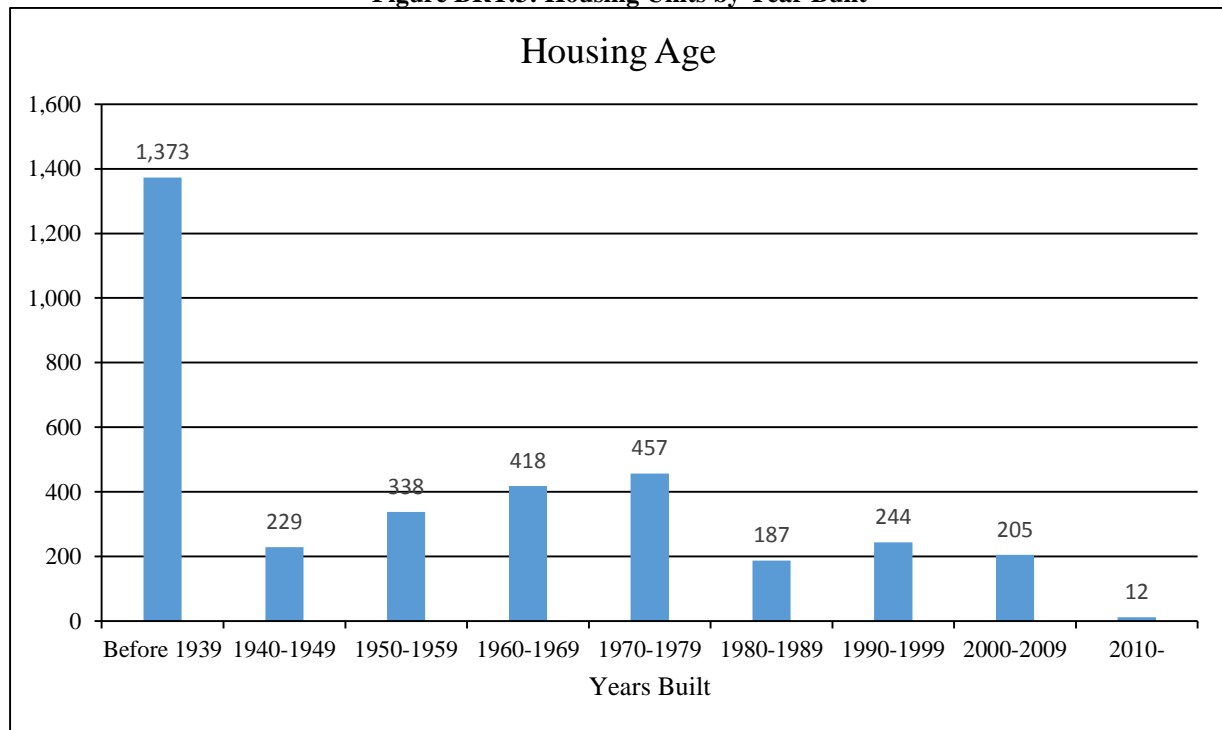
**Table BRT.5: Housing and Income**

	Burt County	State of Nebraska
Median Household Income	\$46,817	\$51,672
Per Capita Income	\$25,203	\$26,899
Median Home Value	\$85,700	\$128,000
Median Rent	\$591	\$706

Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP03 and DP04

The following figure indicates that a large portion of the housing in Burt County was built prior to 1960. According to 2009-2013 ACS 5-year estimates, the county has 3,463 housing units with 83.7 percent of those units occupied. There are approximately 186 mobile homes in the county, and 56 percent of the county’s housing was built before 1960. The initial Flood Hazard Boundary Map (FHBM) was identified on November 22, 1977, and the initial FIRM was identified on September 1, 2005. Housing built prior to 2005 may not be constructed to include the base flood elevation requirements and are at risk to flooding. Furthermore, housing age can serve as an indicator of risk as structures built prior to state building codes being developed may be at greater risk. Finally, residents that live in mobile homes may be more vulnerable to the impacts of high winds, tornados, and severe winter storms. The local planning team identified four mobile home parks along the river.

**Figure BRT.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP04

**Table BRT.6: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Burt County	2,899	83.7%	564	16.3%	2,220	76.5%	679	23.5%
Nebraska	725,787	90.7%	74,490	9.3%	486,533	67.0%	239,254	33.0%

Source: Selected Housing Characteristics: 2009 - 2013 ACS 5-year estimate

***MAJOR EMPLOYERS***

According to 2012 Census Data, Burt County had 194 business establishments. The following table presents the number of establishments, number of paid employees, and the annual payroll in thousands of dollars. Communities which have a diverse economic makeup may be more resilient following a hazardous event, especially if certain industries are more impacted than others.

**Table BRT.7: Business in Burt County**

	<b>Total Businesses</b>	<b>Number of Paid Employees</b>	<b>Annual Payroll (in thousands)</b>
<b>Total for all Sectors</b>	194	1,153	33,279

Source: U.S Census 2012, Table CB1200A11

Agriculture is also important to the economic fabric of Burt County, and the state of Nebraska as a whole. Burt County’s 560 farms cover 309,934 acres of land. Crop and livestock production are the visible parts of the agricultural economy, but many related businesses contribute as well by producing, processing and marketing farm and food products. These businesses generate income, employment and economic activity throughout the region.

**Table BRT.8: Burt County Agricultural Inventory**

<b>Burt County Agricultural Inventory</b>	
Number of Farms	560
Land in Farms	309,934 acres

Source: USDA 2012 Census of Agriculture

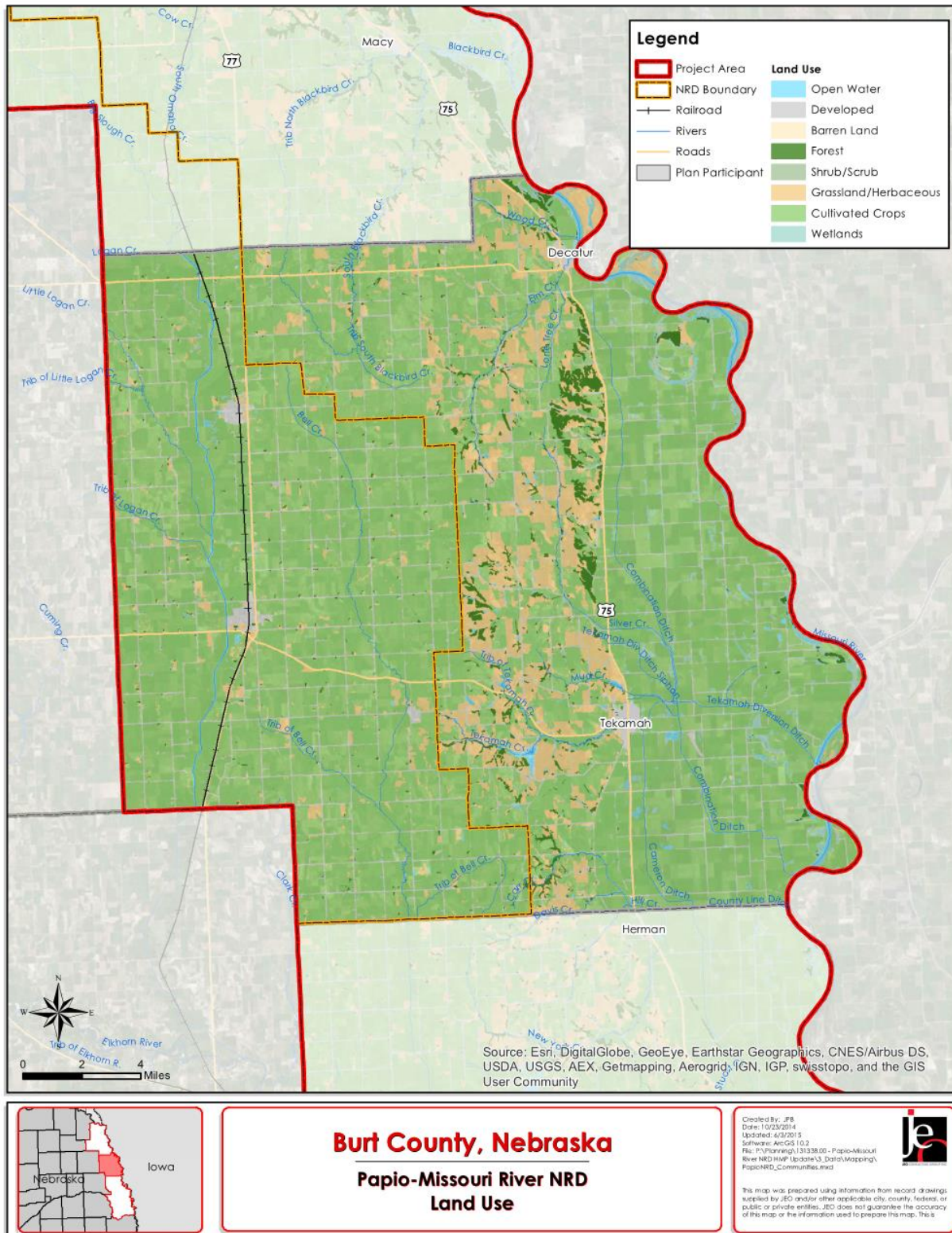
***FUTURE DEVELOPMENT TRENDS***

Future development, if it were to occur, should do so in such a way to minimize its vulnerability to hazards. In accordance with the county’s 1999 comprehensive plan, the county expects new developments will be contingent on population growth. The comprehensive plan does not indicate where this development is likely to occur, nor does the plan contain a current or future land use planning map. The plan indicates that the county intends to avoid intensive development in floodplains. The plan does raise concern over the county’s aging housing stock, the replacement of which will depend on population growth.

The plan projects that the county’s population could reach 6,899 by 2020, which is an increase of 41 people from 2010. This is the low series estimate, which indicated the low end of the trend as estimated in 1999. A more realistic expectation would be one that continues to follow the recent trend line, which would indicate slight population decline over the foreseeable future.

The most recent development in the county has been near the river. The local planning team reports that in the past five years six new homes have been built along the river. There are no new housing or businesses planned for the next five years in the county. If any development were to occur through 2020, it is recommended that Burt County discourage any development in the floodplain.

Figure BRT.4: Developed Areas



***PARCEL IMPROVEMENTS AND VALUATION***

GIS parcel data was requested from GIS Workshop, which the county hires to manage the County Assessor data. This data was analyzed for the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table BRT.9: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
6,550	\$1,735,522,068	\$264,965	236	\$6,406,016

Source: GIS Workshop/County Assessor

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

***CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are a total of 11 chemical storage sites in Burt County, and 5 of these sites house materials categorized as hazardous. The following table lists facilities that house hazardous materials only.

**Table BRT.10: Chemical Storage Fixed Sites**

Facility	Address	Hazardous Material
Central Valley Ag (#3743)	1421 B Street, Tekamah	Anhydrous Ammonia
Central Valley Ag	County Road O & Hwy 75	Anhydrous Ammonia
Helena Chemical Company	100 E. 9 <sup>th</sup> St., Oakland	Lannate LV, Phosphume Tablets
Midwest Service	649 Highway 75, Tekamah	Anhydrous Ammonia
MCI	820 Railroad Ave., Lyons	Lead Acid Batteries

Source: Nebraska Department of Environmental Quality

The local planning team indicated that residents near chemical storage fixed sites are educated about the threat and appropriate response to a chemical spill.

***HISTORIC SITES***

According to the National Register of Historic Places for Nebraska, there are 6 historic sites located in Burt County. There are two historic sites located within the 1 percent annual floodplain, but the two are unknown at this time as their exact locations were not provided.

**Table BRT.11: National Historic Registry**

Site Name	Date Listed	In Floodplain?
Logan Creek Site	1/26/1970	Unknown
Deutsche Evangelische Lutherische St. Johannes Kirche	8/2/1982	N
John Henry Stork Log House	5/29/1980	Unknown
Burt County State Bank	3/4/2009	Y
Burt County Courthouse	1/10/1990	Y
William and Emma Guhl Farmhouse	7/2/2008	N

Source: Nebraska State Historical Society

**CRITICAL FACILITIES**

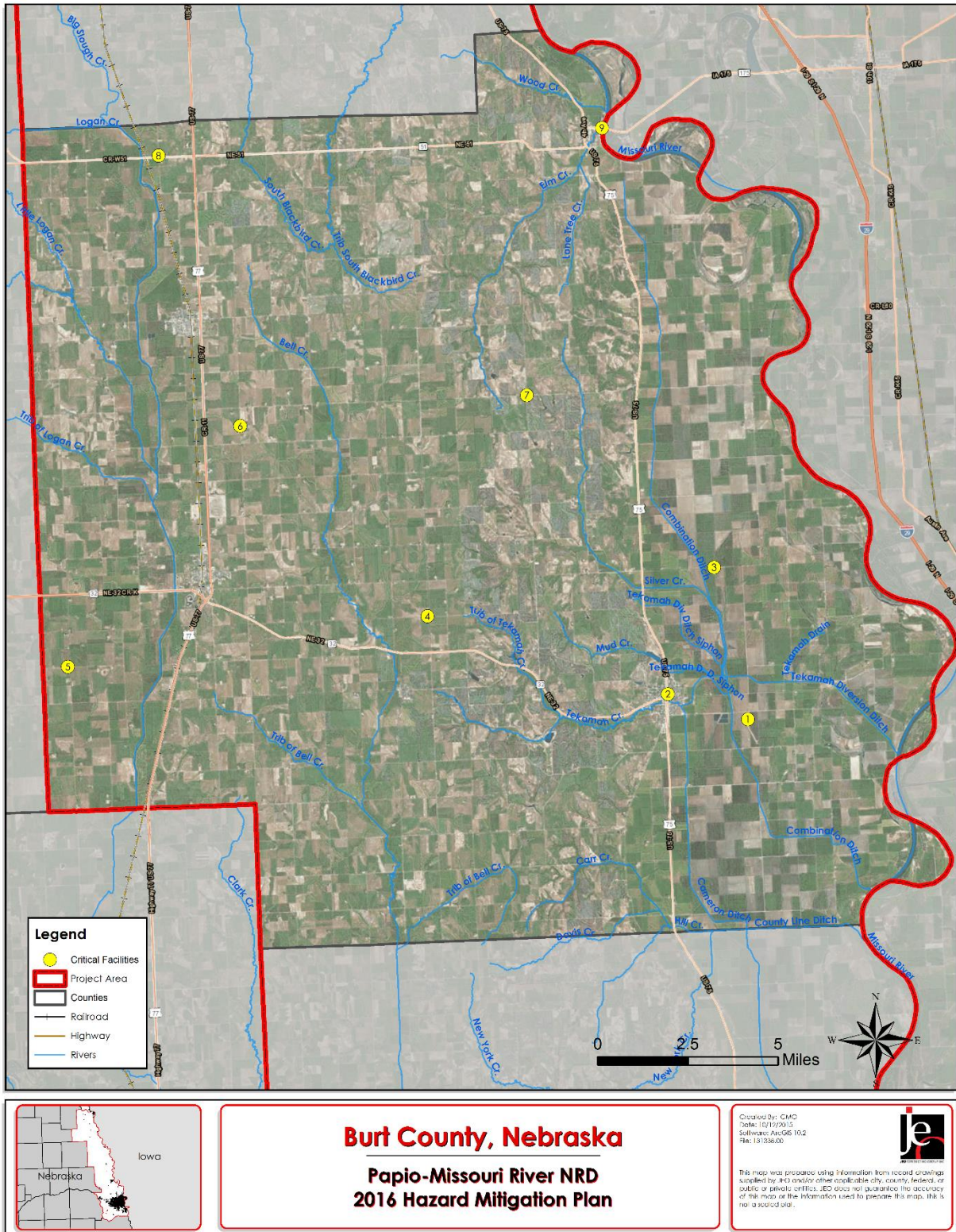
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the county.

**Table BRT.12: List of Critical Facilities in Burt County**

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Airport	Tekamah Airport	County Road G, Tekamah	N	Unknown	Y
2	Law Enforcement, and Courthouse	Burt County Sheriff’s Department and Courthouse	111 N. 13th Street, Tekamah	N	Y	Y
3	Power Substation	Power Substation	1127 County Rd 39	N/A	N	Y
4	Power Substation	Power Substation	2295 County Rd J	N/A	N	N
5	Church	Salem Evangelical Covenant Church	290 County Rd I, Oakland	N	N	N
6	Church	German Evangelical Lutheran Congressional Church	Southeast of Lyons, NE	N	N	N
7	Church	Seven Day Advent Church	Rural Burt County	N	N	N
8	Power Substation	Power Substation	2301 County Rd 9	N/A	N	N
9	Critical Bridge	Bridge Across Missouri River	Nebraska Highway 51, Decatur, NE	N/A	N/A	Y



Figure BRT.5: Critical Facilities



### ***HISTORICAL OCCURRENCES***

The events recorded by NCDC are broken down to two types: county-based and zone-based events. The county-based records are events that affect the jurisdictions within the county while the zone-based records are those affecting the zone that include the county as part of the affected zone. Please refer to specific villages or cities within the county for the previous county-based severe weather events retrieved from NCDC. For zone-based events, there are 95 recorded events from January 1996 through July 2015, but due to the large number of records, only those that resulted in property or crop damages or fatalities or injuries are demonstrated in the following table.

The property damages from the NCDC Storm Events Database should be considered as broad estimates only. The National Weather Service makes a best guess on these amounts at the time of the publication from a variety of sources. Sources include but are not limited to emergency management, local law enforcement, skywarn spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public.

**Table BRT.13: NCDC Severe Weather Events**

<b>Date</b>	<b>Hazard</b>	<b>Magnitude</b>	<b>Deaths</b>	<b>Injuries</b>	<b>Property Damage</b>
4/25/1996	High Wind	56 kts.	0	0	\$10,000
3/10/2005	High Wind	51 kts. MG	0	1	\$0
4/27/2012	Strong Wind	41 kts. MG	0	0	\$5,000
		<b>Total</b>	<b>0</b>	<b>1</b>	<b>\$15,000</b>

Source: January 1996-July 2015 NCDC  
in. = inches; kts = knots; EG = Estimated Gust

The USDA Risk Management Agency provides data for crop insurance claims due to hazardous events. The following table provides claim information due to hazards from January 2000 through December 2014.

**Table BRT.14: USDA RMA Severe Weather Events**

<b>Hazard</b>	<b>Number of Claims</b>	<b>Total Crop Damage</b>	<b>Average Annual Damage</b>	<b>Average Damage Per Event</b>
Crop Disease	7	\$75,492.36	\$5,032.82	\$10,784.62
Drought	86	\$22,118,606.55	\$1,474,573.77	\$257,193.10
Extreme Heat	39	\$2,673,324.08	\$178,221.61	\$68,546.77
Flooding	53	\$4,167,014.97	\$277,801.00	\$78,622.92
Hail	80	\$11,633,155.21	\$775,543.68	\$145,414.44
High Wind	19	\$73,419.10	\$4,894.61	\$3,864.16
Severe Thunderstorms	173	\$19,397,221.14	\$1,293,148.08	\$112,122.67
Severe Winter storms	31	\$409,009.80	\$27,267.32	\$13,193.86
Tornado	1	\$7,262.00	\$518.71	\$7,262.00
<b>Totals</b>	<b>489</b>	<b>\$60,554,505.21</b>	<b>\$448,555.73</b>	<b>\$77,444.95</b>

Source: 2000-2014 USDA RMA

**RISK ASSESSMENT****HAZARD IDENTIFICATION**

The following table is a localized risk assessment of hazards identified specifically for Burt County. Refer to the beginning of *Section Seven: Participant Sections* for a detailed explanation as to what this methodology is and why certain hazards did not pose a significant enough threat and were eliminated from detailed discussion.

**Table BRT.15: Risk Assessment**

<b>HAZARD TYPE</b>	<b>PREVIOUS OCCURRENCE Yes/No</b>	<b>LOCAL LOSSES (Property and RMA)</b>	<b>SPECIFIC CONCERNS IDENTIFIED</b>
<b>Agricultural Animal Disease</b>	Yes	-	None
<b>Agricultural Plant Disease</b>	Yes	\$75,492.36	None
<b>Chemical Spills (Fixed Site)</b>	Yes	-	None
<b>Chemical Spills (Transportation)*</b>	Yes	-	Residents living along transportation routes
<b>Civil Disorder</b>	No	-	None
<b>Dam Failure</b>	No	-	Residents living in inundation areas; damage to critical facilities
<b>Drought*</b>	Yes	\$22,118,606.55	Economic losses; potential for water scarcity
<b>Earthquakes</b>	No	-	None
<b>Extreme Heat</b>	Yes	\$2,673,324.08	None
<b>Flooding*</b>	Yes	\$4,167,014.97	Residents living in flood-prone areas; damage to facilities
<b>Grass/Wildfires</b>	Yes	\$11,679.00	None
<b>Hail*</b>	Yes	\$11,633,155.21	Damage to critical facilities
<b>High Winds*</b>	Yes	\$83,419.10	Damage to facilities; power outages
<b>Landslides</b>	Yes	-	None
<b>Levee Failure</b>	N/A	-	None
<b>Radiological Incident (Fixed Site)</b>	No	-	None
<b>Radiological Incident (Transportation)</b>	No	-	None
<b>Severe Thunderstorms*</b>	Yes	\$19,397,221.14	Damage to facilities; power outages
<b>Severe Winter Storms*</b>	Yes	\$409,009.80	Damage to facilities; power outages; roadway closures
<b>Terrorism</b>	No	-	None
<b>Tornados*</b>	Yes	\$7,262.00	Damage to facilities; power outages; roadway closures
<b>Urban Fire</b>	Yes	-	None

\*Identified by the local planning team as a top concern for the jurisdiction

For more information regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community specific information as reported in Burt County Risk Assessment Summary that is relevant to each hazard. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

### Chemical Spills (Transportation)

The local planning team identified chemical transportation as a top concern for the county. Highways 77 and 75 and the Burlington Northern Santa Fe Railroad are transportation routes of greatest concern across the county. Chemicals are presumed to be regularly transported by railway and highway; however, the county is not sure on the types of chemicals transported. The planning team recalled that a heavy commercial truck tipped over on County Road O between Oakland and Lyons, NE and it spilled fertilizer along the highway.

Implemented mitigation projects:

- Mutual aid agreements between fire departments

Identified mitigation projects:

- Conduct an emergency exercise on hazardous spills
- Install vehicle barriers
- Provide residents along transportation routes with educational materials

### Dam Failure

While dam failure was not among the top concerns for the county, there is some risk and vulnerability for the county in this regard. There are 37 dams in Burt County. Of these, three dams have been identified as a high hazard dam. In addition to the three high hazard dams in Burt County, Gavins Point Dam located near Yankton, SD would impact areas all along the Missouri River if it were to fail.

**Table BRT.16: Dams in Washington County**

	Number of Dams	Low	Significant	High
Burt County	37	32	2	3
Planning Area	150	102	13	35

Source: NDNR

**Table BRT.17: High Hazard Dam in Burt County**

NIDID	Dam Name	Location	Stream Name	Owner	Maximum Storage (acre-feet)	Last Inspection Date
NE01597	Tekamah-Mud Creek 22-A	Tekamah	Tekamah Creek	P-MRNRD	499	6/25/2015
NE01690	Tekamah-Mud Creek 5-A	Tekamah	Tekamah Creek	P-MRNRD	6,861	6/25/2015
NE03103	Silver Creek 11	Rural Tekamah	Silver Creek	P-MRNRD	1,317	6/25/2015

Source: NDNR

According to the LEOP, if the dams listed in Table BRT.17 were to fail, 23 percent of the population in Burt County could be affected. The area impacted would be slightly greater than the 1 percent floodplain with the greatest impacts on Tekamah, Summit, and Arizona townships, which would approach 100 percent inundation. The LEOP has a flood/dam failure evacuation section outlining the actions required to evacuate the population and protect facilities threatened by flood or dam failure. Emergency housing would be made available to displaced residents in the event of dam failure.

Implemented mitigation projects:

- The local emergency operations plan is in place with evacuation plan

- The U.S. Army Corps of Engineers identified and repaired damages to the dam between 2012 and 2015, including: repairing gates, tailrace erosion protection, relief wells and horizontal outfalls, and spillway slab
- Bank stabilization to the Missouri River were identified and repaired by the U.S. Army Corps of Engineers between 2012 and 2015

Identified mitigation projects:

- Conduct a dam failure exercise
- Provide educational materials to residents living near high hazard dam inundation areas

### **Drought**

Drought was selected as one of the top concerns for the county. The most recent drought occurred during the summer of 2012 and extended into the winter. This drought was categorized by the National Drought Mitigation Center as an extreme drought. The county planning team did not report any significant impacts which resulted during this event.

The county water supply was described as sufficient at this time by the planning team, however, this could change dramatically during an extreme drought that extends many months or years. Since agricultural farming is one of the main trades in the county, economic losses would be felt throughout the county as well.

Implemented mitigation projects:

- Sufficient water supply

Identified mitigation projects:

- Develop a drought management plan
- Conduct a drought tournament exercise
- Implement a water conservation awareness program

### **Flooding**

Flooding is considered a hazard of top concern of the county. Figure BRT.7 shows the HAZUS-MH modeled floodplain. (See the Flooding profile in *Section Four: Risk Assessment*.) Figure BRT.8 is the regulatory FIRM as provided by FEMA's map service (<https://msc.fema.gov/portal>).

The NCDC reported eleven flooding events in the county, with only one of these events being designated as zonal. This event produced no property damage. The other 10 events all occurred within incorporated jurisdictions within the county. One flooding event in particular occurred in 2011 when high releases from the Gavins Point Dam produced moderate to major flooding along the Missouri River. The summer of 2011 experienced flooding along areas closest to the river including a camp ground, closed the toll bridge in Decatur, and affected the sewer plant. In total, 150 to 200 homes were evacuated in Burt County during the summer of 2011.

Potential sources of riverine flooding in Burt County are the Logan Creek dredge, which runs north-south along the western edge of the county, and the Missouri River, which forms the eastern border of the county. Silver, Bell, and Elm creek are also other notable bodies of water in the county.

The county participates in the NFIP and has a floodplain administrator to assist in the management of floodplain development. There are 28 policies in force totaling \$4,997,100 as of January 31, 2015. There are no repetitive flood loss properties in unincorporated areas of Burt County.

**Table BRT.18: Improvements in the Floodplain**

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in County	Percentage of Affected Improvements
\$6,406,016	236	6,550	3.6%

Source: GIS Workshop/Burt County Assessor

Implemented mitigation projects:

- Channel maintenance and stabilization in collaboration with the P-MRNRD in 2011
- Member of the NFIP

Identified mitigation projects:

- Grade control structures for rivers and creeks
- Enforce floodplain regulations

### Hail

Hail was ranked as a hazard of top concern for the county. A total of 42 hail events are reported by NCDC with the largest hail stone reaching 2.80 inches. Wind-driven hail created holes in the siding of homes in many areas in Burt County, during a severe thunderstorm in June 2014 that caused significant damages across the county.

Implemented mitigation projects:

- Local fire departments and schools conduct regular educational programs on weather events
- Weather radios are available in critical facilities

Identified mitigation projects:

- Continue public awareness and educational opportunities
- Install hail-resistant roofing
- Protect rooftop or exposed utilities

### Severe Thunderstorms

The local planning team identified severe thunderstorms as a top concern for the county. NCDC reported 38 thunderstorm wind events between 1996 through 2014. Property damage was sustained in Oakland and Tekamah. A more recent event occurred on June 3, 2014 impacting much of the county but especially in the community of Craig where a wind speed of nearly 90 mph was measured. Outbuildings were destroyed and large trees were uprooted.

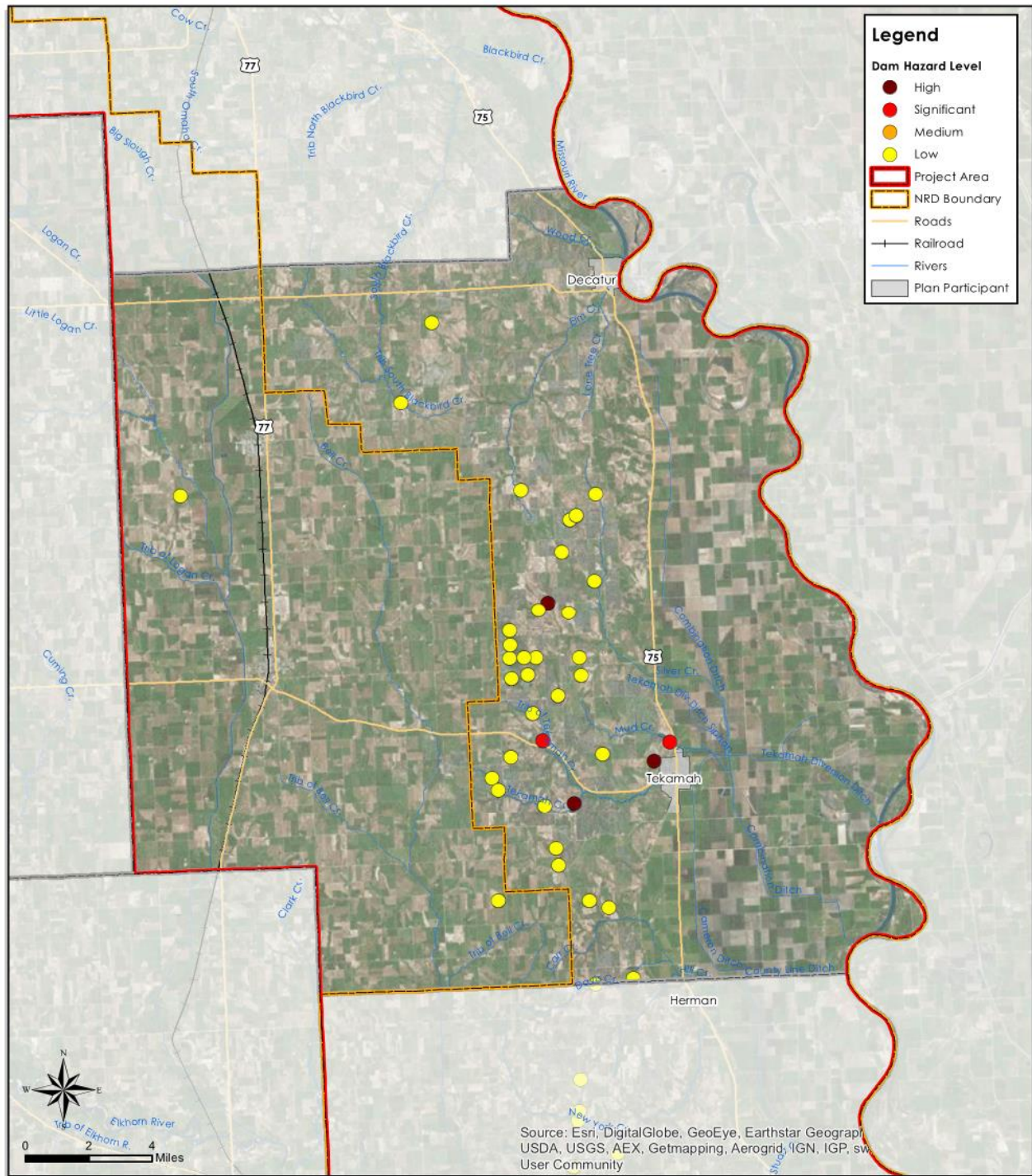
Implemented mitigation projects:

- Local fire departments and schools conduct regular educational programs on weather events
- Surge protectors are utilities on electronic devices
- Weather radios are available in critical facilities
- Back-up power generator available at the courthouse

Identified mitigation projects:

- Continue public awareness and educational opportunities
- Purchase adequate emergency notification system
- Upgrade, replace, and/or add tornado sirens
- Purchase emergency communication equipment

Figure BRT.6: Burt County Dam Locations



### Burt County, Nebraska

#### Papio-Missouri River NRD Dam Locations

Created By: JPB  
 Date: 10/23/2014  
 Updated: 4/21/2015  
 Software: ArcGIS 10.2  
 File: P:\Planning\131338.00 - Papio-Missouri River NRD Map\Location3\_DamMapping\_PapioNRD\_Communities.mxd



This map was prepared using information from record drawings supplied by JEO and/or other applicable city, county, federal, or public or private entities. JEO does not guarantee the accuracy of this map or the information used to prepare this map. This is

Figure BRT.7: HAZUS-MH 1% Annual Chance Floodplain

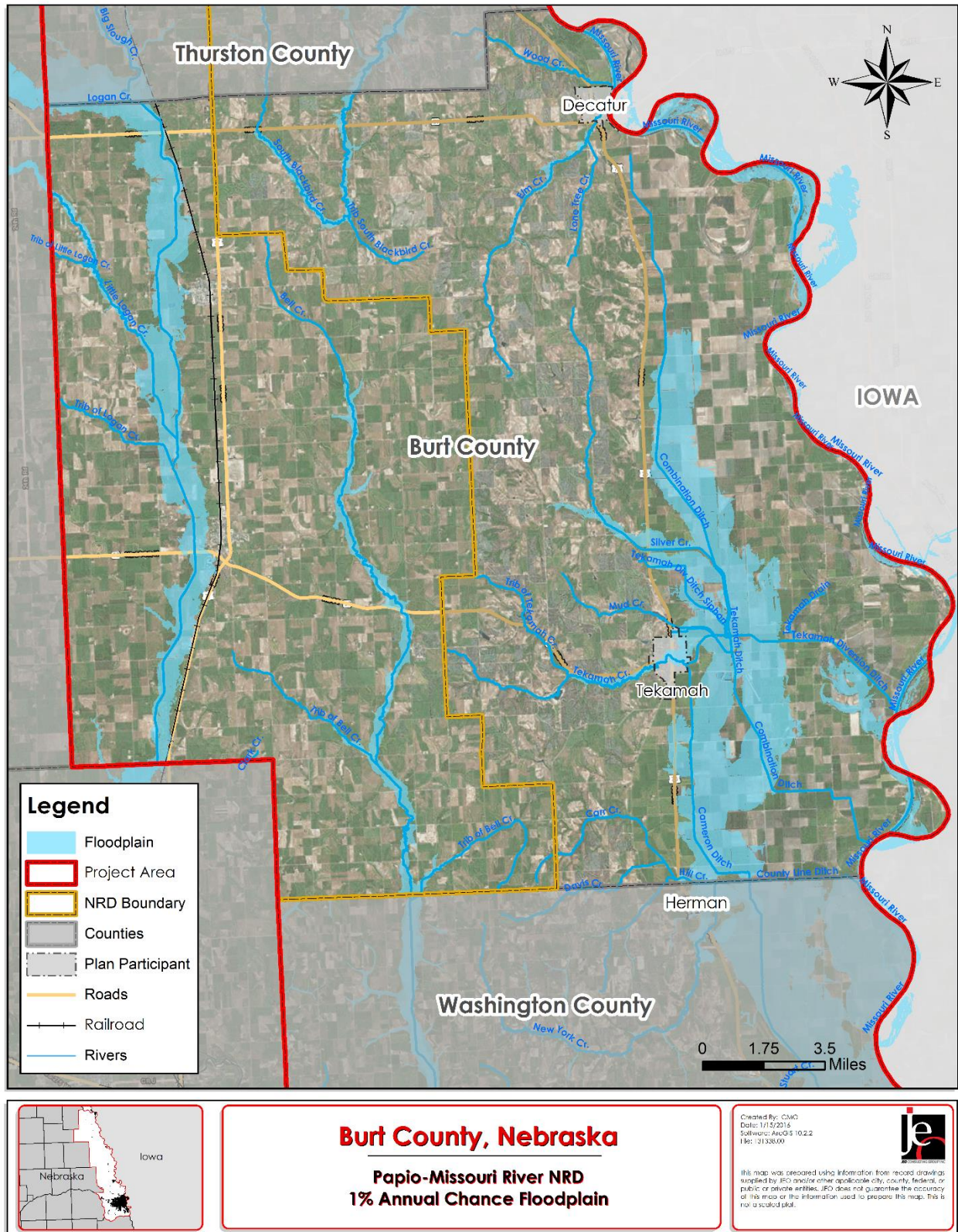
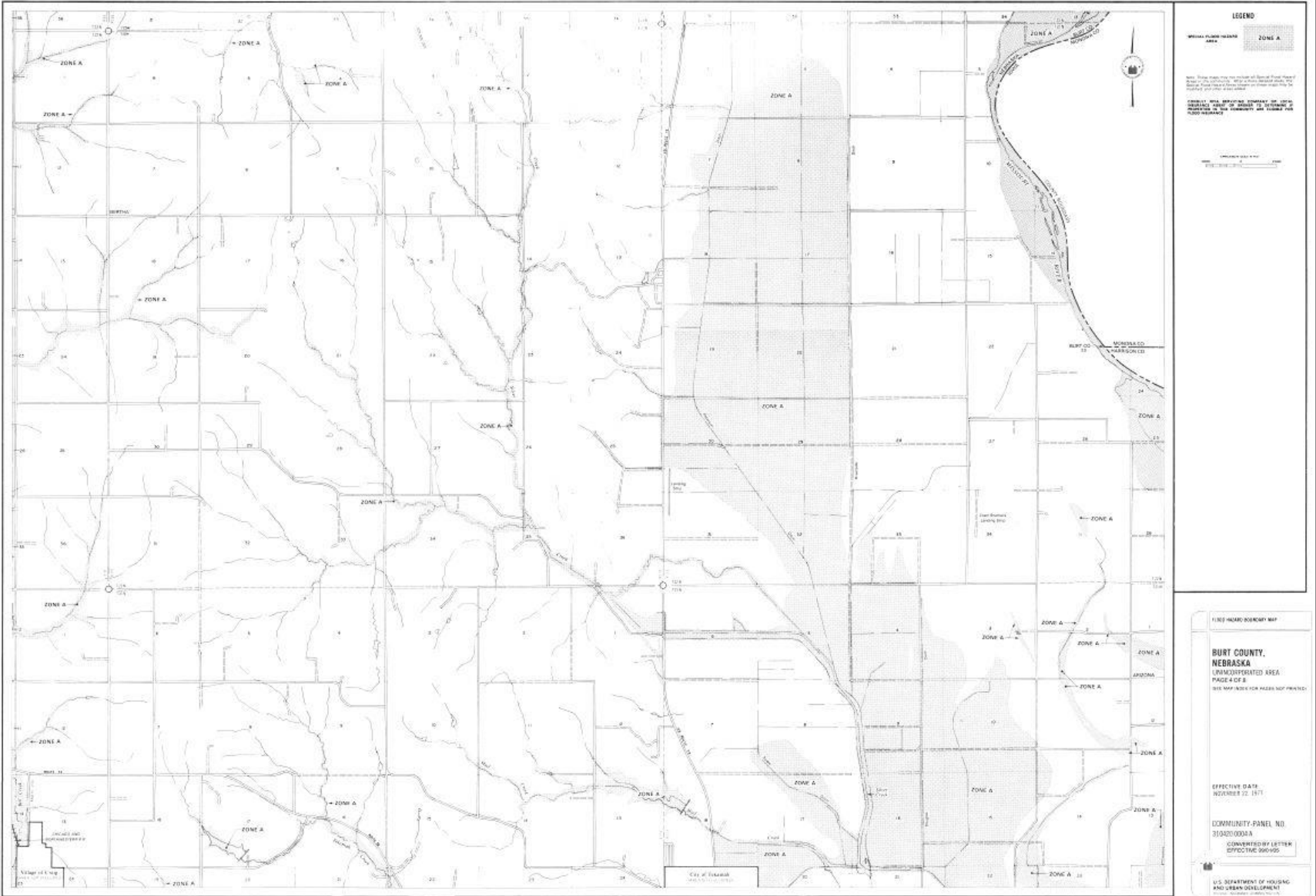




Figure BRT.8: Burt County FIRM



### **Severe Winter Storms**

Severe winter storms was identified by the local planning team as a top concern for the county. There were 49 reported winter storm zonal events by NCDC between 1996 and 2014. However, these events caused no reported damaged by the local planning team. However a blizzard in December of 2012 caused two areas of power outages from the combination of heavy snow and winds gusting over 40 mph. The power service was restored in both areas within a few hours. Snow removal resources have been determined to be sufficient for local events.

Implemented mitigation projects:

- Local fire departments and schools conduct regular educational programs on weather events
- Weather radios are available in critical facilities

Identified mitigation projects:

- Purchase adequate emergency notification system
- Continue public awareness and educational opportunities
- Purchase emergency communication equipment

### **Tornados and High Winds**

The local planning team ranked tornados and high winds as a top hazard of concern for the county. According to the NCDC data, there were three tornados reported between 1996 and 2014. Although these tornados did not cause property damages in the unincorporated areas of Burt County, the March 2011 tornado caused over 1 million dollars in property damage in Craig.

NCDC storm events database reports 19 high wind events occurred during the same time period. One event in 2005 had wind gusts reaching 60 mph across the county. One person was injured in Decatur when a roof from a building under construction blew on top of his home. Several large trees were uprooted and a few semi-trucks were overturned.

Implemented mitigation projects:

- Local fire departments and schools conduct regular educational programs on weather events
- Surge protectors are utilities on electronic devices
- Weather radios are available in critical facilities
- Back-up power generator available at the courthouse

Identified mitigation projects:

- Continue public awareness and educational opportunities
- Purchase adequate emergency notification system
- Upgrade, replace, and/or add tornado sirens
- Purchase emergency communication equipment

### **GOVERNANCE**

A community's governance structure impacts its capability to implement mitigation actions. Burt County is governed by a 9 member board of supervisors. The county also has the following offices and departments:

- |                     |                           |
|---------------------|---------------------------|
| • Assessor's Office | • Clerk of District Court |
| • Attorney          | • Election Commissioner   |
| • Clerk             | • Emergency Manager       |
| • County Court      | • Economic Development    |

- Extension Office
- Highway Development
- Planning and Zoning
- Register of Deeds
- Sheriff
- Surveyor
- Treasurer
- Veterans Services Office
- Weed Superintendent

According to the 2012 Census of Governments, there are 34 total general or special purpose governments located in Burt County. The following table presents the number of governments by type. These are all potential mitigation partners and may be involved in implementing mitigation actions.

**Table BRT.19: Governments in Burt County**

Level	Number
County	1
Municipal	5
Town or Township	7
Special District	18
Independent School District	3

Source: U.S Census, 2012 Table: ORG014

**CAPABILITY ASSESSMENT**

The capability assessment consisted of two main components: a Capability Assessment Survey completed by the jurisdiction and a review of local existing policies, regulations, plans, and the programs. The survey is used to gather information regarding the jurisdiction’s planning and regulatory capability; administrative and technical capability; fiscal capability; and educational and outreach capability.

**Table BRT.20: Capability Assessment**

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes (1999)
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes (County)
	Natural Resources Protection Plan	Yes
	Open Space Preservation Plan	No
	Floodplain Management Plan	Yes
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes (1999)
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	No
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)	No	
Administrative and Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes (County)
	GIS Coordinator	No
	Chief Building Official	No
Civil Engineering	No	

Survey Components/Subcomponents		Existing (Yes/No)
	Staff Who Can Assess Community’s Vulnerability to Hazards	No
	Grant Manager	No
	Other (if any)	No
Fiscal Capability	Capital Improvement Project Funding	Yes
	Community Development Block Grant	Yes
	Authority to Levy Taxes for Specific Purposes	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	No
Education and Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes at Papio NRD level
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Public-private partnership initiatives addressing disaster-related issues	No
	Other (if any)	Yes at NRD level

***PLANS, DOCUMENTS, AND INFORMATION USED***

Throughout the planning process, a number of studies, reports, and technical information have been used to develop the plan. A listing of general sources of information used for all sections of the plan is listed in *Section 2: Planning Process*. Below is a list of specific sources used to establish Burt County’s participant section.

**Table BRT.21: Sources, Plans, Reports, and Regulations**

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2009
Comprehensive Plan	1999
Zoning Ordinances	1999
County-Wide Housing Study	2014

***PLAN INTEGRATION***

Building safe and stronger communities can be accomplished through effective Plan integration. Integrating hazard mitigation principles into other local planning mechanisms, such as plans addressing land use, transportation, climate change, sustainability, natural and cultural resource protection, watershed management, economic development and others can greatly increase an area’s level of resiliency. While this HMP planning process involved interdepartmental coordination at the local level, this planning process also sought to analyze how existing planning mechanisms were presently integrated and make suggestions

for further integration. The plans listed in the preceding table were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*. The following paragraphs present a summary of the findings of this analysis.

The Local Emergency Operations Plan (LEOP), which was last updated in 2009, is an all-hazards plan that provides clear assignment of responsibility in case of an emergency. It includes, as annexes, LEOPs for the City of Tekamah, City of Lyons, City of Oakland, Village of Craig, and Village of Decatur.

The county’s Comprehensive Plan was last updated in 2009. The plan indicates that the county intends to avoid intensive development in floodplains. It does raise concern over the county’s aging housing stock, the replacement of which will depend on population growth. The future land use section encourages new growth to occur inside or adjacent to communities, and that agricultural preservation is important to the county’s main industry. Industrial areas are encouraged along transportation routes, however it does not specify that industrial areas should remain away from residential areas. It is recommended that when the Comprehensive Plan is updated that it include the hazards identified in the Hazard Mitigation Plan and the identified mitigation actions for the county.

Burt County’s zoning ordinances were passed in 1999 and additional updates have occurred over the years. The zoning ordinances include restrictions for development in the floodplain. Flood hazard areas include regulations that the finished floor elevations on structures be at least one foot above the base flood elevation within the flood fridge. Structures within the floodway are prohibited when they create an increase in the base flood elevation. Mobile homes must include anchors and tie-downs to reduce the risk to rolling in a high wind event.

## ***MITIGATION STRATEGY***

### **Completed Mitigation Actions**

<b>Description</b>	<b>Channel Maintenance and Stabilization</b>
Analysis	River channels maintained and stabilization improvements, which can include rock rip rap, vegetative cover, j-hooks, boulder vanes, etc.
Goal/Objective	Goal 3/Objective 3.2
Hazard(s) Addressed	Flooding
Funding	County and P-MRNRD funds
Year Completed	August 2011

### **Ongoing and New Mitigation Actions**

<b>Description</b>	<b>Increase Public Awareness of Hazards</b>
Analysis	Design activities, such as outreach projects and distribution of maps, to increase public awareness of hazards and purchase equipment necessary to complete activities.
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	All
Estimated Cost	\$10,000
Funding	County EM funds, HMGP, PDM
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management
Status	Ongoing

<b>Description</b>	<b>Provide Adequate Emergency Notification System</b>
Analysis	Improve city cable TV interrupt warning system and implement telephone interrupt system such as reverse 911, emergency text messaging, smart phone based technology, etc.
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	\$50,000
Funding	HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Emergency Management
Status	Research phase

<b>Description</b>	<b>GIS Mapping</b>
Analysis	Conduct GIS mapping of critical infrastructure
Goal/Objective	Goal 3/Objective 3.3
Hazard(s) Addressed	All
Estimated Cost	\$50,000
Funding	CDBG
Timeline	Ongoing
Priority	Low
Lead Agency	Road Department
Status	Early planning stages

<b>Description</b>	<b>Grade Control Structures</b>
Analysis	Stream bed degradation can occur along many rivers and creeks. Structures can include sheet-pile weirs, rock weirs, ponds, road dams, etc. Can be implemented to maintain the channel bed.
Goal/Objective	Goal 3/Objective 3.2
Hazard(s) Addressed	Flooding
Estimated Cost	\$50,000 to \$100,000/site
Funding	USACE, PDM, HMGP, P-MRNRD
Timeline	5 years
Priority	Medium
Lead Agency	Road Department
Status	Not started

<b>Description</b>	<b>Floodplain Regulation Enforcement/Updates</b>
Analysis	Continue to enforce local floodplain regulations for structures located in the 1 percent floodplain. Enforcement of the type of development and elevations of structures should be considered through issuance of building permits. Continue education of building inspectors or Certified Floodplain Managers
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	Flooding
Estimated Cost	\$4,000+
Funding	HMGP, CDBG, P-MRNRD
Timeline	Ongoing
Priority	Medium
Lead Agency	Floodplain Administrator and Zoning
Status	Ongoing

<b>Description</b>	<b>Weather Radios</b>
Analysis	Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	\$50/radio
Funding	HMGP, PDM
Timeline	Ongoing
Priority	Medium
Lead Agency	Emergency Management
Status	Ongoing

<b>Description</b>	<b>Emergency Communications</b>
Analysis	Establish an action plan to improve communication between agencies to better assist residents and businesses during and following emergencies. Establish inner-operable communications.
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	\$10,000+
Funding	Homeland Security
Timeline	3 years
Priority	Medium
Lead Agency	Emergency Management
Status	Not started

<b>Description</b>	<b>Alert Sirens</b>
Analysis	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens where lacking.
Goal/Objective	Goal 1/Objective 1.3
Hazard(s) Addressed	All
Estimated Cost	\$15,000+
Funding	HMGP
Timeline	3-5 years
Priority	Medium
Lead Agency	County Board and Emergency Management
Status	Not started

<b>Description</b>	<b>Maintain Good Standing in the NFIP</b>
Analysis	Maintain good standing with National Flood Insurance Program (NFIP) including floodplain management practices/ requirements and regulation enforcements and updates.
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flooding
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	Medium
Lead Agency	Floodplain Administrator
Status	Ongoing

<b>Description</b>	<b>Facilities for Vulnerable Populations</b>
Analysis	Identify and ensure that facilities which will house vulnerable populations are placed in the least vulnerable areas of the community. Harden existing facilities where necessary.

Section Seven: Burt County Participant Section

<b>Description</b>	<b>Facilities for Vulnerable Populations</b>
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	Unknown
Funding	CDC grant funds
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management and Public Health Department
Status	Ongoing

<b>Description</b>	<b>Database of Vulnerable Populations</b>
Analysis	Work with stakeholders to develop a database of vulnerable populations and the organizations which support them.
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	All
Estimated Cost	Unknown
Funding	DCC funds
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management and Public Health Department
Status	Ongoing

<b>Description</b>	<b>Shelter in Place</b>
Analysis	Provide shelter in place training to facilities housing vulnerable populations (nursing homes, childcare facilities, schools, etc.)
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	All
Estimated Cost	Staff Time
Funding	County funds
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management
Status	Ongoing

<b>Description</b>	<b>Storm Shelter Identification</b>
Analysis	Identify any existing private or public storm shelters
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornados and High Winds
Estimated Cost	Staff Time
Funding	County funds
Timeline	Ongoing
Priority	Medium
Lead Agency	Emergency Management
Status	Ongoing

<b>Description</b>	<b>Storm Shelter</b>
Analysis	Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, and other areas.
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornados and High Winds
Estimated Cost	\$200-\$300/sf stand alone; \$150-200/sf addition/retrofit
Funding	County funds, PDM, HMGP
Timeline	3-5 years



<b>Description</b>	<b>Storm Shelter</b>
Priority	High
Lead Agency	Emergency Management
Status	Not started

<b>Description</b>	<b>Tornado Safety</b>
Analysis	Implement a tornado safety program
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	Tornados
Estimated Cost	Staff Time
Funding	County funds
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management
Status	Ongoing

**Removed Mitigation Actions**

<b>Description</b>	<b>Update Floodplain Maps</b>
Analysis	Update FIRM maps and create DFIRM maps for Burt County
Reason for Removal	Updating of FIRM maps is determined by the State of Nebraska.

<b>Description</b>	<b>Emergency Power Generation for Critical Facilities</b>
Analysis	Provide a source of backup power for critical facilities
Reason for Removal	The Burt County Courthouse has a back-up power generator. Other generators are not a priority at this time.

PARTICIPANT SECTION  
FOR THE

VILLAGE OF DECATUR

Papio-Missouri River NRD  
Multi-Jurisdictional Hazard Mitigation Plan

February 2016

***INTRODUCTION***

The 2016 Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the P-MRNRD in August 2011. This HMP includes two primary sections: the Regional Hazard Mitigation Plan and the Participant (i.e. County, Municipal, and School District) Sections. Participant Sections include similar information that’s also provided in the Regional section, but rather is specific information for the Village of Decatur, including the following elements:

- Participation
- Location /Geography
- Climate
- Transportation
- Demographics
- Future Development Trends
- Parcel Improvements and Valuations
- Critical Infrastructure and Key Resources
- Historical Hazard Events
- Hazard Identification and Risk Assessment
- Governance
- Capability Assessment
- Plan Integration
- Mitigation Actions

***PARTICIPATION***

***LOCAL PLANNING TEAM***

Table DTR.1 provides the list of participating members that comprised the Village of Decatur local planning team. Members of the planning team attended Round 1 and Round 2 meetings and provided important information including but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern for the community, and prioritization of mitigation actions that address the hazards that pose a risk to the community.

**Table DTR.1: Decatur Local Planning Team**

<b>Name</b>	<b>Title</b>	<b>Department / Jurisdiction</b>
Peggy Smith	Highway Superintendent	Burt County
Ann Chytka	Village Clerk	Village of Decatur

***PUBLIC PARTICIPATION***

The local planning team made efforts to notify the public of this planning effort and how they could participate in the development of the plan update. The following table identifies the dates and types of public outreach notifications.

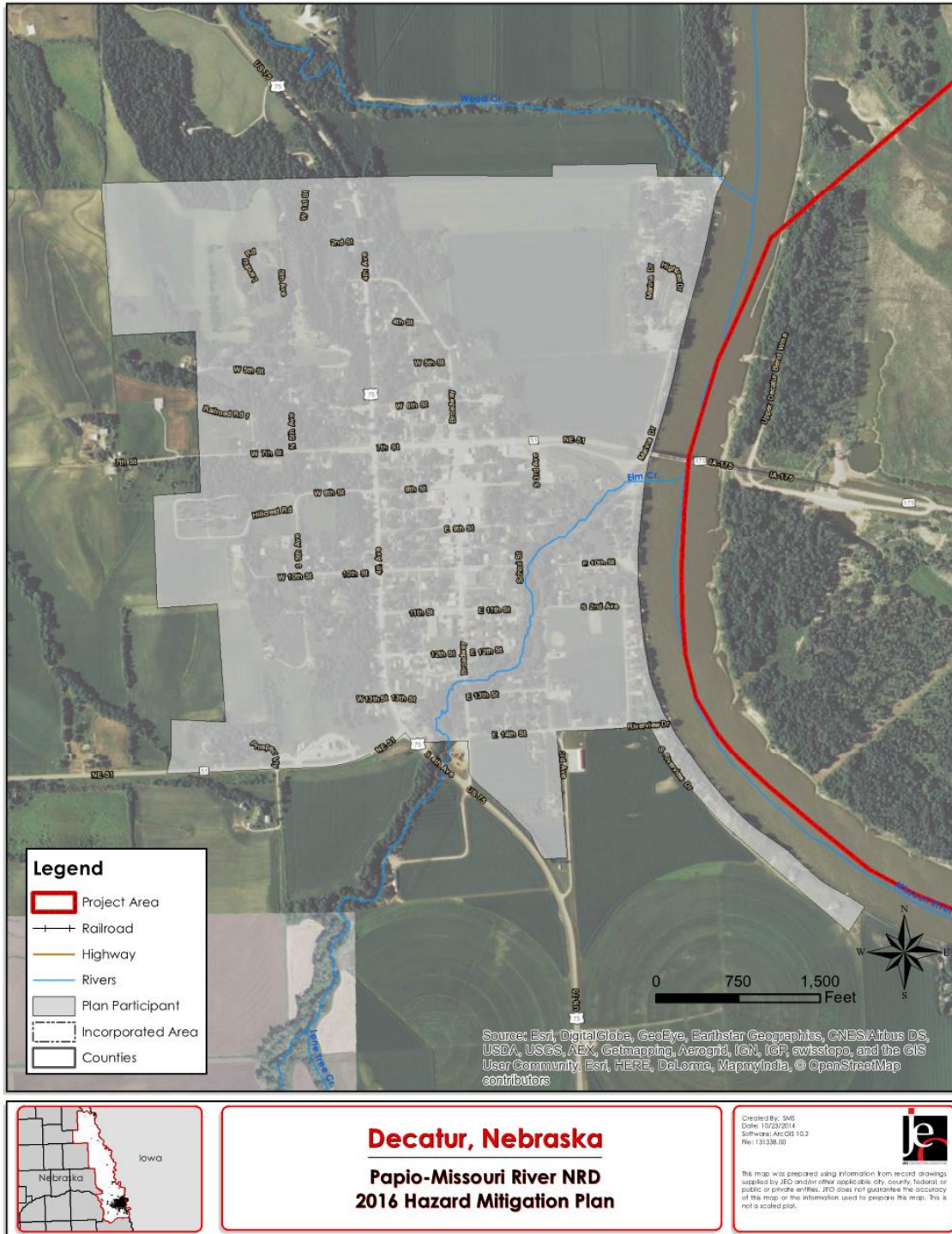
**Table DTR.2: Public Notification Efforts**

<b>Date</b>	<b>Notification</b>	<b>Location</b>
February 17, 2015	Project Website	<a href="http://jeo.com/papiohmp/">http://jeo.com/papiohmp/</a>
April 9 2015	Passed Resolution of Participation	Village Offices
December 22, 2015 – January 30, 2016	Community Profile available for public comment and review	<a href="http://jeo.com/papiohmp/">http://jeo.com/papiohmp/</a>

**LOCATION AND GEOGRAPHY**

The Village of Decatur is located in the northeastern portion of Burt County and covers an area of 0.90 square miles. Major waterways include the Missouri River, which forms the eastern boundary of the jurisdiction, and Elm Creek running through the southeastern portion of the jurisdiction.

**Figure DTR.1: Map of the Village of Decatur**



**CLIMATE**

For Decatur, the normal high temperature for the month of July is 85.3 degrees Fahrenheit and the normal low temperature for the month of January is 11.8 degrees Fahrenheit. On average, Decatur gets 30.57 inches of rain and 24.7 inches of snowfall per year. The following table compares these climate indicators with those of the planning area and the state.

**Table DTR.3: Climate Data for the Village of Decatur**

Age	Decatur	Planning Area	State of Nebraska
July Normal High Temp	85.3°F	85.6°F	88.0°F
January Normal Low Temp	11.8°F	11.8°F	12.0°F
Annual Normal Rainfall	30.57 inches	30.64 inches	30.3 inches
Annual Normal Snowfall	24.7 inches	31.2 inches	25.9 inches

Source: NCDC Climate Data Online, 1981-2010 Climate Normals

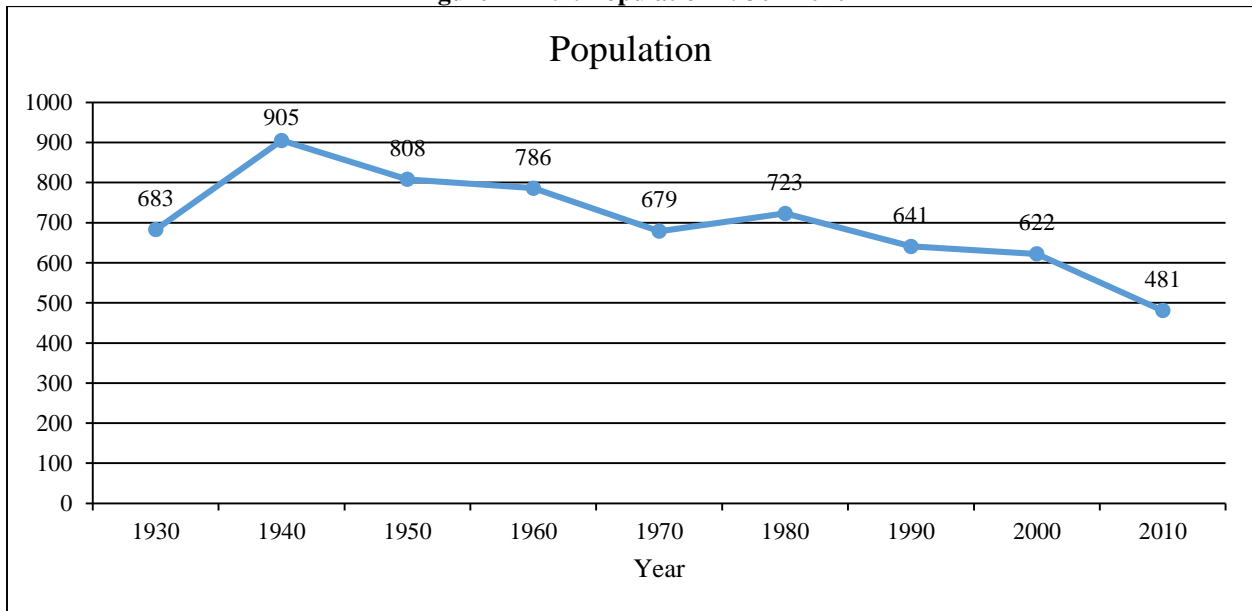
**TRANSPORTATION**

Decatur’s major transportation corridors include U.S. Highway 75, which runs north and south through the center of town. This highway on average has 1,145 vehicles per day with 185 of them as heavy commercial vehicles. Nebraska Highway 51 also runs east and west through the village to Iowa across the Missouri River, which is a critical transportation route with the bridge over the river. On average, this highway has 1,320 vehicles and 185 heavy commercial vehicles. Decatur does not have any rail lines in or near the village. Transportation information is important to hazard mitigation plans insofar as it suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Decatur has generally been declining since the 1940s. A declining population can lead to more unoccupied housing that is not being maintained and is then at risk to high winds and other hazards. Furthermore with fewer residents, there is decreasing tax revenue for the community, which could make implementation of mitigation projects more fiscally challenging.

**Figure DTR.2: Population 1930 - 2010**



Source: U.S. Census Bureau

The following table indicates the Village of Decatur has a higher percentage of people over the age of 64 than Burt County, and the median age is also 5 years older than Burt County. Elderly populations may be more vulnerable to certain hazards than others. For a more elaborate discussion of this vulnerability, please see *Section Four: Risk Assessment*.

**Table DTR.4: Population by Age**

Age	Decatur	Burt County	State of Nebraska
<5	4.6%	5.5%	7.2%
5-64	62.5%	71.4%	79.2%
>64	32.9%	23.1%	13.6%
Median	52.3	47.3	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Decatur’s median household income is lower than the county’s by nearly \$15,000. Decatur also has a lower median home value and median rent value compared to the county, which does lower the overall costs of living in the village. These economic indicators are relevant to hazard mitigation because they indicate the relative economic strength compared to the county and state as a whole. Economic indicators may also influence a community’s resiliency to hazardous events.

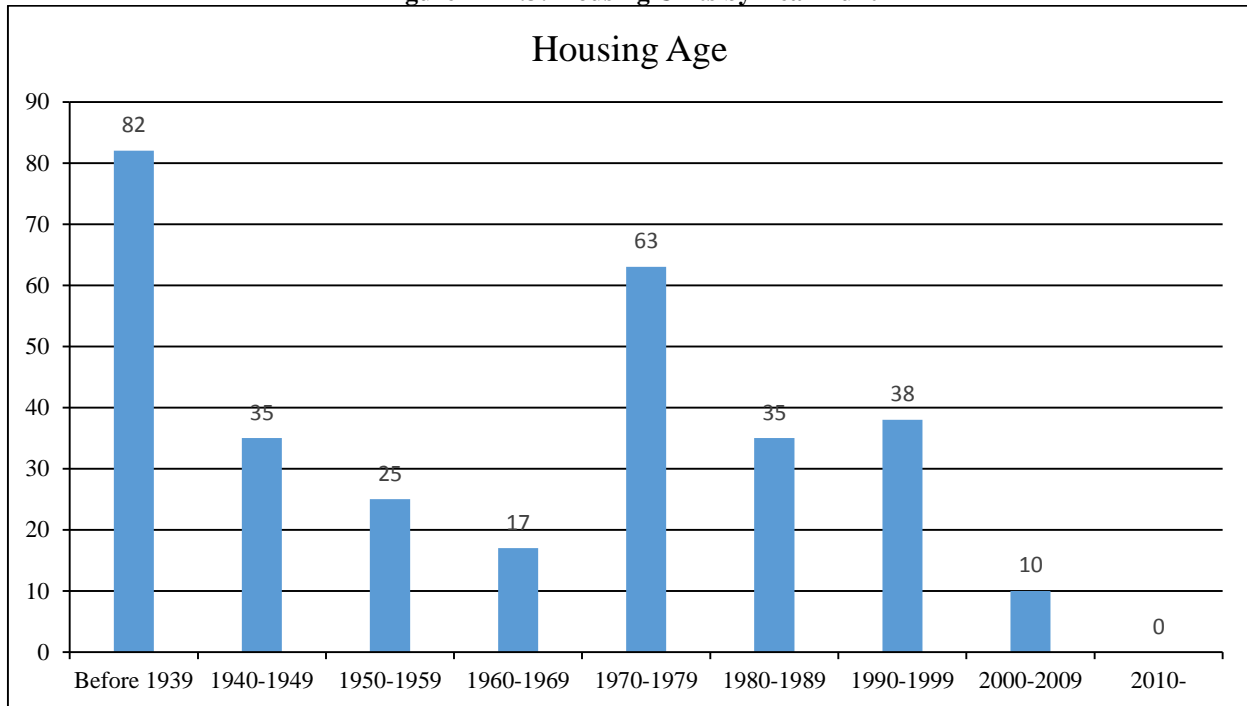
**Table DTR.5: Housing and Income**

	Decatur	Burt County	State of Nebraska
Median Household Income	\$31,797	\$46,817	\$51,672
Per Capita Income	\$23,079	\$25,203	\$26,899
Median Home Value	\$57,300	\$85,700	\$128,000
Median Rent	\$463	\$591	\$706

Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP03 and DP04

The following figure indicates that the majority of the housing in Decatur was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the community has 305 housing units; with nearly 70 percent of those units occupied. There are approximately 52 mobile homes in the community and 73 percent of the community’s housing was built before 1980. This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornados, and severe winter storms. Mobile homes are located in the marina along the river, north of Highway 51.

**Figure DTR.3: Housing Units by Year Built**



Source: Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP04

**Table DTR.6: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Decatur	213	69.8%	92	30.2%	151	70.9%	62	29.1%
Burt County	2,899	83.7%	564	16.3%	2,220	76.5%	679	23.5%

Source: Selected Housing Characteristics: 2009 - 2013 ACS 5-year estimate

**MAJOR EMPLOYERS**

The major employers or industries for the Village of Decatur are retail trade, education services and health care, and entertainment and food services. Hardsteel Inc. is a major employer in Decatur. A large percentage of residents commute to Omaha and Sioux City for work.

**FUTURE DEVELOPMENT TRENDS**

In the last five years, there has been a house built along the river at the south end of town. According to the local planning team, Decatur’s lack of jobs contributes to the decline in population. No new businesses, industry, or housing developments are planned for the next five years. However, if development is to occur, it is recommended that the Village of Decatur prohibit any future development in the floodplain.

Figure DTR.4: Developed Areas

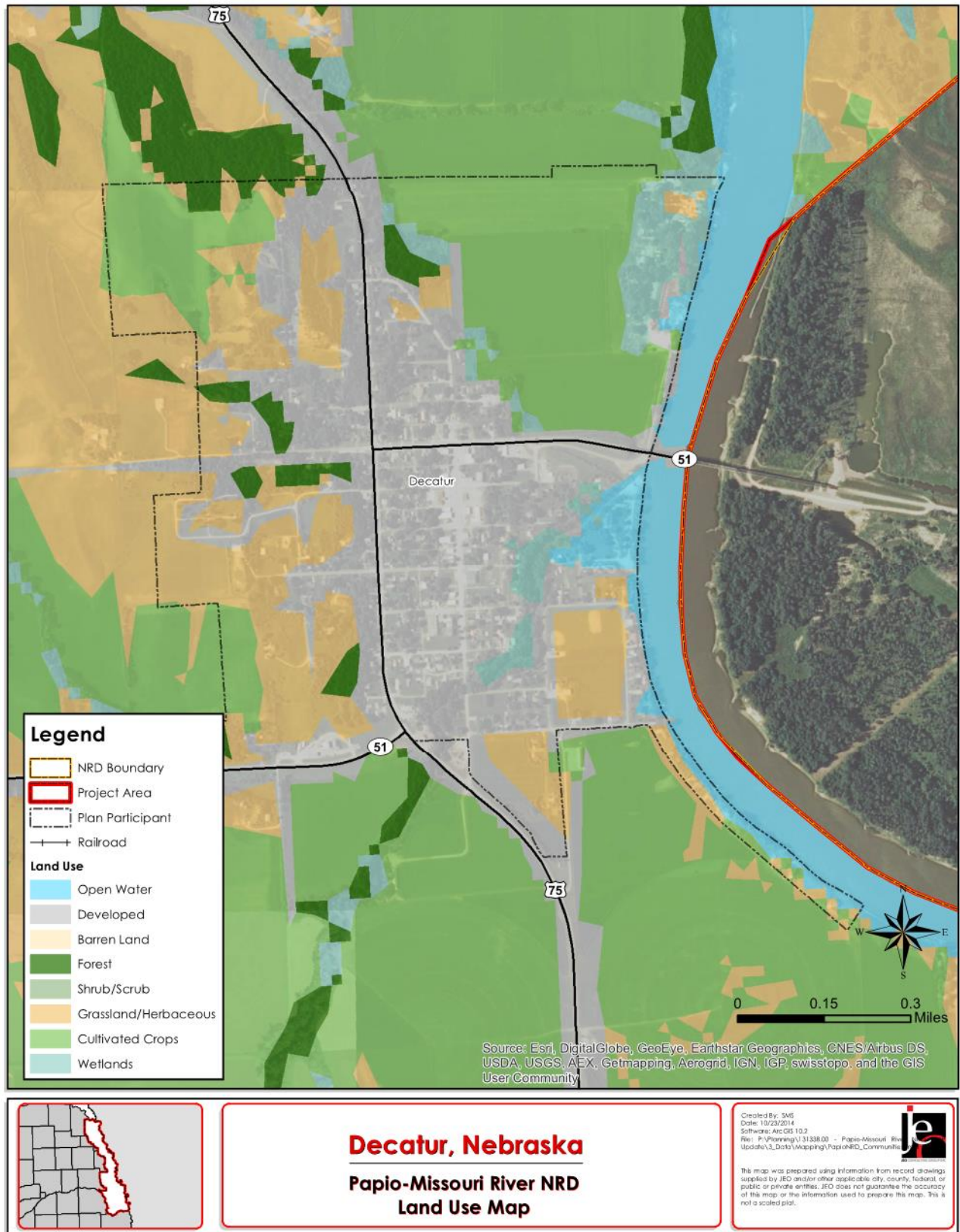
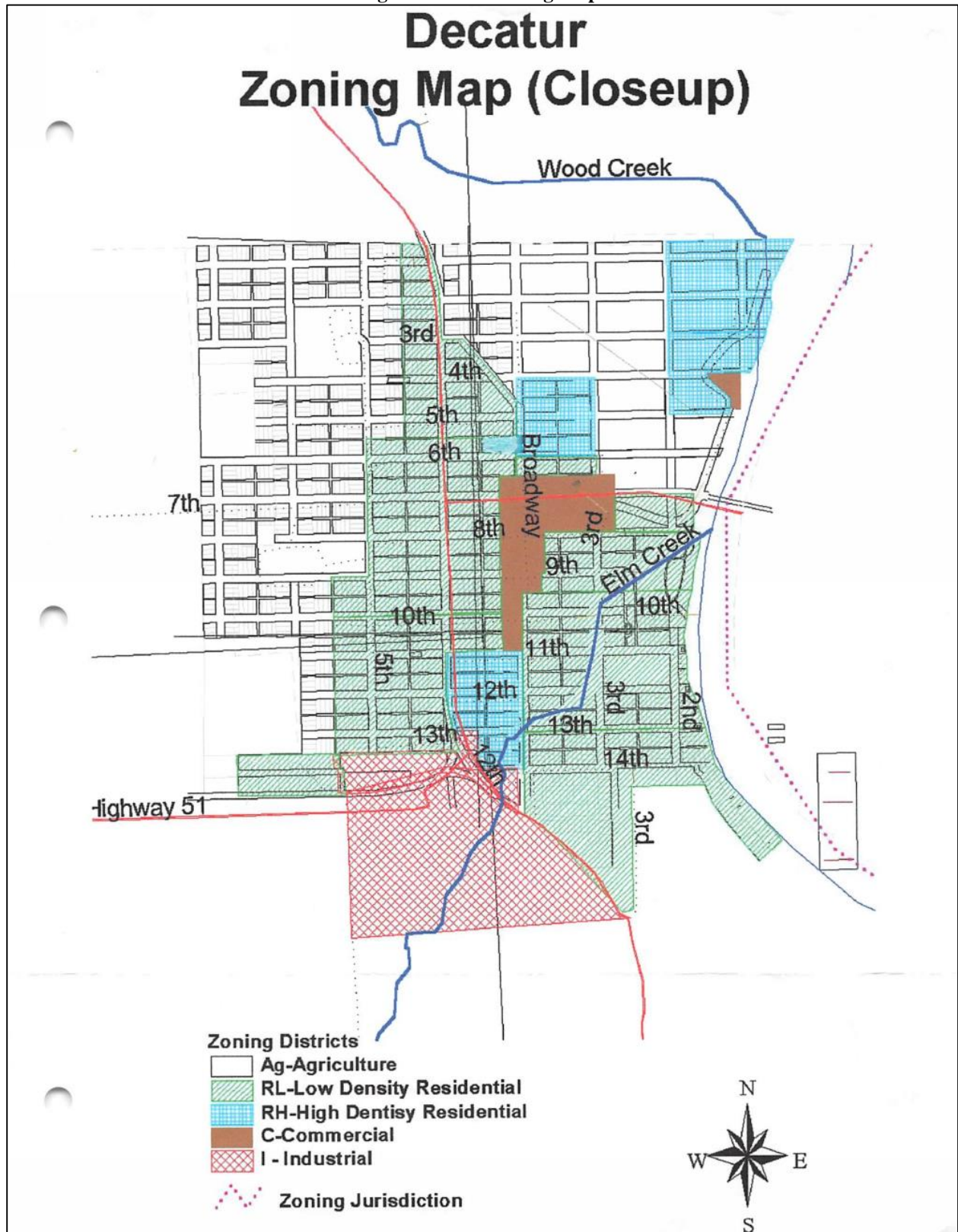




Figure DTR.5: Zoning Map



**PARCEL IMPROVEMENTS AND VALUATION**

The planning team requested GIS parcel data from GIS Workshop, which the county hires to manage the County Assessor data. This data allowed the planning team to analyze the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table DTR.7: Parcel Improvements**

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
71	\$584,495	\$8,232	6	\$53,210

Source: GIS Workshop/Burt County Assessor

**CRITICAL INFRASTRUCTURE/KEY RESOURCES**

**CHEMICAL STORAGE FIXED SITES**

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality, there are zero chemical storage sites in Decatur.

**HISTORIC SITES**

According to the National Register of Historic Places for Nebraska, there are no historic sites located in or near Decatur

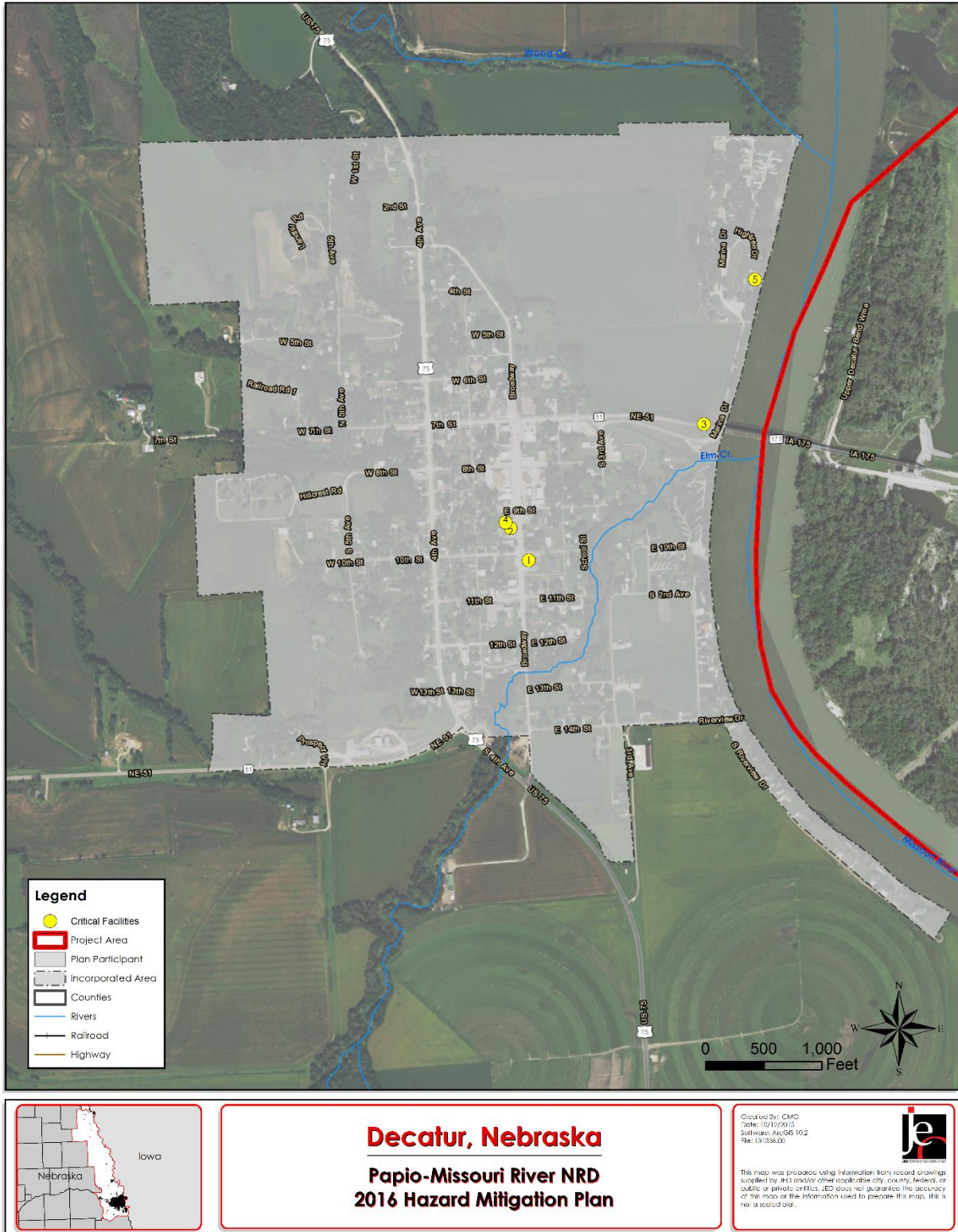
**CRITICAL FACILITIES**

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table DTR.8: List of Critical Facilities in Decatur**

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Fire Station	Decatur Fire Hall	10th and Broadway	Y	N	N
2	Vulnerable Population	Decatur’s Senior Center	9th and Broadway	N	N	N
3	Critical Bridge	Bridge Across Missouri River	Nebraska Highway 51, Decatur	N/A	N/A	Y
4	Municipal Building	Decatur City Hall	913 S. Broadway	N	Y	N
5	Wastewater Facility	Decatur Wastewater Facility	Near River	N	Y	Y

Figure DTR.6: Critical Facilities



**HISTORICAL OCCURRENCES**

The NCDC Storm Events Database reported 21 severe weather events from January 1996 through July 2015. Refer to the table below for detailed information of each severe weather event including date, magnitude, and property damage.

The property damages from the NCDC Storm Events Database should be considered as broad estimates only. The National Weather Service makes a best guess on these amounts at the time of the publication from a variety of sources. Sources include but are not limited to emergency management, local law enforcement, skywarn spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public. The USDA Risk Management Agency also provides crop damage by hazard, but at the county level only. For this information, please refer to Burt County’s participant section.

**Table DTR.9: NCDC Severe Weather Events**

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
8/6/1996	Thunderstorm Wind	52 kts EG	0	0	\$0
4/25/1998	Hail	1.00 in.	0	0	\$0
6/29/1998	Hail	0.75 in.	0	0	\$0
6/12/2001	Hail	0.75 in.	0	0	\$0
6/12/2001	Hail	0.88 in.	0	0	\$0
6/18/2001	Hail	1.75 in.	0	0	\$0
7/25/2002	Hail	1.75 in.	0	0	\$0
7/25/2002	Hail	1.75 in.	0	0	\$0
6/9/2003	Hail	0.75 in.	0	0	\$0
7/20/2003	Hail	1.00 in.	0	0	\$0
8/18/2003	Thunderstorm Wind	50 kts EG	0	0	\$0
8/22/2007	Hail	1.75 in.	0	0	\$0
9/24/2007	Thunderstorm Wind	70 kts EG	0	0	\$0
6/3/2008	Hail	0.75 in.	0	0	\$0
8/27/2008	Hail	0.75 in.	0	0	\$0
7/14/2010	Thunderstorm Wind	52 kts EG	0	0	\$0
7/1/2011	Flood		0	0	\$50,000
8/1/2011	Flood		0	0	\$5,000
6/20/2012	Flash Flood		0	0	\$0
11/10/2012	Hail	0.75 in.	0	0	\$0
11/10/2012	Thunderstorm Wind	52 kts EG	0	0	\$0
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>\$55,000</b>

Source: January 1996-July 2015 NCDC  
 in. = inches; kts = knots; EG = Estimated Gust

**RISK ASSESSMENT****HAZARD IDENTIFICATION**

The following table is a localized risk assessment of hazards identified specifically for Decatur. Refer to the beginning of *Section Seven: Participant Sections* for a detailed explanation as to what this methodology is and why certain hazards did not pose a significant enough threat and were eliminated from detailed discussion.

**Table DTR.10: Risk Assessment**

<b>HAZARD TYPE</b>	<b>PREVIOUS OCCURRENCE Yes/No</b>	<b>LOCAL LOSSES</b>	<b>SPECIFIC CONCERNS IDENTIFIED</b>
<b>Agricultural Animal Disease</b>	Yes	-	None
<b>Agricultural Plant Disease</b>	Yes	-	None
<b>Chemical Spills (Fixed Site)</b>	No	-	None
<b>Chemical Spills (Transportation)*</b>	No	-	Highways 51, 75, and Missouri River Bridge
<b>Civil Disorder</b>	No	-	None
<b>Dam Failure</b>	No	-	None
<b>Drought*</b>	Yes	-	Water scarcity; economic losses
<b>Earthquakes</b>	No	-	None
<b>Extreme Heat</b>	Yes	-	None
<b>Flooding*</b>	Yes	\$55,000	Missouri River flooding; damage to facilities
<b>Grass/Wildfires</b>	Yes	-	None
<b>Hail*</b>	Yes	-	Damage to critical facilities
<b>High Winds*</b>	Yes	-	Damage to facilities; power outages
<b>Landslides</b>	No	-	None
<b>Levee Failure</b>	N/A	-	None
<b>Radiological Incident (Fixed Site)</b>	No	-	None
<b>Radiological Incident (Transportation)</b>	No	-	None
<b>Severe Thunderstorms*</b>	Yes	-	Damage to facilities; power outages; localized flooding
<b>Severe Winter Storms*</b>	Yes	-	Damage to facilities; power outages; roadway closures
<b>Terrorism</b>	No	-	None
<b>Tornados*</b>	No	-	Damage to facilities; power outages; roadway closures
<b>Urban Fire</b>	No	-	None

\*Identified by the planning team as a top concern for the jurisdiction

For more information regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community specific information as reported in the Village of Decatur's Risk Assessment Summary that is relevant to each hazard. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

### **Chemical Transportation**

The local planning team identified chemical transportation as a top concern for the village. Highways 75 and 51 are of greatest concern, which includes the bridge traversing the Missouri River on Highway 51 into Iowa. Chemicals are presumed to be regularly transported by highway on a daily basis; however, the village is not sure which types of chemicals are being transported. According to the Pipeline and Hazardous Materials Safety Administration, there have not been any reports of chemical spills.

Implemented mitigation projects:

- Mutual aid agreements between fire departments

Identified mitigation projects:

- Conduct an emergency exercise on hazardous spills
- Install vehicle barriers
- Provide residents along transportation routes with educational materials

### **Dam Failure**

Although dam failure was not a top concern for the village, there is some risk and vulnerability from an upstream dam on the Missouri River. According to the local planning team, Gavin's Point Dam, located near Yankton, SD, is the only dam that would have impacts on the village. If the dam were to fail, Decatur would likely be washed away. The LEOP has a flood/dam failure evacuation section outlining the actions required to evacuate the population and protect facilities threatened by flood or dam failure. Emergency housing would be made available to displaced residents in the event of dam failure.

Implemented mitigation projects:

- The local emergency operations plan is in place with evacuation plan
- The U.S. Army Corps of Engineers identified and repaired damages to the dam between 2012 and 2015, including: repairing gates, tailrace erosion protection, relief wells and horizontal outfalls, and spillway slab
- Bank stabilization repairs to the Missouri River were identified and repaired by the U.S. Army Corps of Engineers between 2012 and 2015

Identified mitigation projects:

- Conduct a dam failure exercise
- Provide educational materials to residents living near high hazard dam inundation areas

### **Drought**

Drought was identified as one of the top concerns for the village. The most recent drought occurred during the summer of 2012 and extended into the winter months. This drought was categorized by the National Drought Mitigation Center as an extreme drought. The local planning team did not report any impacts that resulted during this event.

The village water supply was described as being sufficient at this time by the local planning team. However, this could change dramatically during an extreme drought that extends many months or years. Since agricultural farming is one of the main trades in the region, economic losses would be felt throughout the area.

Implemented mitigation projects:

- Sufficient water supply

Identified mitigation projects:

- Develop a drought management plan
- Conduct a drought tournament exercise
- Implement a water conservation awareness program

**Flooding**

According to Table DTR.7, there were two flood events and one flash flood event since 1996 in the Village of Decatur. The two flood events occurred in July and August of 2011 and caused \$55,000 in property damage. The cause of these events began in early June when there were record releases from Gavins Point Dam at Yankton, SD on the Missouri River due to a combination of heavy rain and snow melt from Montana. The high releases from Gavins Point Dam produced moderate to major flooding along the Missouri River. Flood stage at Decatur is 35 feet and reached 40 feet by the end of June. Flooding persisted into August. Agricultural lowlands, recreation areas, and roads near the river were affected. The bridge for Nebraska Highway 51 connecting Decatur to Iowa was closed due to erosion of the abutment on the Iowa side of the bridge. In total, 150 to 200 homes were evacuated in Burt County during the summer of 2011.

Figure DTR.7 shows the HAZUS-MH modeled floodplain. (See the Flooding profile in *Section Four: Risk Assessment*.) Figure DTR.8 is the regulatory FIRM as provided by FEMA’s map service (<https://msc.fema.gov/portal>).

There are zero repetitive flood loss properties in the Village of Decatur as of August 2014. The Village of Decatur is a member of the NFIP with two policies in force totaling \$507,400 as of January 31, 2015.

**Table DTR.11: Improvements in the Floodplain**

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
\$53,210	6	71	8.5%

Source: GIS Workshop/Burt County Assessor

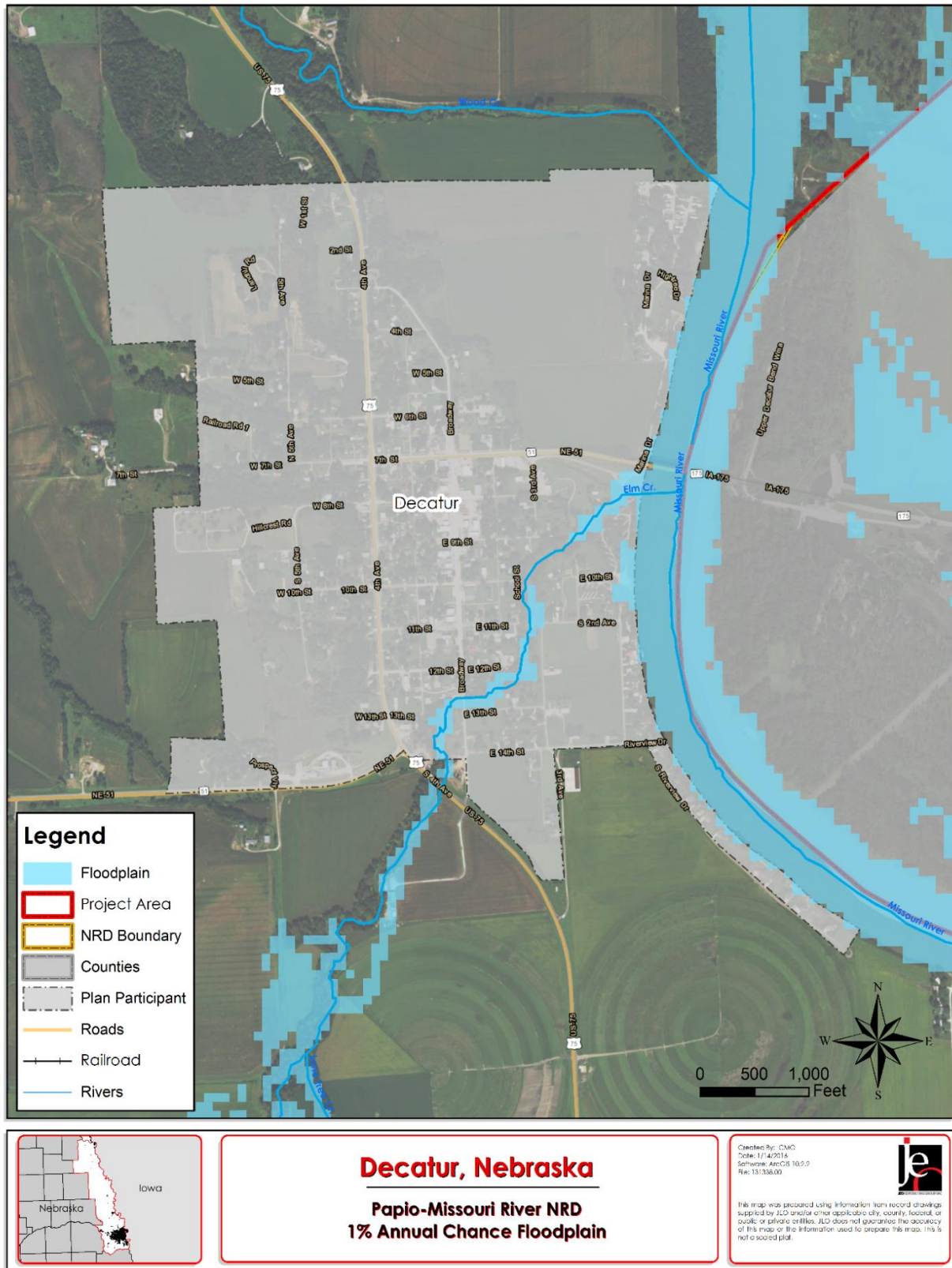
Implemented mitigation projects:

- Member of the NFIP
- Floodplain Management Ordinance which requires a one foot freeboard for all new construction or substantial improvements
- Bank stabilization repairs to the Missouri River were identified and repaired by the U.S. Army Corps of Engineers between 2012 and 2015

Identified mitigation projects:

- Grade control structures for rivers and creeks
- Enforce floodplain regulations

Figure DTR.7: HAZUS-MH 1% Annual Chance Floodplain







### **Hail**

The planning team indicated there have not been significant hail events in the last 20 years but realizes that a significant hail storm could still impact the village, which led to ranking hail as a top concern. The NCDC reports 13 hail events since 1996 with the largest hail stone reported at 1.75 inches. However, climatologically it is possible for hail to reach 2.50 inches or greater, which could cause significant damage to homes and critical facilities.

Implemented mitigation projects:

- Village has a local tree board for identifying hazardous trees for removal
- Some critical facilities are fitted with hail resistant building materials, including the Fire Hall
- Municipal facilities are insured for hail damage

Identified mitigation projects:

- Install hail resistant roofing and other building materials on critical facilities
- Install protective barriers for HVAC at critical facilities
- Become a Tree City USA community

### **Severe Thunderstorms**

The local planning team identified severe thunderstorms as a top concern for the village. NCDC reported 5 thunderstorm wind events since 1996. No official reports of property damage were provided, but one event in September of 2007 did cause damage to parts of the Village of Decatur. Wind gusts of over 80 mph caused numerous trees to fall and windows were blown in at a house just south of the village.

Implemented mitigation projects:

- Fire department and schools conduct regular educational programs on weather events
- Surge protectors are utilities on electronic devices/
- Back-up power generator available at the Village Offices

Identified mitigation projects:

- Purchase weather radios for all critical facilities
- Continue public awareness and educational opportunities
- Upgrade, replace, and/or add tornado sirens
- Purchase emergency communication equipment

### **Severe Winter Storms**

Severe winter storms was selected as a top concern for the village by the local planning team. There were 49 reported winter storm zonal events by NCDC between 1996 and 2014. The winter of 2009-2010 included several severe winter storms that greatly impacted the region, including Decatur. The Christmas Winter Storm of 2009, which began on December 23rd and ended on the 26th, brought up to 20 inches of snow along with gusting winds over 40 mph. These winds in combination with the heavy snow produced widespread visibilities below a quarter mile during the event, making travel dangerous to impossible. Many of the roads became blocked and travel was brought to a standstill during a normally heavy travel period for the holidays. The village is responsible for snow removal and equipment is sufficient at this time.

Implemented mitigation projects:

- Back-up power generator available for the Village Offices
- The village has designated snow routes
- Sufficient snow removal equipment

- Fire department and schools conduct regular educational programs on weather events

Identified mitigation projects:

- Work with Burt County Public Power District to bury power lines
- Become a Tree City USA community

### **Tornados and High Winds**

The local planning team ranked tornados and high winds as a top hazard of concern for the village. There are no reports of tornados since 1996 in the Village of Decatur. However, there have been several high wind events, which impacted the region. One event in 2005 had wind gusts reaching 60 mph across the county. One person was injured in Decatur when a roof from a building under construction blew on top of his home. Several large trees were uprooted and a few semi-trucks were also overturned. The planning team noted that a storm shelter is available in the basement of the Village Offices.

Implemented mitigation projects:

- Mutual aid agreements with neighboring communities and fire departments
- Municipal records are routinely backed up
- Fire department and schools conduct regular educational programs on weather events
- Back-up power generator available at the Village Offices

Identified mitigation projects:

- Continue public awareness and educational opportunities
- Purchase weather radios for all critical facilities
- Upgrade, replace, and/or add tornado sirens
- Purchase emergency communication equipment
- Work with Burt County Public Power District to bury power lines

### **GOVERNANCE**

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Decatur is governed by a five-member village board, which includes the Board Chairperson. The Village of Decatur has a number offices or departments that may be involved in implementing hazard mitigation initiatives, which includes but not limited to:

- Clerk and Deputy Clerk
- Utility Superintendent
- Police Department
- Volunteer Fire Department
- Sewage Plant
- Street Superintendent
- Sewer and Water Commissioner
- Park and Recreation

### **CAPABILITY ASSESSMENT**

The capability assessment consisted of two main components: a Capability Assessment Survey completed by the jurisdiction and a review of local existing policies, regulations, plans, and the programs. The survey is used to gather information regarding the jurisdiction's planning and regulatory capability; administrative and technical capability; fiscal capability; and educational and outreach capability.

**Table DTR.12: Capability Assessment**

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes (1996)
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Yes
	Economic Development Plan	No
	Emergency Operational Plan	Yes (County)
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	No
	Floodplain Management Plan	No
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	No
	Floodplain Ordinance	Yes
	Building Codes	No
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative and Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes (County)
	GIS Coordinator	No
	Chief Building Official	No
	Civil Engineering	No
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Other (if any)	
Fiscal Capability	Capital Improvement Project Funding	No
	Community Development Block Grant	No
	Authority to Levy Taxes for Specific Purposes	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education and Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Public-private partnership initiatives addressing disaster-related issues	No
	Other (if any)	

**PLANS, DOCUMENTS, AND INFORMATION USED**

Throughout the planning process, a number of studies, reports, and technical information have been used to develop the plan. A listing of general sources of information used for all sections of the plan is listed in Section 2: *Planning Process*. Below is a list of specific sources used to establish Decatur’s participant section.

**Table DTR.13: Sources, Plans, Reports, and Regulations**

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2009
Zoning Map	Unknown

**PLAN INTEGRATION**

Building safe and smart communities can be accomplished through effective Plan integration. Integrating hazard mitigation principles into other local planning mechanisms, such as plans addressing land use, transportation, climate change, sustainability, natural and cultural resource protection, watershed management, economic development and others can greatly increase an area’s level of resiliency. While this HMP planning process involved interdepartmental coordination at the local level, this planning process also sought to analyze how existing planning mechanisms were presently integrated and make suggestions for further integration. The plans listed in the preceding table were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*. The following paragraph presents a summary of the findings of this analysis.

Decatur has a Hazard Mitigation Plan that was completed in 2011. The Local Emergency Operations Plan (LEOP) for Decatur, which was last updated in 2009, is an annex of Burt County’s LEOP. It is an all-hazards plan that does not address specific natural and man-made disasters. It provides a clear assignment of responsibility in case of an emergency.

**MITIGATION STRATEGY**

**Completed Mitigation Actions**

Description	Update Problem Bridge
Analysis	Update and improve bridge safety
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	All
Location	South end of Main Street
Funding	Village funds
Year Completed	February 2014

Description	Backup Generator for Village Offices
Analysis	Provide a stationary source of backup power for the Village Offices and other critical facilities as needed
Goal/Objective	Goal 2/Objective 2.2
Hazard(s) Addressed	All
Location	Village Offices
Funding	Village funds
Year Completed	Unknown

**Ongoing or New Mitigation Actions**

Description	Storm Shelter for Beck Park
Analysis	Construct a storm shelter for the Beck Park area to protect area residents during severe weather, especially visitors to the 28 camp sites located at the park
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornados, High Winds, Hail, Severe Thunderstorms
Estimated Cost	\$25,000+
Funding	Future of Decatur Foundation funds, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Future of Decatur Foundation and Emergency Management
Status	Not started

Description	Maintain Good Standing in the NFIP
Analysis	Maintain good standing with National Flood Insurance Program (NFIP) including floodplain management practices/ requirements and regulation enforcements and updates.
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flooding
Estimated Cost	N/A
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator
Status	Ongoing

Description	Floodplain Regulation Enforcement/Updates
Analysis	Continue to enforce local floodplain regulations for structures located in the 1-percent floodplain. Strict enforcement of the type of development and elevation of structures should be considered through issuance of building permits. Continue education of building inspectors or Certified Floodplain Managers.
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	Flooding
Estimated Cost	\$1,000
Funding	Village funds
Timeline	Ongoing
Priority	Medium
Lead Agency	Floodplain Administrator and Village Board
Status	Ongoing

**Removed Mitigation Actions**

Description	Channel Improvement and Stabilization of Elm Creek
Analysis	Stabilization improvements including rock rip rap, vegetative cover, j-hooks, boulder vanes, etc. can be implemented to reestablish the channel banks.
Reason for Removal	Two rock dams on Elk Creek are working efficiently. No improvements needed at this time.

Description	Update Floodplain Maps
Analysis	Update FIRM maps and create DFIRM maps for Village of Decatur
Reason for Removal	Updating of FIRM maps is determined by the State of Nebraska

PARTICIPANT SECTION  
FOR THE

CITY OF TEKAMAH

Papio-Missouri River NRD  
Multi-Jurisdictional Hazard Mitigation Plan

February 2016

***INTRODUCTION***

The 2016 Papio-Missouri River Natural Resources District (P-MRNRD) Multi-Jurisdictional Hazard Mitigation Plan (HMP) is an update to the plan that was adopted by the P-MRNRD in August 2011. This HMP includes two primary sections: the Regional Hazard Mitigation Plan and the Participant (i.e. County, Municipal, and School District) Sections. Participant Sections include similar information that’s also provided in the Regional section, but rather is specific information for the City of Tekamah, including the following elements:

- Participation
- Location /Geography
- Climate
- Transportation
- Demographics
- Future Development Trends
- Parcel Improvements and Valuations
- Critical Infrastructure and Key Resources
- Historical Hazard Events
- Hazard Identification and Risk Assessment
- Governance
- Capability Assessment
- Plan Integration
- Mitigation Actions

***PARTICIPATION***

***LOCAL PLANNING TEAM***

Table TKH.1 provides the list of participating members that comprised the City of Tekamah local planning team. Members of the planning team attended Round 1 and Round 2 meetings and provided important information including but not limited to: confirming demographic information, critical facilities, future development trends, hazard history and impacts, identifying hazards of greatest concern for the community, and prioritization of mitigation actions that address the hazards that pose a risk to the community.

**Table TKH.1: Tekamah Local Planning Team**

Name	Title	Department / Jurisdiction
Eugene TeSelle	Emergency Manager	City of Tekamah
Ronald Grass	Mayor	City of Tekamah

***PUBLIC PARTICIPATION***

The local planning team made efforts to notify the public of this planning effort and how they could participate in the development of the plan update. The following table identifies the dates and types of public outreach notifications.

**Table TKH.2: Public Notification Efforts**

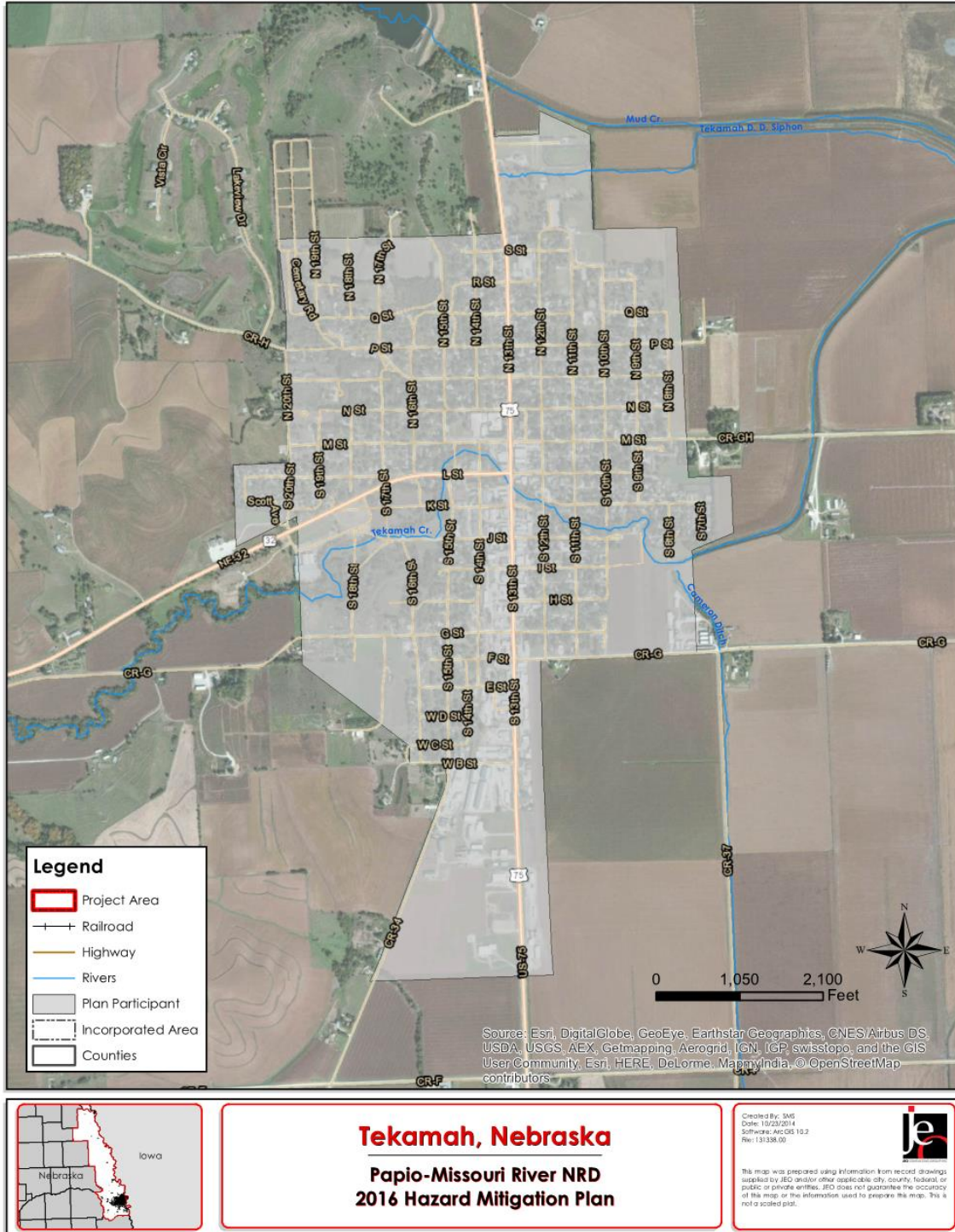
Date	Notification	Location
February 17, 2015	Project Website	<a href="http://jeo.com/papiohmp/">http://jeo.com/papiohmp/</a>
July 23, 2015	Passed Resolution of Participation	Tekamah City Hall
December 22, 2015 – January 30, 2016	Community Profile available for public comment and review	<a href="http://jeo.com/papiohmp/">http://jeo.com/papiohmp/</a>



**LOCATION AND GEOGRAPHY**

The City of Tekamah is located in the southeastern portion of Burt County and covers an area of 1.32 square miles. Major waterways in the area include Mud Creek, which is on the north side of the city, Tekamah Creek, and Tekamah Creek North Branch. Tekamah Creek is the primary source of flooding for the City of Tekamah. Mud Creek was largely eliminated as a source of flooding by the construction of an earthen dam.

**Figure TKH.1: Map of the City of Tekamah**



**CLIMATE**

For Tekamah, the normal high temperature for the month of July is 85.3 degrees Fahrenheit and the normal low temperature for the month of January is 11.8 degrees Fahrenheit. On average, Decatur gets 30.57 inches of rain and 24.7 inches of snowfall per year. The following table compares these climate indicators with those of the planning area and the state.

**Table TKH.3: Climate Data for the City of Tekamah**

Age	City of Tekamah	Planning Area	State of Nebraska
July High Temp	85.3°F	85.6°F	88.0°F
January Low Temp	11.8°F	11.8°F	12.0°F
Annual Rainfall	30.57 inches	30.64 inches	30.3 inches
Annual Snowfall	24.7 inches	31.2 inches	25.9 inches

Source: NCDC Climate Data Online

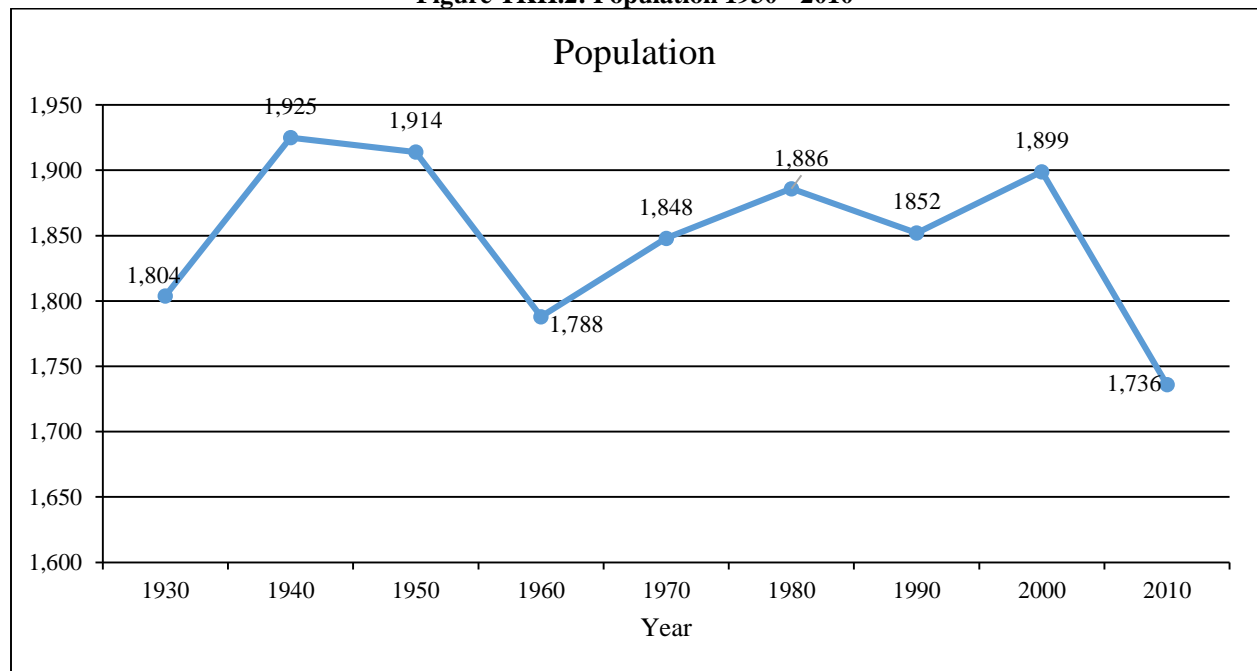
**TRANSPORTATION**

Tekamah’s major transportation corridors include U.S. Highway 75, which runs north and south through the center of town. This highway on average has as many as 4,080 vehicles with 305 of these vehicles being heavy commercial vehicles. Nebraska Highway 32 is an east-west highway and terminates at U.S. Highway 75 in Tekamah. On average this highway has 2,110 vehicles and 365 heavy commercial vehicles. Tekamah does not have any rail lines in or near the city. Tekamah Municipal Airport is located just southwest of the city. Transportation information is important to hazard mitigation plans insofar as it suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents.

**DEMOGRAPHICS**

The following figure displays the historical population trend from 1930 to 2010. It indicates that the population of Tekamah has experienced periods of growth and decline since 1930. However, between 2000 and 2010 the population has declined. A decrease in population results in a decrease in tax revenue for the city, which can make it more difficult to fiscally implement mitigation projects.

**Figure TKH.2: Population 1930 - 2010**



Source: U.S. Census Bureau

The following table indicates the City of Tekamah has similar population groups as compared to the county. There are slight differences with a slightly lower percentage of under 5 years old and slightly higher percentage over the age of 64. Elderly populations may be more vulnerable to certain hazards than others. For a more elaborate discussion of this vulnerability, please see *Section Four: Risk Assessment*.

**Table TKH.4: Population by Age**

Age	City of Tekamah	Burt County	State of Nebraska
<5	4.1%	5.5%	7.2%
5-64	71.2%	71.4%	79.2%
>64	24.7%	23.1%	13.6%
Median	46.0	47.3	36.2

Source: U.S. Census Bureau, 2010, Table DP-1

The following table indicates that Tekamah’s median household income is nearly \$2,000 lower than the county. However, Tekamah’s median home value is higher than the county’s by \$12,000. This disparity between income and home values can make it difficult for residents to own a home in Tekamah. These economic indicators are relevant to hazard mitigation because they indicate the relative economic strength compared to the county and state as a whole. Economic indicators may also influence a community’s level of resiliency during hazardous events.

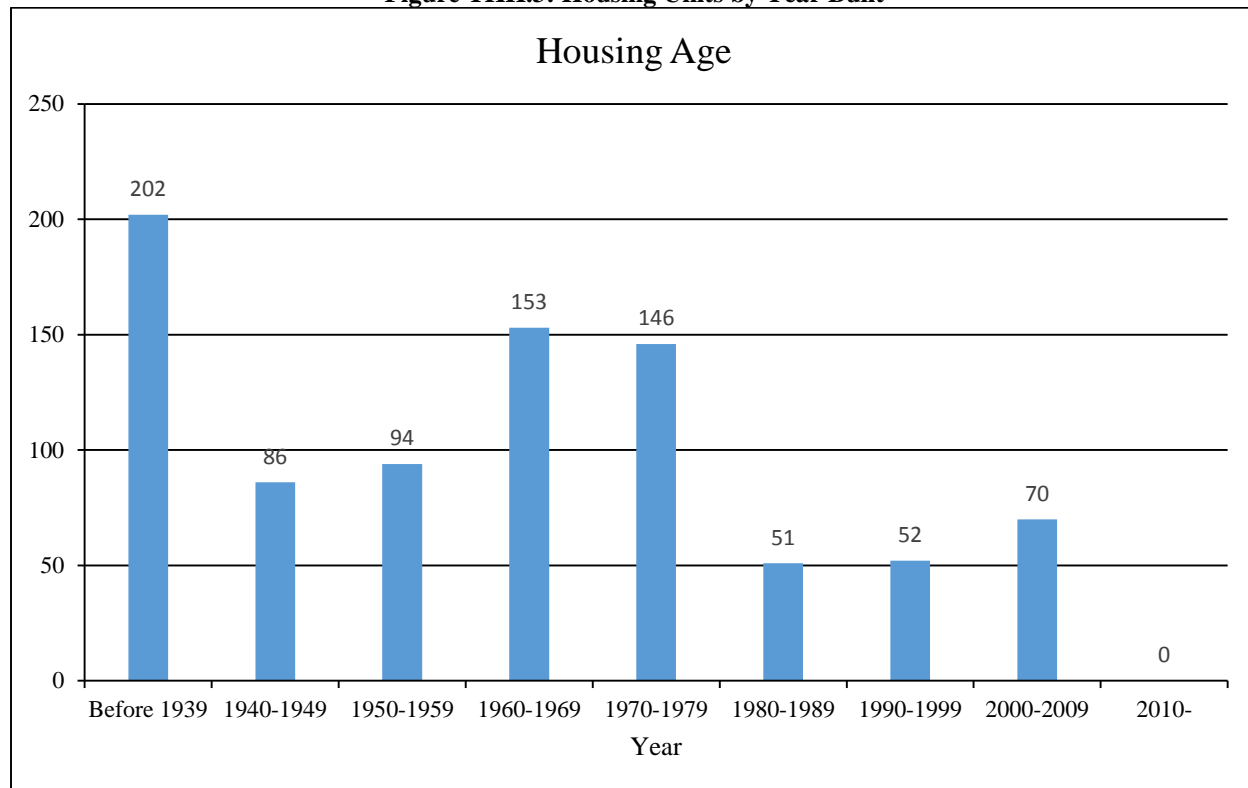
**Table TKH.5: Housing and Income**

	City of Tekamah	Burt County	State of Nebraska
Median Household Income	\$44,618	\$46,817	\$51,672
Per Capita Income	\$22,940	\$25,203	\$26,899
Median Home Value	\$97,900	\$85,700	\$128,000
Median Rent	\$588	\$591	\$706

Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP03 and DP04

The following figure indicates that the majority of the housing in Tekamah was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the community has 854 housing units with 86.1 percent of those units occupied. There are approximately 27 mobile homes in the community and 63 percent of the community’s housing was built before 1970. This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to state building codes being developed. Further, unoccupied housing may suggest that future development may be less likely to occur. The local planning team indicated there are some blighted properties throughout town, which may be more vulnerable to hazard events. Finally, communities with a substantial number of mobile homes may be more vulnerable to the impacts of high winds, tornados, and severe winter storms. According to the local planning team, there are three mobile home parks within Tekamah located along Highway 32, 19<sup>th</sup> and P Street, and Airport Road.

**Figure TKH.3: Housing Units by Year Built**



Source: U.S. Census Bureau, 2009-2013 American Community Surveys 5-year Estimates, Table DP04

**Table TKH.6: Housing Units**

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Tekamah	735	86.1%	119	13.9%	562	76.5%	173	23.5%
Burt County	2,899	83.7%	564	16.3%	2,220	76.5%	679	23.5%

Source: Selected Housing Characteristics: 2009 - 2013 ACS 5-year estimate

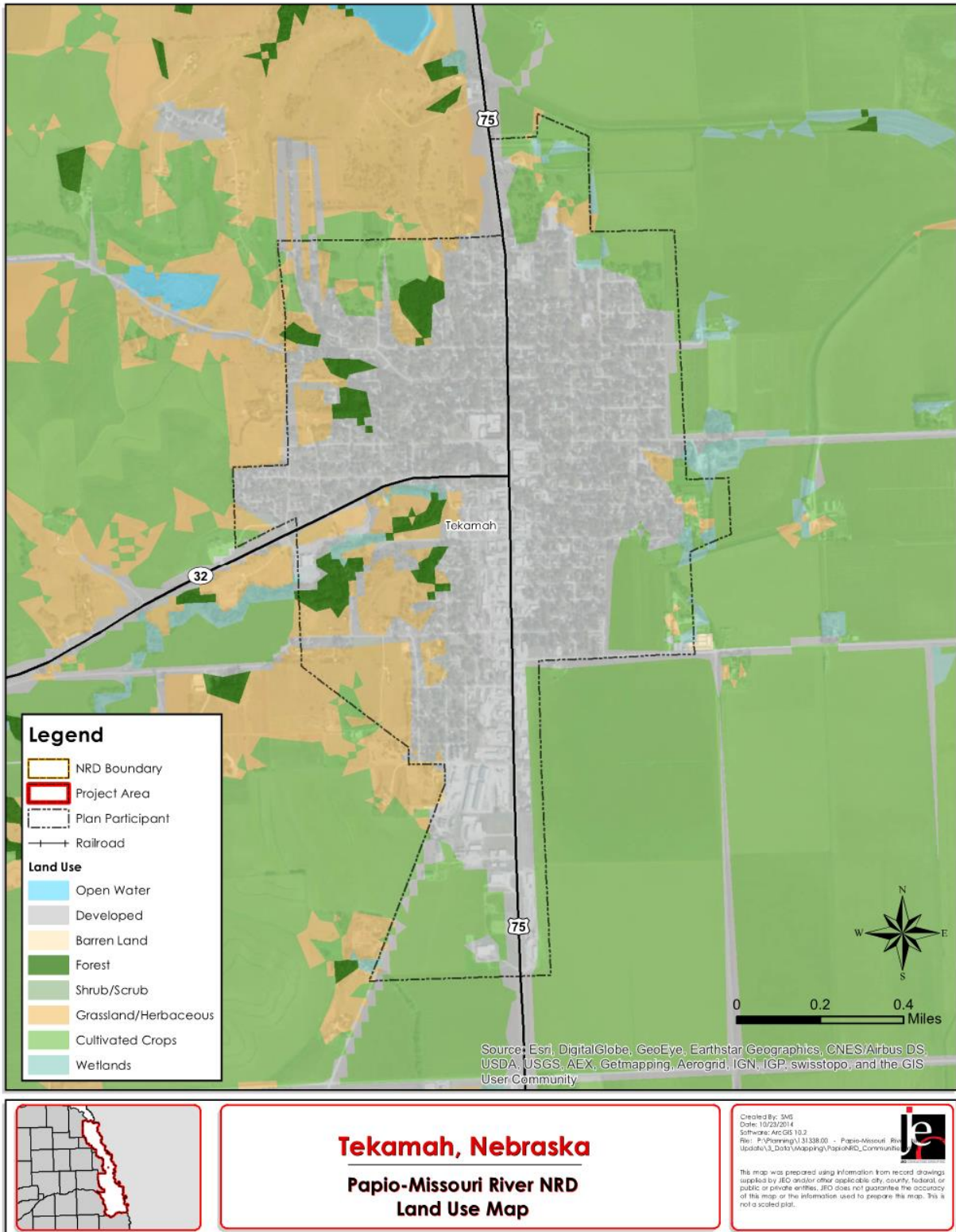
**MAJOR EMPLOYERS**

The major industries for the City of Tekamah are educational services and health care, retail trade, and transportation and warehousing. Major employers within Tekamah include Central Valley Ag COOP, the City of Tekamah, and Feeney Manufacturing. A large percentage of residents commute to Omaha and Blair.

**FUTURE DEVELOPMENT TRENDS**

There are no new housing developments planned in Tekamah for the next five years. However, there is a new industrial park planned. The industrial park will be located on the south side of the city on the west side of Highway 75. A lift station near the industrial park has been rebuilt and upgraded to provide more capacity for the area.

Figure TKH.4: Developed Areas



***PARCEL IMPROVEMENTS AND VALUATION***

The planning team requested GIS parcel data from GIS Workshop, which the County hires to manage the County Assessor data. This data allowed the planning team to analyze the location, number, and value of property improvements at the parcel level. The data did not contain the number of structures on each parcel. A summary of the results of this analysis is provided in the following table.

**Table TKH.7: Parcel Improvements**

<b>Number of Improvements</b>	<b>Total Improvement Value</b>	<b>Mean Value of Improvements Per Parcel</b>	<b>Number of Improvements in Floodplain</b>	<b>Value of Improvements in Floodplain</b>
43	\$787,280	\$18,308	12	\$1,200,005

Source: GIS Workshop/Burt County Assessor

***CRITICAL INFRASTRUCTURE/KEY RESOURCES***

***CHEMICAL STORAGE FIXED SITES***

According to the Tier II System reports submitted to the Nebraska Department of Environmental Quality (NDEQ), there are a total of two chemical storage sites in the City of Tekamah, and both of these house materials that are categorized as hazardous. The following table lists facilities that house hazardous materials only. Additional sites within Tekamah may store chemicals, but do not report to the NDEQ.

**Table TKH.8: Chemical Storage Fixed Sites**

<b>Facility</b>	<b>Address</b>	<b>Hazardous Material</b>
Central Valley Ag	1421 B Street, Tekamah	Anhydrous Ammonia
Midwest Service	649 Highway 75	Anhydrous Ammonia

Source: Nebraska Department of Environmental Quality

***HISTORIC SITES***

According to the National Register of Historic Places for Nebraska, there are 5 historic sites located in the City of Tekamah. Four of the five historic sites are located within the 1 percent annual floodplain. One historic site is currently unknown at this time.

**Table TKH.9: National Historic Registry**

<b>Site Name</b>	<b>Date Listed</b>	<b>In Floodplain?</b>
H. S. M. Spielman House	7/17/1986	Y
E. C. Houston House	3/13/1986	Y
Edward W. and Rose Folsom Bryant House	8/5/2004	Unknown
Tekamah Carnegie Library	3/15/2005	Y
Tekamah City Bridge	6/29/1992	Y

Source: Nebraska State Historical Society

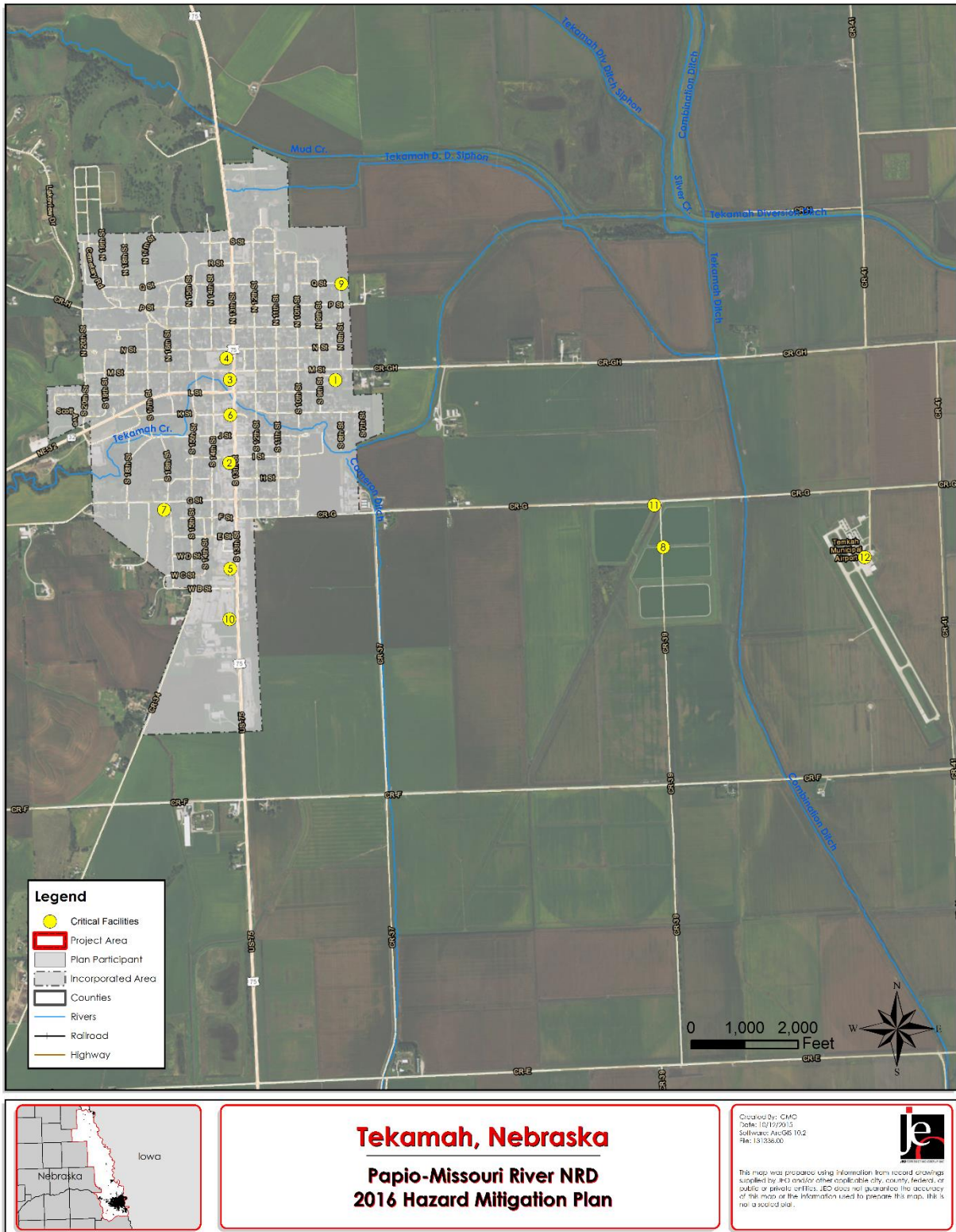
***CRITICAL FACILITIES***

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction’s functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table TKH.10: List of Critical Facilities in Tekamah**

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Vulnerable Population	Golden Living Center	823 M Street	N	Y	Y
2	Fire Station	Tekamah Fire & Rescue Assoc.	333 S Main St., Tekamah	N	Y	Y
3	Law Enforcement	Tekamah Police Department	124 S. 13 <sup>th</sup> St., Tekamah	N	N	Y
4	School	Tekamah Elementary and High School	112 N. 13 <sup>th</sup> St., Tekamah	Y	Y	Y
5	Senior Center	Chatt Senior Center	1124 S. 13 <sup>th</sup> St., Tekamah	N	Y	N
6	Municipal	City Auditorium	1315 K St., Tekamah	Y	N	Y
7	Municipal	Water Tower	16 <sup>th</sup> & G St., Tekamah	N	Y	N
8	Wastewater Facility	Lagoons	3851 County Road G	N	Y	Y
9	Wastewater Facility	Lift Station 1	Q St and N 8 St	N/A	Y	Y
10	Wastewater Facility	Lift Station 2	Off of HWY 75 and South of B St.	N/A	Y	N
11	Wastewater Facility	Lift Station 3	Near Lagoons	N/A	Y	Y
12	Airport	Tekamah Airport	County Road G, Tekamah	N		Y

Figure TKH.5: Critical Facilities





***HISTORICAL OCCURRENCES***

The NCDC Storm Events Database reported 50 severe weather events from January 1996 through July 2015. Refer to the table below for detailed information of each severe weather event including date, magnitude, and property damage.

The property damages from the NCDC Storm Events Database should be considered as broad estimates only. The National Weather Service makes a best guess on these amounts at the time of the publication from a variety of sources. Sources include but are not limited to emergency management, local law enforcement, skywarn spotters, NWS damage surveys, newspaper clipping services, insurance industry, and the general public. The USDA Risk Management Agency also provides crop damage by hazard, but at the county level only. For this information, please refer to Burt County's participant section.

**Table TKH.11: NCDC Severe Weather Events**

<b>Date</b>	<b>Hazard</b>	<b>Magnitude</b>	<b>Deaths</b>	<b>Injuries</b>	<b>Property Damage</b>
6/20/1997	Thunderstorm Wind		0	0	\$50,000
6/20/1997	Thunderstorm Wind		0	0	\$40,000
6/29/1997	Thunderstorm Wind	54 kts	0	0	\$0
6/29/1997	Thunderstorm Wind		0	0	\$12,000
7/1/1997	Thunderstorm Wind	53 kts	0	0	\$0
5/21/1998	Thunderstorm Wind	62kts	0	0	\$0
5/28/1998	Hail	1.25	0	0	\$0
7/30/1999	Hail	0.75	0	0	\$0
8/7/1999	Flash Flood	3.00-6.00 in.	0	0	\$500,000
5/29/2000	Thunderstorm Wind	55 kts EG	0	0	\$0
4/22/2001	Thunderstorm Wind	50 kts MG	0	0	\$0
5/1/2001	Hail	1.75	0	0	\$0
6/18/2001	Thunderstorm Wind	56 kts MG	0	0	\$10,000
6/18/2001	Tornado	F0	0	0	\$0
9/20/2001	Hail	0.75	0	0	\$0
4/16/2002	Hail	0.88	0	0	\$0
4/17/2002	Hail	1.75	0	0	\$0
7/5/2003	Thunderstorm Wind	65 kts MG	0	0	\$0
7/20/2003	Hail	1.75	0	0	\$0
7/20/2003	Hail	0.88	0	0	\$0
8/18/2003	Thunderstorm Wind	50 kts EG	0	0	\$0
6/14/2004	Hail	1	0	0	\$0
7/12/2004	Thunderstorm Wind	50 kts MG	0	0	\$0
5/18/2005	Hail	0.88	0	0	\$0
5/5/2007	Flash Flood		0	0	\$1,000
5/5/2007	Hail	0.75	0	0	\$0
5/5/2007	Thunderstorm Wind	65 kts MG	0	0	\$0

Section Seven: City of Tekamah Participant Section

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
5/6/2007	Thunderstorm Wind	50 kts EG	0	0	\$0
7/18/2007	Thunderstorm Wind	54 kts MG	0	0	\$0
8/28/2007	Thunderstorm Wind	55 kts MG	0	0	\$0
9/6/2007	Hail	1	0	0	\$0
5/6/2008	Thunderstorm Wind	51 kts MG	0	0	\$0
5/29/2008	Thunderstorm Wind	56 kts MG	0	0	\$0
5/29/2008	Thunderstorm Wind	61 kts MG	0	0	\$0
6/11/2008	Thunderstorm Wind	50 kts EG	0	0	\$0
7/12/2008	Thunderstorm Wind	52 kts EG	0	0	\$0
11/5/2008	Hail	0.75	0	0	\$0
4/23/2010	Hail	0.88	0	0	\$0
6/22/2010	Thunderstorm Wind	50 kts EG	0	0	\$0
8/8/2010	Thunderstorm Wind	52 kts MG	0	0	\$0
5/30/2011	Thunderstorm Wind	55 kts EG	0	0	\$0
6/1/2011	Hail	0.88	0	0	\$0
6/20/2011	Thunderstorm Wind	52 kts MG	0	0	\$0
6/26/2011	Thunderstorm Wind	60 kts MG	0	0	\$0
8/18/2011	Thunderstorm Wind	51 kts MG	0	0	\$0
6/14/2012	Hail	0.88	0	0	\$0
6/1/2014	Thunderstorm Wind	62 kts MG	0	0	\$0
6/3/2014	Thunderstorm Wind	76 kts MG	0	0	\$0
6/20/2014	Hail	1	0	0	\$0
5/10/2015	Thunderstorm Wind	56 kts MG	0	0	\$0
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>\$613,000</b>

Source: January 1996-July 2015 NCDC

in. = inches; kts = knots; EG = Estimated Gust; MG = Measured Gust

**RISK ASSESSMENT****HAZARD IDENTIFICATION**

The following table is a localized risk assessment of hazards identified specifically for Tekamah. Refer to the beginning of *Section Seven: Participant Sections* for a detailed explanation as to what this methodology is and why certain hazards did not pose a significant enough threat and were eliminated from detailed discussion.

**Table TKH.12: Risk Assessment**

<b>HAZARD TYPE</b>	<b>PREVIOUS OCCURRENCE Yes/No</b>	<b>LOCAL LOSSES</b>	<b>SPECIFIC CONCERNS IDENTIFIED</b>
<b>Agricultural Animal Disease</b>	Yes	-	None
<b>Agricultural Plant Disease</b>	Yes	-	None
<b>Chemical Spills (Fixed Site)*</b>	No	-	Public safety
<b>Chemical Spills (Transportation)*</b>	No	-	Public safety
<b>Civil Disorder</b>	No	-	None
<b>Dam Failure*</b>	No	-	Public safety; damage to facilities; economic impacts
<b>Drought</b>	Yes	-	None
<b>Earthquakes</b>	No	-	None
<b>Extreme Heat</b>	Yes	-	None
<b>Flooding</b>	Yes	\$501,000	Drainage issues; closed roads; residents living in flood-prone areas
<b>Grass/Wildfires</b>	Yes	-	None
<b>Hail*</b>	Yes	-	Damage to critical facilities
<b>High Winds*</b>	Yes	-	Damage to facilities; power outages
<b>Landslides</b>	No	-	None
<b>Levee Failure</b>	No	-	None
<b>Radiological Incident (Fixed Site)</b>	No	-	None
<b>Radiological Incident (Transportation)</b>	No	-	None
<b>Severe Thunderstorms</b>	Yes	\$112,000	Power outages; wind damage to facilities
<b>Severe Winter Storms</b>	Yes	-	None
<b>Terrorism</b>	No	-	None
<b>Tornados*</b>	Yes	-	Damage to facilities; power outages; public safety
<b>Urban Fire</b>	No	-	None

\*Identified by the planning team as a top concern for the jurisdiction

For more information regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community specific information as reported in the City of Tekamah Risk Assessment Summary, that is relevant to each hazard. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

**Chemical Spills (Fixed and Transportation)**

The local planning team identified chemical transportation and fixed chemical locations as top concerns for the city. The two facilities listed in Table TKH.6 are of greatest concern due to the storing of anhydrous ammonia. According to the Pipeline and Hazardous Materials Safety Administration, there have not been any chemical spills in Tekamah during transportation nor have there been any spills from storage locations. Residents near chemical storage fixed sites or along major transportation routes are not educated about the threat of a spill nor the appropriate response. The nearest Hazmat Response Team is located in Norfolk.

Implemented mitigation projects:

- Mutual aid agreements between fire departments
- Emergency Alert System used to notify public of hazards
- Emergency Operations Plan is in place through county plan

Identified mitigation projects:

- Conduct an emergency exercise on hazardous spills
- Install vehicle barriers
- Provide residents with educational materials

**Dam Failure**

There are three high hazard dams located near Tekamah. The P-MRNRD own the dams, and the community does have an evacuation plan if a dam was to fail. The Emergency Operations Plan and local planning team indicated that the entire community would likely be inundated if a dam was to fail. Emergency housing would likely be available if an event were to occur; however, the specific locations of facilities have not been identified.

**Table TKH.13: High Hazard Dams Tekamah**

NIDID	Dam Name	Location	Stream Name	Owner	Maximum Storage (acre-feet)	Last Inspection Date
NE01597	Tekamah-Mud Creek 22-A	Tekamah	Tekamah Creek	P-MRNRD	499	6/25/2015
NE01690	Tekamah-Mud Creek 5-A	Tekamah	Tekamah Creek	P-MRNRD	6,861	6/25/2015
NE03103	Silver Creek 11	Rural Tekamah	Silver Creek	P-MRNRD	1,317	6/25/2015

Source: NDNR

Implemented mitigation projects:

- The local emergency operations plan is in place with evacuation plan
- Emergency housing available during a failure

Identified mitigation projects:

- Conduct a dam failure exercise

**Flooding**

Although the local planning team did not identify flooding as a top hazard of concern at this time, there is a risk and vulnerability to the city due to the presence of the floodplain and previous flooding events. Tekamah Creek North Branch has a steep gradient that is a major factor in the nature of flooding in this area. Another potential cause of flooding is debris such as dead trees, branches and logs under bridges and

culverts east of the city, particularly on the Tekamah Creek North Branch. The most severe flooding of Tekamah generally occurs in May and June and is caused by heavy rains west of the city.

One flash flood event caused about a half million dollars in damages in Tekamah. Heavy rain totaling 3.00-6.00 inches fell across Burt County on August 6 into August 7, 1999. This caused extensive street flooding Tekamah. The primary damage came from the flooding of basements, but some damage was done to roads. The local planning team has identified poor stormwater drainage on the east side of town, especially along M Street.

Figure TKH.7 shows the HAZUS-MH modeled floodplain. (See the Flooding profile in *Section Four: Risk Assessment*.) Figure TKH.8 is the regulatory FIRM as provided by FEMA’s map service (<https://msc.fema.gov/portal>).

There are no repetitive flood loss properties in the City of Tekamah as of August 2014. Tekamah is a member of the NFIP with four policies in force totaling \$363,000 as of January 31, 2015.

**Table TKH.13: Improvements in the Floodplain**

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
\$1,200,005	12	43	27.9%

Source: GIS Workshop/Burt County Assessor

Implemented mitigation projects:

- Member of the NFIP

Identified mitigation projects:

- Drainage improvements to east side of town
- Enforce floodplain regulations

**Hail**

The local planning team identified hail as a top hazard of concern for the city. The NCDC reports 15 hail events since 1996 with the largest hail stone at 1.75 inches. The city’s critical facilities have not experienced damage from hail in recent memory. However, climatologically it is possible for hail to reach over 2.50 inches, which would cause significant damage to homes and critical facilities.

Implemented mitigation projects:

- Municipal facilities are insured for hail damage
- City has a local tree board for identifying hazardous trees
- Tekamah a member of Tree City USA for 28 years

Identified mitigation projects:

- Install hail resistant roofing and other building materials on critical facilities
- Install protective barriers for HVAC

**Tornados and High Winds**

The local planning team ranked tornados and high winds as a top hazard of concern for the city. There was one report of a tornado from 2001 that briefly touched down just west of Tekamah, and no damage was reported from the weak F-0 tornado. Several high wind events have occurred across the county and impacted Tekamah. The most recent event from March 2014 had wind speeds gusting over 60 mph as

reported by the Tekamah Airport. These high winds caused areas of tree damage and blowing dust, which could briefly reduce visibilities while driving. It is estimated that five percent of the power lines are buried in the city, which helps reduce the risk to power outages from tornados and high winds.

Implemented mitigation projects:

- Works with local power district to bury power lines
- Back-up power generators are available to critical facilities
- Mutual aid agreements with neighboring communities

Identified mitigation projects:

- Purchase weather radios for all critical facilities
- Upgrade, replace, and or add tornado sirens
- Provide public awareness and educational opportunities

Figure TKH.6: Tekamah Dam Locations

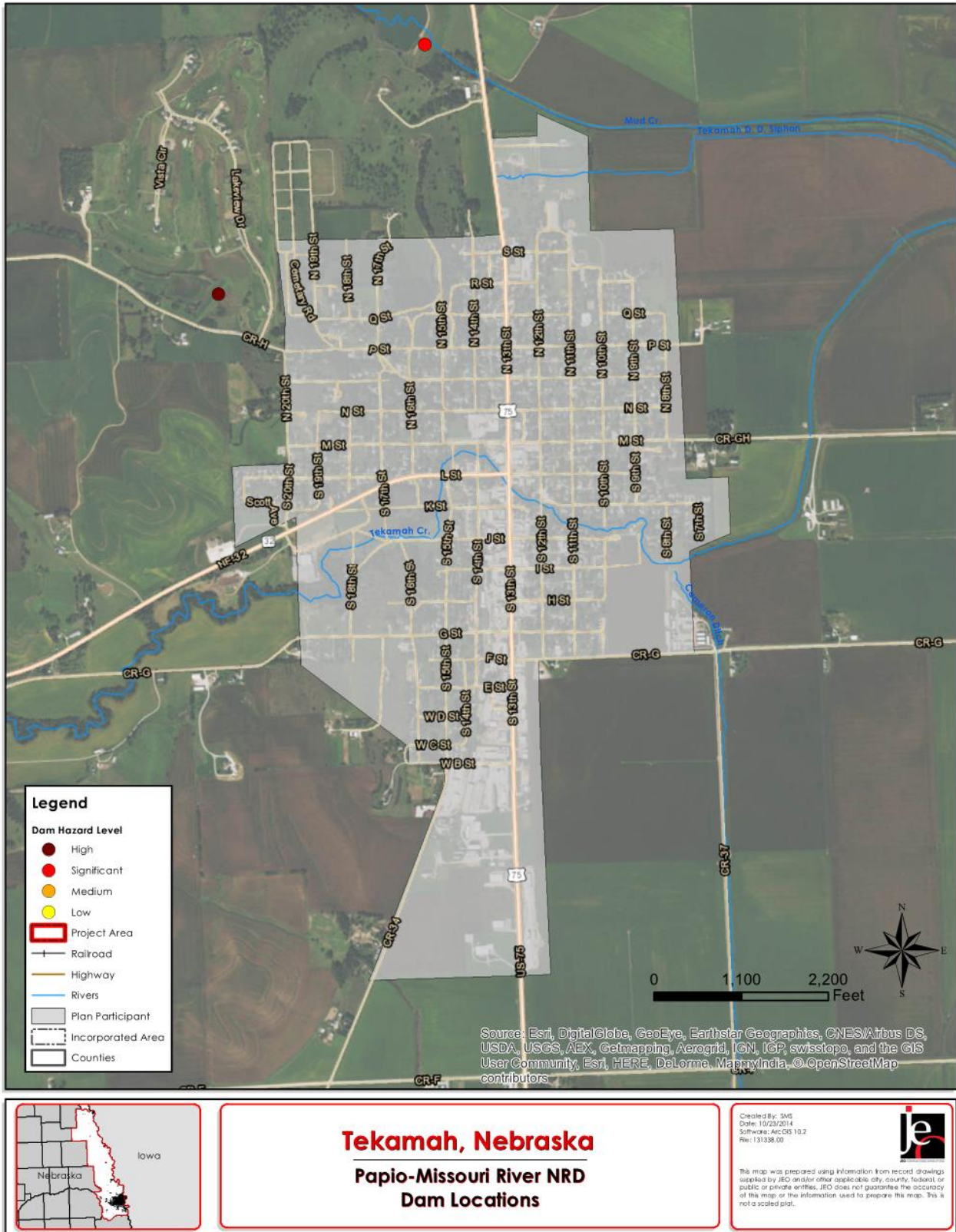


Figure TKH.7: HAZUS-MH 1% Annual Chance Floodplain

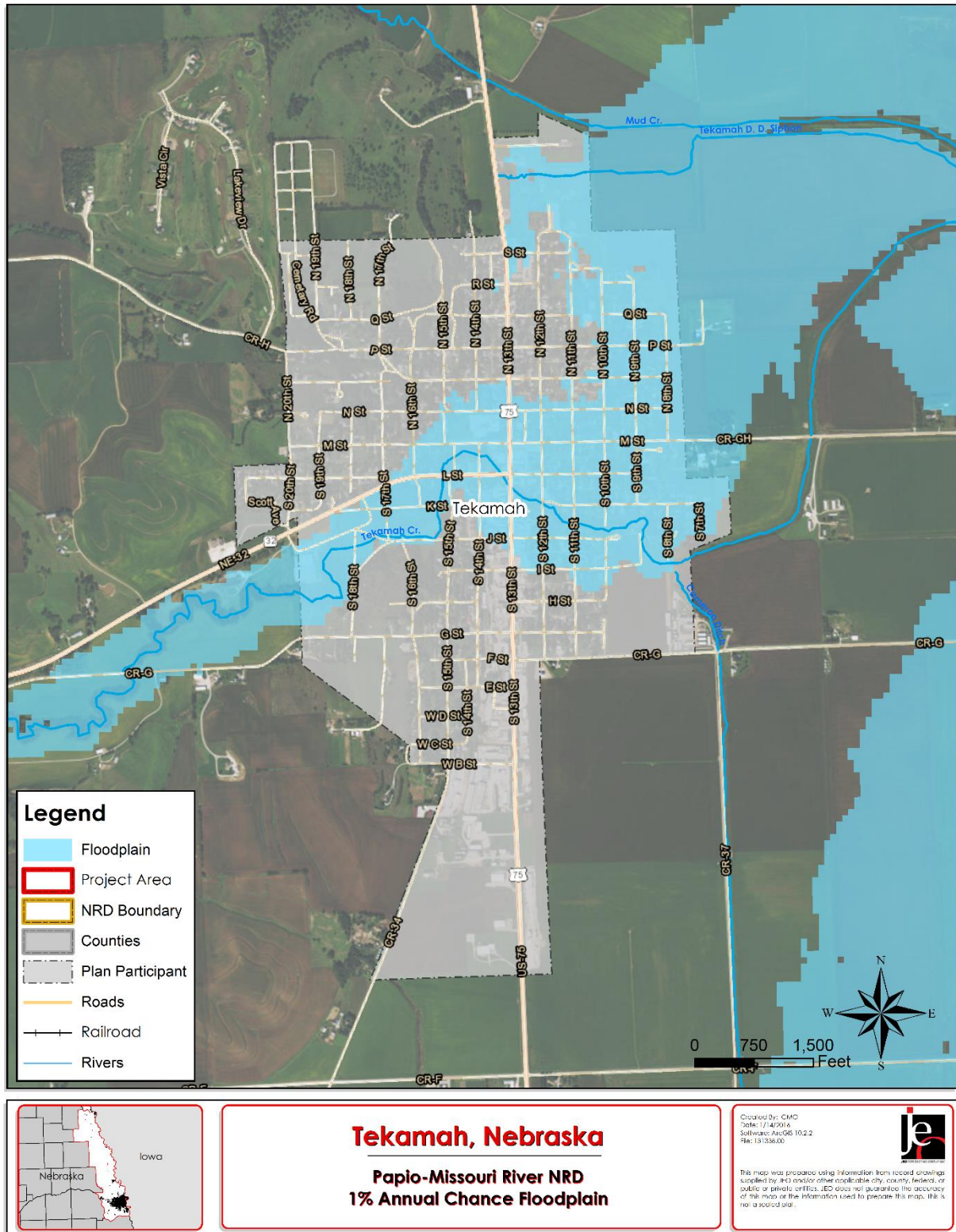
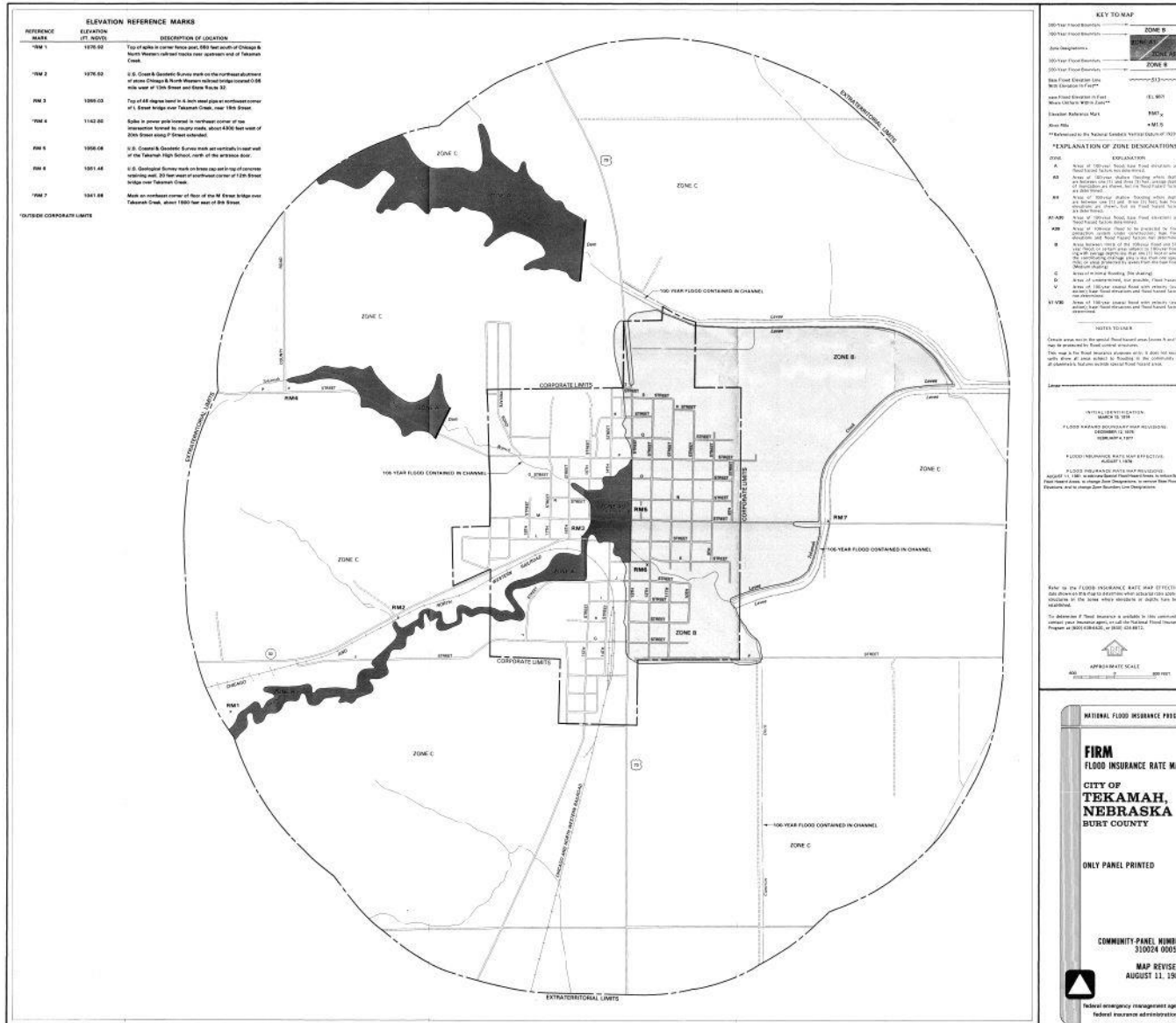




Figure TKH.8: Tekamah FIRM



**GOVERNANCE**

A community’s governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Tekamah is governed by a Mayor and a city council with four council members. The City of Tekamah has a number of offices or departments that may be involved in implementing hazard mitigation initiatives, which includes but is not limited to:

- Clerk/Treasurer
- City Administrator
- Public Works Supervisor
- Sanitation Director
- Police Department
- Volunteer Fire and Rescue Department
- Emergency Manager
- Water and Sewer Superintendent
- City Airport Manager
- Housing Authority
- Library
- Street Superintendent
- Municipal Solid Waste Superintendent
- Zoning Administrator and Building Inspector

**CAPABILITY ASSESSMENT**

The capability assessment consisted of two main components: a Capability Assessment Survey completed by the jurisdiction and a review of local existing policies, regulations, plans, and the programs. The survey is used to gather information regarding the jurisdiction’s planning and regulatory capability; administrative and technical capability; fiscal capability; and educational and outreach capability. The local planning team indicated that the community has limited funds to implement mitigation projects on their own.

**Table TKH.14: Capability Assessment**

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Under Development
	Economic Development Plan	No
	Emergency Operational Plan	Yes (County)
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	No
	Floodplain Management Plan	No
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes
	National Flood Insurance Program	Yes
	Community Rating System	No
Other (if any)		
Administrative and	Planning Commission	Yes

Survey Components/Subcomponents		Existing (Yes/No)
Technical Capability	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes – Region 5/6
	GIS Coordinator	No
	Chief Building Official	Yes
	Civil Engineering	No
	Staff Who Can Assess Community’s Vulnerability to Hazards	Yes
	Grant Manager	No
	Other (if any)	
Fiscal Capability	Capital Improvement Project Funding	No
	Community Development Block Grant	Yes
	Authority to Levy Taxes for Specific Purposes	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education and Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Public-private partnership initiatives addressing disaster-related issues	No
	Other (if any)	

***PLANS, DOCUMENTS, AND INFORMATION USED***

Throughout the planning process, a number of studies, reports, and technical information have been used to develop the plan. A listing of general sources of information used for all sections of the plan is listed in *Section 2: Planning Process*. Below is a list of specific sources used to establish Tekamah’s participant section.

**Table TKH.15: Sources, Plans, Reports, and Regulations**

Source/Report/Regulation	Date Completed
Local Emergency Operations Plan (LEOP)	2009

***PLAN INTEGRATION***

Building safe and smart communities can be accomplished through effective Plan integration. Integrating hazard mitigation principles into other local planning mechanisms, such as plans addressing land use, transportation, climate change, sustainability, natural and cultural resource protection, watershed management, economic development and others can greatly increase an area’s level of resiliency. While this HMP planning process involved interdepartmental coordination at the local level, this planning process

also sought to analyze how existing planning mechanisms were presently integrated and make suggestions for further integration. The plans listed in the preceding table were analyzed using guidance from FEMA’s 2014 *Plan Integration Guide*. The following paragraph presents a summary of the findings of this analysis.

The Local Emergency Operations Plan (LEOP) for Tekamah, which was last updated in 2009, is an annex of Burt County’s LEOP. It is an all-hazards plan that does not address specific natural and man-made disasters. It provides a clear assignment of responsibility in case of an emergency.

## **MITIGATION STRATEGY**

### **New Mitigation Actions**

<b>Description</b>	<b>Construct a Safe Room</b>
Analysis	Design and construct a safe room in highly vulnerable areas, including the baseball fields and pool area
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornados, High Winds, Hail, Severe Thunderstorms
Estimated Cost	\$200-\$300/sf stand alone; \$150-200/sf addition/retrofit
Funding	City funds, HMGP, PDM
Timeline	3-5 years
Priority	Medium
Lead Agency	Emergency Management and Zoning Administrator
Status	Not started

<b>Description</b>	<b>Mobile Home Anchoring</b>
Analysis	Require mobile homes located in the jurisdiction to be properly anchored
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	Tornados, High Winds, Severe Thunderstorms
Estimated Cost	N/A
Funding	N/A
Timeline	1-3 years
Priority	High
Lead Agency	Zoning Administrator
Status	Not started

<b>Description</b>	<b>Bury Power Lines</b>
Analysis	Require powerlines installed as a part of new construction to be buried
Goal/Objective	Goal 2/Objective 2.1
Hazard(s) Addressed	Tornados, High Winds, Severe Thunderstorms, Severe Winter Storms
Estimated Cost	Unknown
Funding	City funds
Timeline	1-3 years
Priority	High
Lead Agency	Zoning Administrator and Public Works
Status	Not started

<b>Description</b>	<b>Maintain Good Standing in the NFIP</b>
Analysis	Maintain good standing with National Flood Insurance Program (NFIP) including floodplain management practices/ requirements and regulation enforcements and updates.
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flooding

<b>Description</b>	<b>Maintain Good Standing in the NFIP</b>
Estimated Cost	N/A
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator
Status	Ongoing