FEBRUARY 2016

WASHINGTON COUNTY APPENDIX

PAPIO-MISSOURI RIVER NRD MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

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CONTENTS

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 Washington 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

WASHINGTON 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 the Washington 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 WNC.1 provides the list of participating members that comprised the Washington 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 WNC.1: Washington County Local Planning Team

Name	Title	Department / Jurisdiction
Bill Pook	Director	Region 5/6 Emergency Management
Tanna Wirtz	Planning Administrator	Washington County
Paul Cerio	District 1 Supervisor	Washington County

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.

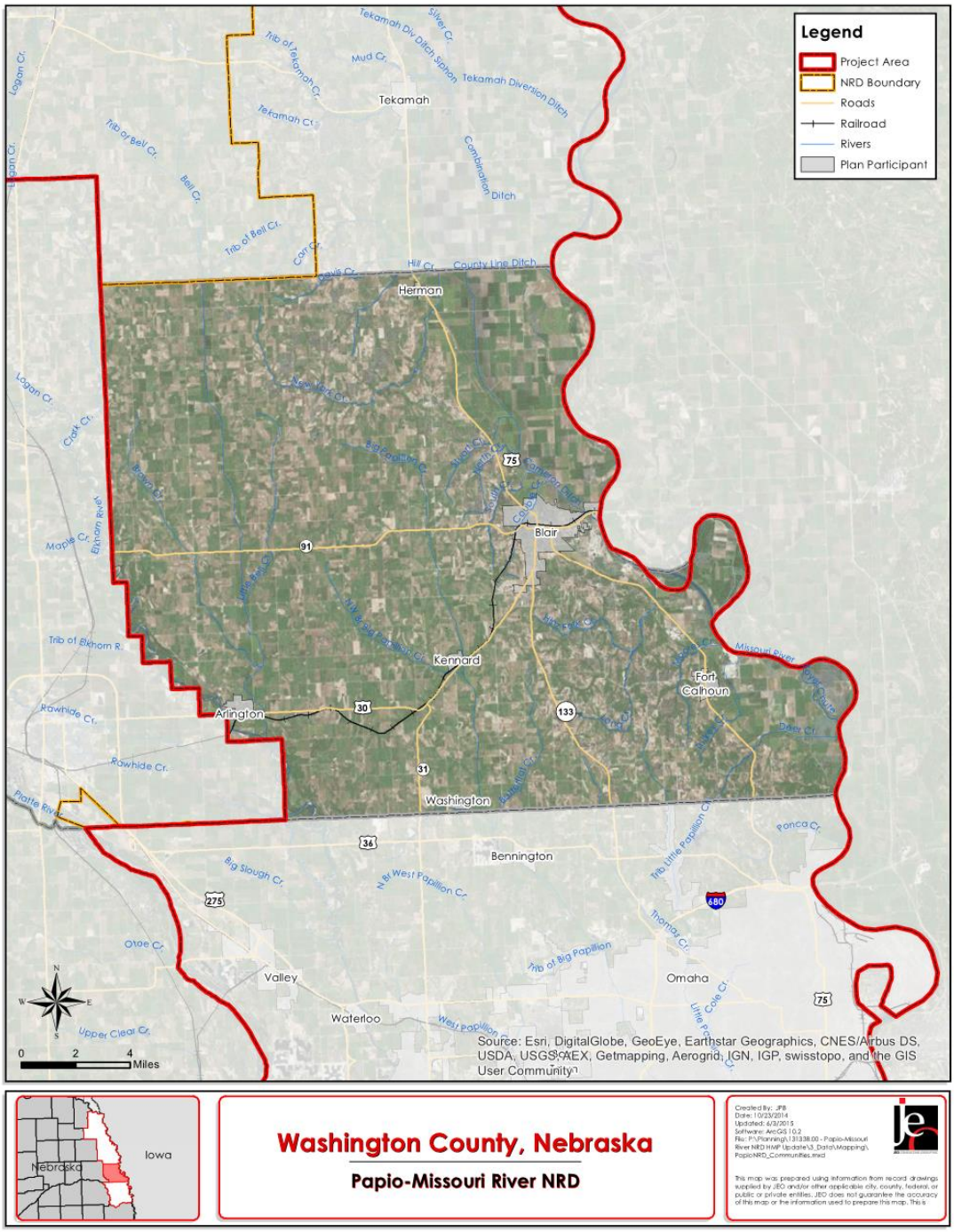
Table WNC.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
April 14, 2015	Passed Resolution of Participation	County Board Meeting
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

Washington County is located in eastern Nebraska and is bordered by Burt, Dodge, and Douglas Counties in Nebraska, and Harrison and Pottawattamie Counties in Iowa. The total area of Washington County is 393 square miles. Major waterways within the county include the Missouri River, which forms the eastern border of the county, the Elkhorn River to the southeast, Bell Creek, and Big Papillion Creek. The vast majority of the county's land is characterized by agricultural fields.

Figure WNC.1: Washington County Map



CLIMATE

For Washington County, the normal high temperature for the month of July is 85.7 degrees and the normal low temperature for the month of January is 13.0 degrees. On average, Wasahington County gets 31.7 inches of rain and 28.7 inches of snowfall per year. The following table compares these climate indicators with those of the planning area and entire state.

Table WNC.3: Climate Data for Washington County

Age	Washington County	Planning Area	State of Nebraska
July Normal High Temp	85.7°F	85.6°F	88.0°F
January Normal Low Temp	13.0°F	11.8°F	12.0°F
Annual Normal Rainfall	31.69 inches	30.64 inches	30.3 inches
Annual Normal Snowfall	28.7 inches	31.2 inches	25.9 inches

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

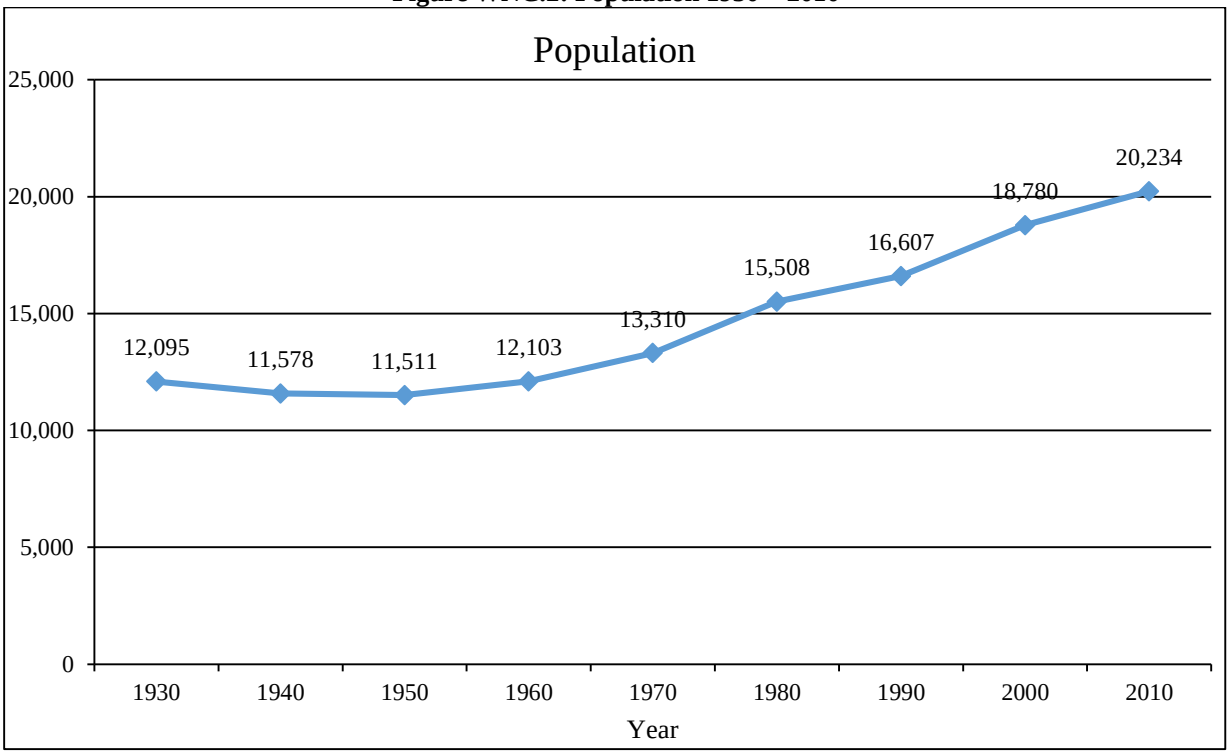
TRANSPORTATION

Washington County's major transportation corridors include U.S. Highways 30 and 75 and Nebraska Highways 31, 91, and 133. The county also has the Blair Municipal Airport and several small privately owned airstrips throughout the county. The Union Pacific Railroad has a rail line that travels through Arlington, Kennard, and Blair. 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 Washington County has been increasing since 1950. When population is increasing, areas of the county may experience housing developments. Increasing populations can also represent increasing tax revenue for the county which could make implementation of mitigation actions possible.

Figure WNC.2: Population 1930 – 2010



Source: U.S. Census Bureau

The following table indicates the State of Nebraska has a higher percentage of people under the age of 5 than Washington County. However, Washington County has a slightly higher percentage of residents over the age of 64. 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 WNC.4: Population by Age

Age	Washington County	State of Nebraska
<5	5.6%	7.2%
5-64	79.8%	79.2%
>64	14.6%	13.6%
Median	41.0	36.2

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

The following table indicates that the median household income is significantly higher than the State of Nebraska's median income, and the per capita income is also higher than the state. This trend continues with the median home value and median rent being higher than the state as a whole. 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 level of resiliency during hazardous events.

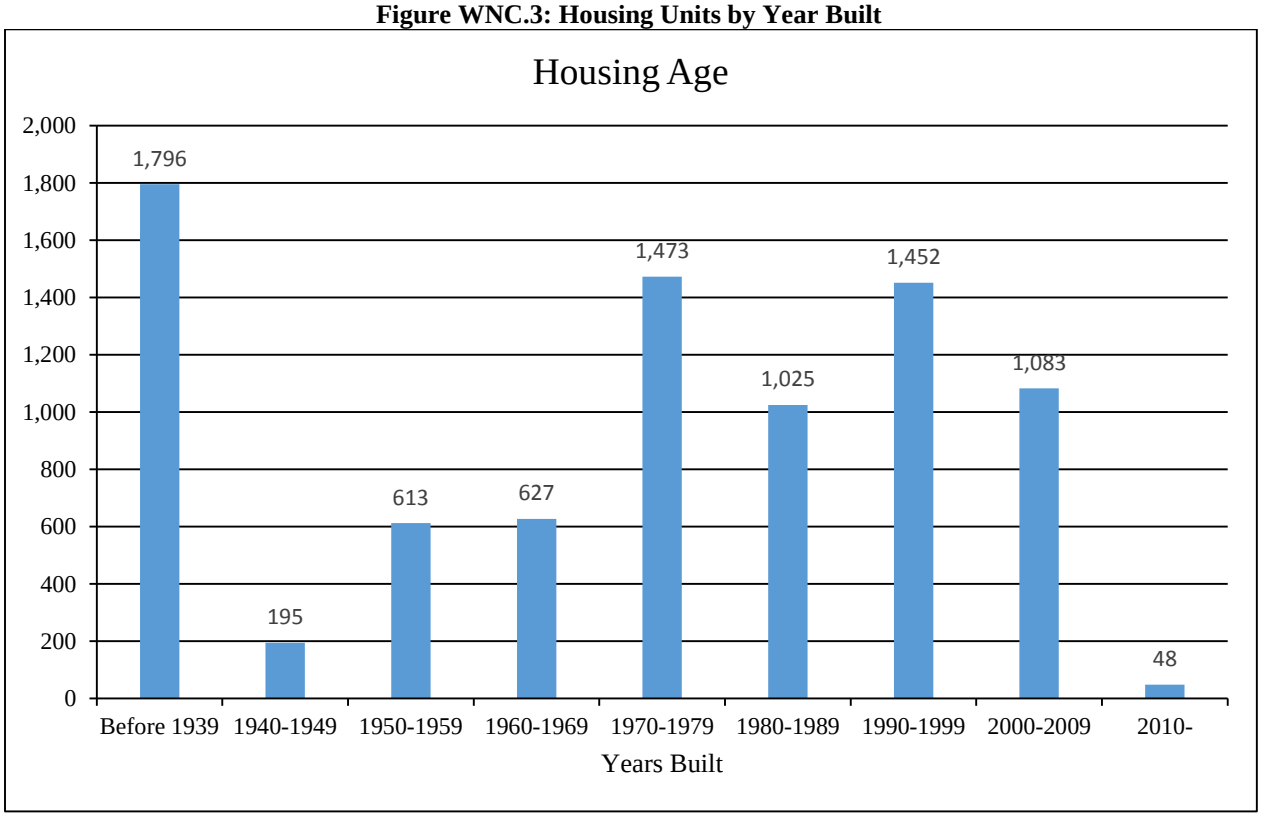
Table WNC.5: Housing and Income

	Washington County	State of Nebraska
Median Household Income	$65,409	$51,672
Per Capita Income	$29,328	$26,899
Median Home Value	$169,700	$128,000
Median Rent	$722	$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 Washington County was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the county has 8,312 housing units with 92 percent of those units occupied. The initial Flood Insurance Rate Map (FIRM) was identified on February 2, 1981. Housing built prior to 1981 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. There are approximately 283 mobile homes in the county. Mobile homes and RV parks are located along the Missouri River in Washington County.

Figure WNC.3: Housing Units by Year Built



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

Table WNC.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Washington County	7,761	93.5%	540	6.5%		6,081	78.4%	1,680	21.6%
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, Washington County had 562 business establishments. The following table presents the number of establishments, number of paid employees, and the annual pay role in thousands of dollars. This information is relevant to hazard mitigation insofar as it indicates the diversification of industry. 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 WNC.7: Business in Washington County

	Total Businesses	Number of Paid Employees	Annual Payroll (in thousands)
Total for all Sectors	562	6,585	287,767

Source: U.S Census 2012, Table CB1200A11

Agriculture is also important to the economic fabric of Washington County, and the state of Nebraska as a whole. Washington County's 821 farms cover 248,088 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 WNC.8: Washington County Agricultural Inventory

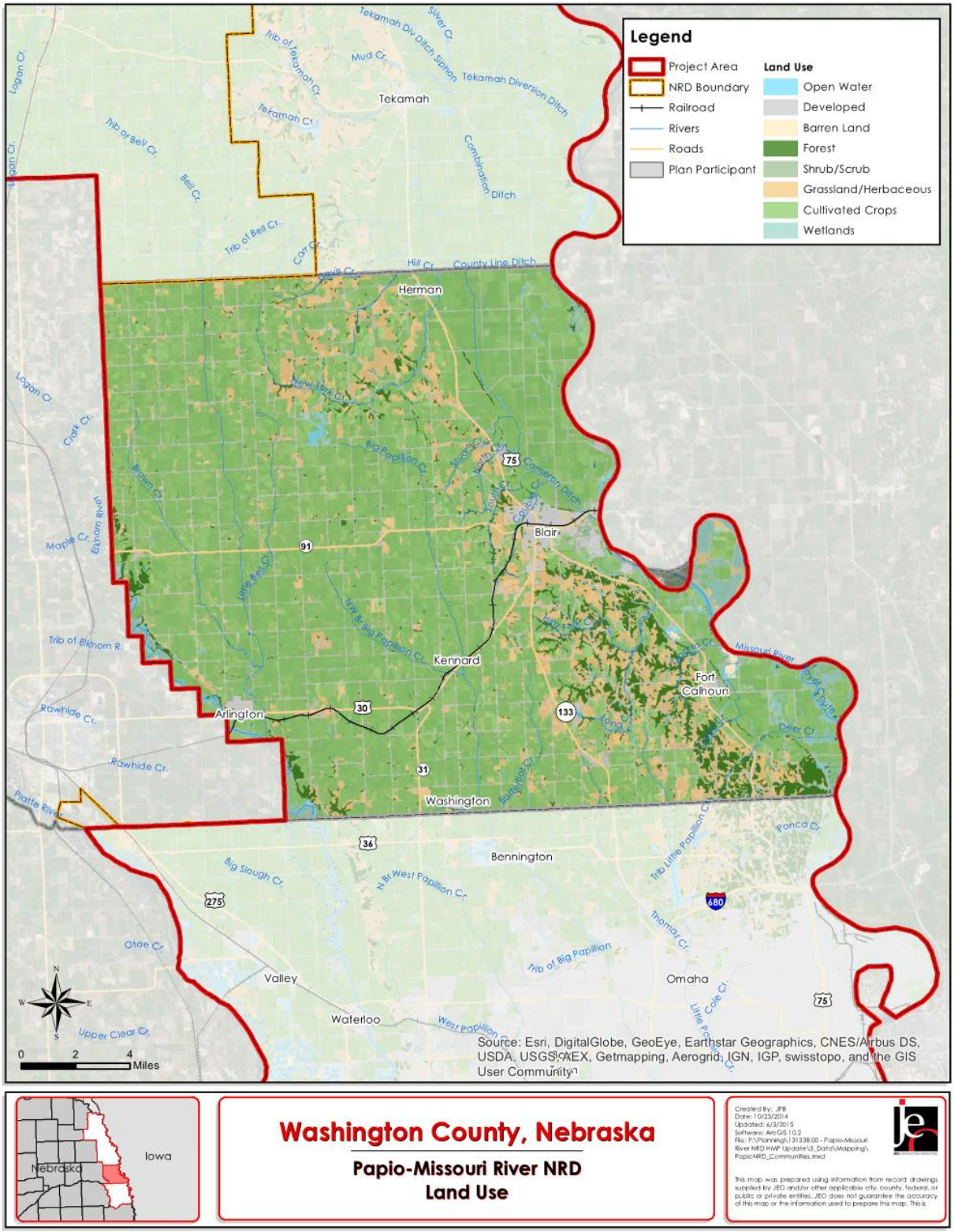
Washington County Agricultural Inventory	
Number of Farms	821
Land in Farms	248,088 acres

Source: USDA 2012 Census of Agriculture

FUTURE DEVELOPMENT TRENDS

According to the 2011 hazard mitigation plan, planned development was anticipated in rural acreages in the southeastern portion of the county, north of Omaha between the cities of Blair, Fort Calhoun, Kennard, and Washington. Washington County will likely continue to experience slow and steady growth as Omaha grows north.

Figure WNC.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 WNC.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
12,195	$2,260,447,290	$185,359	2,549	$683,930,330

Source: GIS Workshop/Washington 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 14 chemical storage sites in Washington County that house materials that are categorized as hazardous. According to the local planning team, information is provided to residents near chemical storage sites to educate them about the threat and appropriate response.

Table WNC.10: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
AT&T Microwave Tower 0540	County Road 15, Arlington	Sulfuric Acid
Blair Potable Water Treatment	742 E Fairview Dr., Blair	Chlorine
CF Industries Sales LLC	250 S. Industrial Park Dr., Blair	Anhydrous Ammonia
Cargill Inc.	650 Industrial Park Dr., Blair	Sulfuric Acid
Evonik Corporation	650 Industrial Park Dr., Blair	Anhydrous Ammonia, Sulfuric Acid
Gerhold Concrete Co	201 Industrial Park Dr., Blair	Formaldehyde Solution
Monke Bros Fertilizer	7098 County Road 15, Arlington	Anhydrous Ammonia
Nature Works LLC	650 Industrial Park Dr., Blair	Sulfuric Acid
Novozymes Blair Inc.	600 S. 1st St., Blair	Sulfuric Acid
OPPD Fort Calhoun Station	9610 Power Ln, Blair	Sulfuric Acid, Hydrazine Aqueous Solution
OPPD Substation No. 1226	State Highway 91, Blair	Sulfuric Acid
OPPD Substation No. 1298	County Road P35A, Blair	Sulfuric Acid
PURAC America Inc South	650 Industrial Park Dr., Blair	Sulfuric Acid
Verizon Wireless 19th & Colfax	1617 State St., Blair	Sulfuric Acid

Source: Nebraska Department of Environmental Quality

Historic Sites

According to the National Register of Historic Places for Nebraska, there are 6 historic sites located in Washington County.

Table WNC.11: National Historic Registry

Site Name	Date Listed	In Floodplain?
Engineer Cantonment	11/17/2015	Y
Frank Parker Archeological Site	3/4/2009	Y
Fort Atkinson State Historical Park	10/15/1966	Y

Site Name	Date Listed	In Floodplain?
Bertrand Steamboat Site	3/24/1969	Y
Long Creek School District 8	2/23/2001	N
Old McDonald Farm	7/5/2001	Unknown
Washington County Courthouse	1/10/1990	N

Source: Nebraska State Historical Society

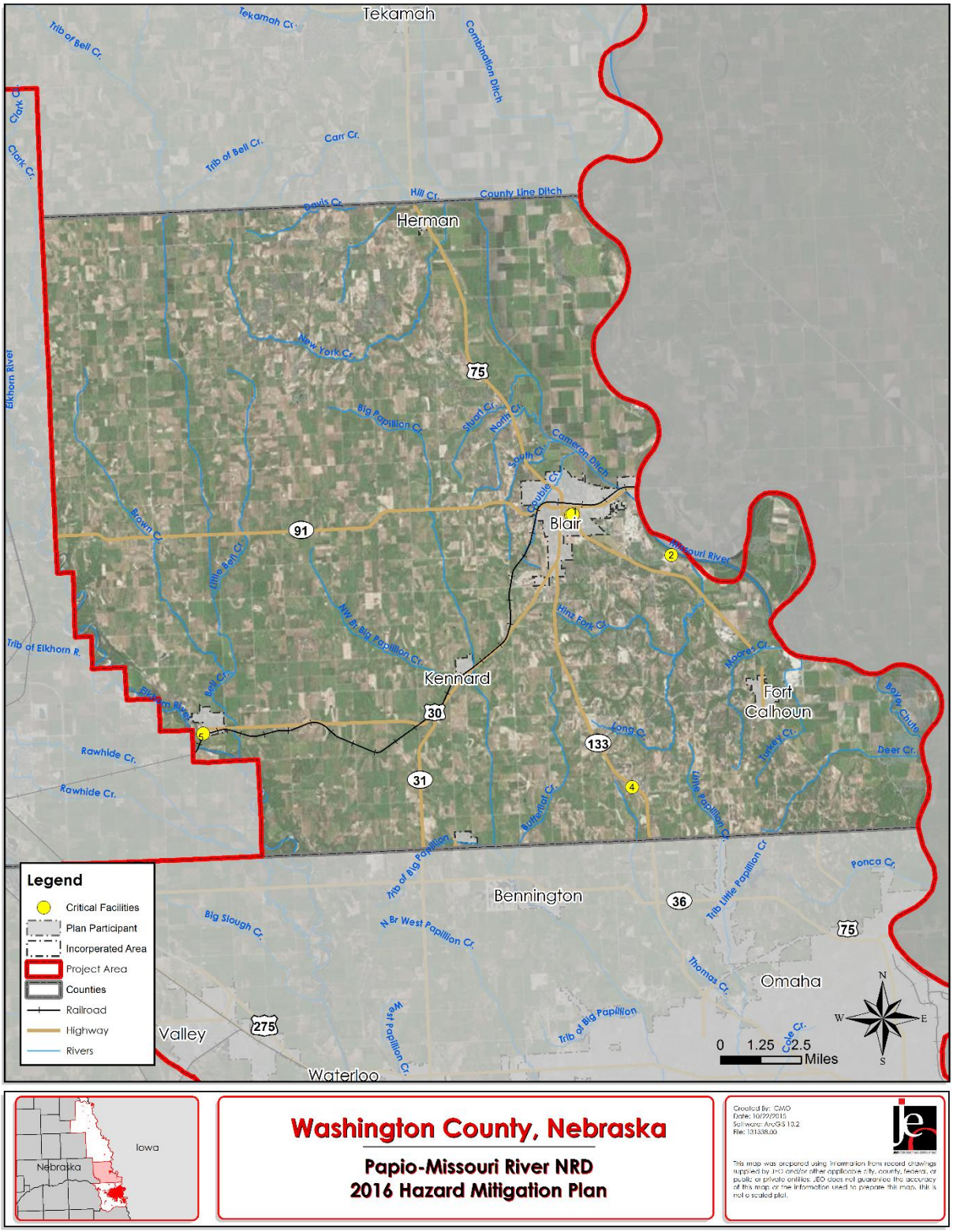
Critical Facilities

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 jurisdiction. Critical facilities for Washington County are located primarily in the county's incorporated communities.

Table WNC.12: List of Critical Facilities in Washington County

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	County Law Enforcement	Washington County Sheriff	1535 Colfax Street	N	Y	N
2	Power Plant	Fort Calhoun Nuclear Power Plant	Power Lane, Blair	N/A	N/A	Y
3	County Facility	Washington County Courthouse	1555 Colfax St, Blair	N	Y	N
4	Airport	Blair Municipal Airport	2735 NE-133, Blair	N	N	N
5	County Fairgrounds	Washington County Fairgrounds	23656 U.S. HWY 30, Arlington	N	N	Y

Figure WNC.6: 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 102 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 WNC.13: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
7/5/1998	Flash Flood	-	0	0	$240,000
		Total	**0**	**0**	**$240,000**

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 WNC.14: USDA RMA Severe Weather Events

Hazard	Number of Claims	Total Crop Damage	Average Annual Damage	Average Damage Per Event
Crop Disease	1	$10,225.00	$10,225.00	$10,225.00
Drought	79	$27,526,986.88	$1,835,132.46	$348,442.87
Extreme Heat	23	$1,31,377.65	$91,425.18	$59,625.12
Flooding	53	$7,767,901.81	$517,860.12	$146,564.19
Hail	64	$7,271,514.00	$484,767.60	$113,617.41
High Wind	11	$230,875.00	$15,391.67	$20,988.64
Severe Thunderstorms	121	$5,039,496.42	$335,966.43	$41,648.73
Severe Winter Storms	21	$68,025.00	$4,535.00	$3,239.29
Tornado	0	$0.00	$0.00	$0.00
Totals	**373**	**$49,286,401.576**	**$366,144.83**	**$82,705.69**

Source: 2000-2014 USDA RMA

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Washington 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 WNC.15: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	Yes	$10,225.00	Economic impacts
Agricultural Plant Disease	Yes	-	Economic impacts
Chemical Spills (Fixed Site)	No	-	Public safety; possible evacuations
Chemical Spills (Transportation)*	Yes	-	Public safety; road closures; possible evacuations
Civil Disorder	No	-	None
Dam Failure	No	-	Public safety; flooding; property damage
Drought	Yes	$27,526,986.88	Water supply
Earthquakes	No	-	None
Extreme Heat	Yes	$1,31,377.65	Vulnerable populations
Flooding*	Yes	$8,007,901.81	Property damage; public safety; road closures; economic impacts
Grass/Wildfires	Yes	-	None
Hail*	Yes	$7,271,514.00	Property damage
High Winds	Yes	$230,875.00	Property damage; power outages
Landslides	No	-	None
Levee Failure	No	-	None
Radiological Incident (Fixed Site)*	No	-	Public safety; evacuations; flooding concerns
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms	Yes	$5,039,496.42	Power outages; flooding; property damages
Severe Winter Storms*	Yes	$68,025.00	Power outages; road closures; economic impacts
Terrorism	No	-	None
Tornados*	Yes	-	Public safety; power outages; property and critical facility damages; economic impacts
Urban Fire	Yes	-	Public safety; property damage

**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 provides county specific information, reported in Washington County Risk Assessment Summary that is relevant to each hazard.

Dam Failure

Although not identified as a hazard of top concern, there are a total of 34 dams in Washington County, one of which is a high hazard dam. The local planning team identified that there is a safety plan in place, and that emergency housing would be available for displaced residents. There have been no dam failures in Washington County.

According to the Nebraska Department of Resources, a high hazard dam classification means the failure or misoperation of the dam resulting in loss of human life is probable. A significant hazard dam classification means the failure or misoperation of the dam would result in no probable loss of human life but could result in major economic loss, environmental damage, or disruption of lifeline facilities.

Table WNC.16: Dams in Washington County

	Number of Dams	Low	Significant	High
Washington County	34	29	4	1
Planning Area	150	102	13	35

Source: NDNR

Table WNC.17: High Hazard Dam in Washington County

NIDID	Dam Name	Location	Stream Name	Owner
NE01883	Papio Creek W-3	Kennard	Tr-Big Papio Creek	P-MRNRD

Source: NDNR

Implemented mitigation actions:

- Dams are regularly inspected and maintained

Identified mitigation actions:

- Provide educational outreach opportunities
- Construct short term residency shelters
- Conduct a table-top exercise

Flooding

The local planning team identified flooding as a hazard of top concern for the county. Significant flooding occurred in Washington County 2011 and 2014. In 2011, the Missouri River flooding affected much of the planning area, including Washington County. According to the NCDC, a flash flood in 1998 caused $240,000 in damages.

Washington County is a member of the NFIP with 29 policies in force for a total of $5,946,000. There are 8 repetitive flood loss properties, 7 single family homes and 1 assumed condo, in unincorporated areas of Washington County.

Table WNC.18: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in County	Percentage of Affected Improvements
$683,930,330	2,549	12,195	20.9%

Source: GIS Workshop/Washington County Assessor

Implemented mitigation actions:

- Member of the NFIP

Identified mitigation actions:

- Complete a flood mitigation study of Bell Creek
- Enforce floodplain regulations
- Provide educational outreach opportunities

Hail

Hail was identified as a top concern due to the property damages that can incurred from large hail. On June 3, 2014 there was a significant hail event where hail sizes ranged from 2.50 to 4.75 inches. Unincorporated areas of Washington County suffered significant crop damage and farm houses and outbuildings also had damages to siding, roofs, vehicles, and windows. Although there were no reported damages to the NCDC, the local planning team indicated there have been significant damages to property and critical facilities throughout the county with damages likely well into the millions of dollars. County facilities are insured through the Nebraska Intergovernmental Risk Management Association.

Implemented mitigation actions:

- County facilities are insured for hail damage

Identified mitigation actions:

- Consider installing hail resistant material on roofs

Radiological Incidents (Fixed Site)

The Fort Calhoun Nuclear Power Plant is located in Washington County. The local planning team identified concerns that the plant is easily susceptible to flooding. In 2011, the Missouri River flooded and surrounded the nuclear plant with water. The plant was shut down as a precautionary measure and was able to keep water out using an inflatable berm. After this incident, the owner of the plant, Omaha Public Power District has implemented a number of measures to reduce the impact of any future flood event. For additional information regarding the Fort Calhoun Nuclear Power Plant, please refer to *Section Four: Risk Assessment*.

Implemented mitigation actions:

- Emergency exercises are conducted regularly

Identified mitigation actions:

- Provide shelter in place training
- Provide educational outreach opportunities

Severe Winter Storms

Severe winter weather happens every year in Washington County and the rest of the planning area. The last significant event occurred during the holiday season of 2009. Heavy snow along with strong winds gusting over 40 mph caused heavy drifting and blowing snow across the county. This forced the closure of many roads and many people were trapped when their vehicles got stuck in the large snow drifts. There has been no structural damages to critical facilities due to severe winter storms. Snow removal resources are determined to be sufficient for local events.

Implemented mitigation actions:

- Sufficient snow removal equipment

Identified mitigation actions:

- Provide educational outreach opportunities
- Obtain back-up power generators for critical facilities

Figure WNC.7: Dam Locations

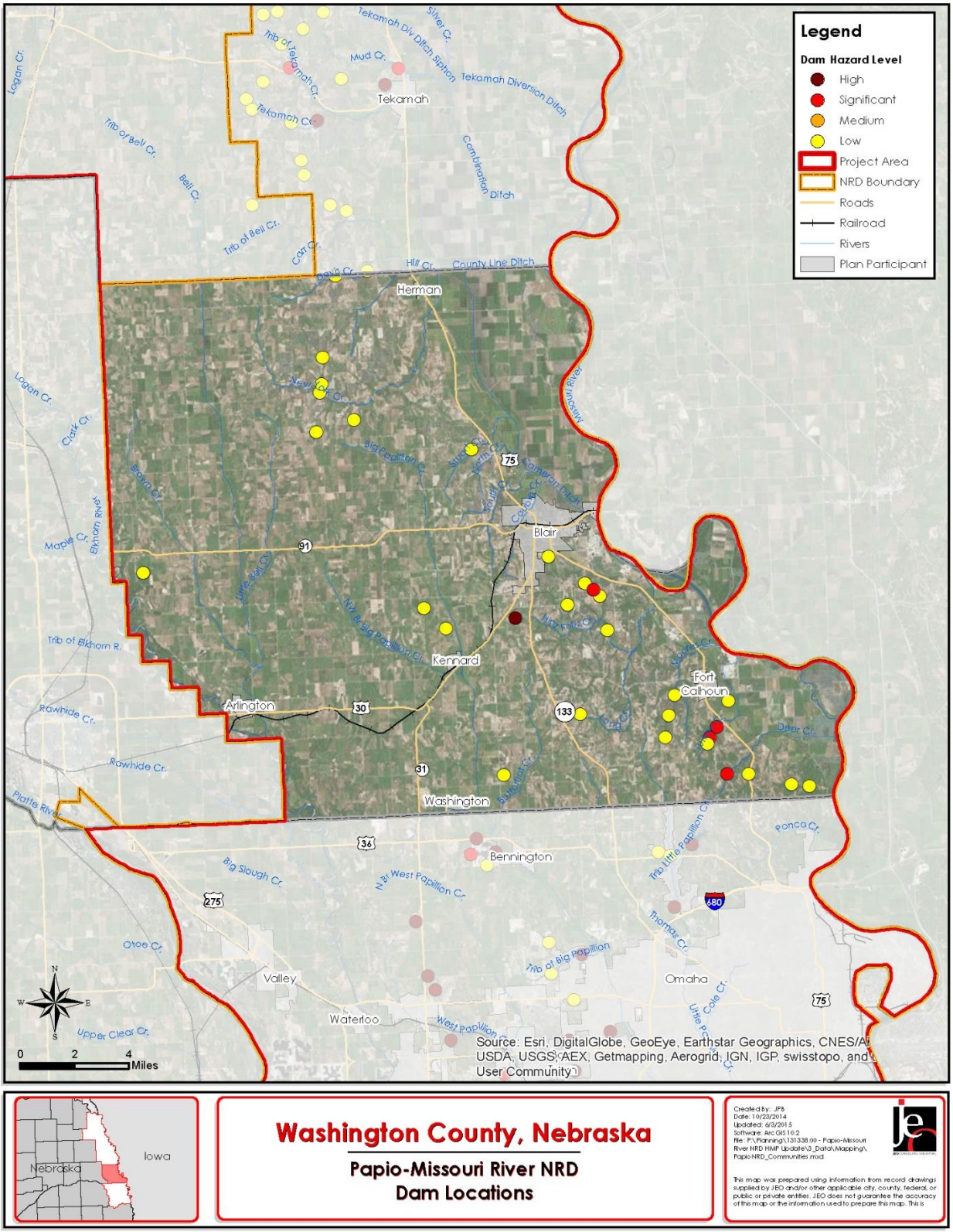
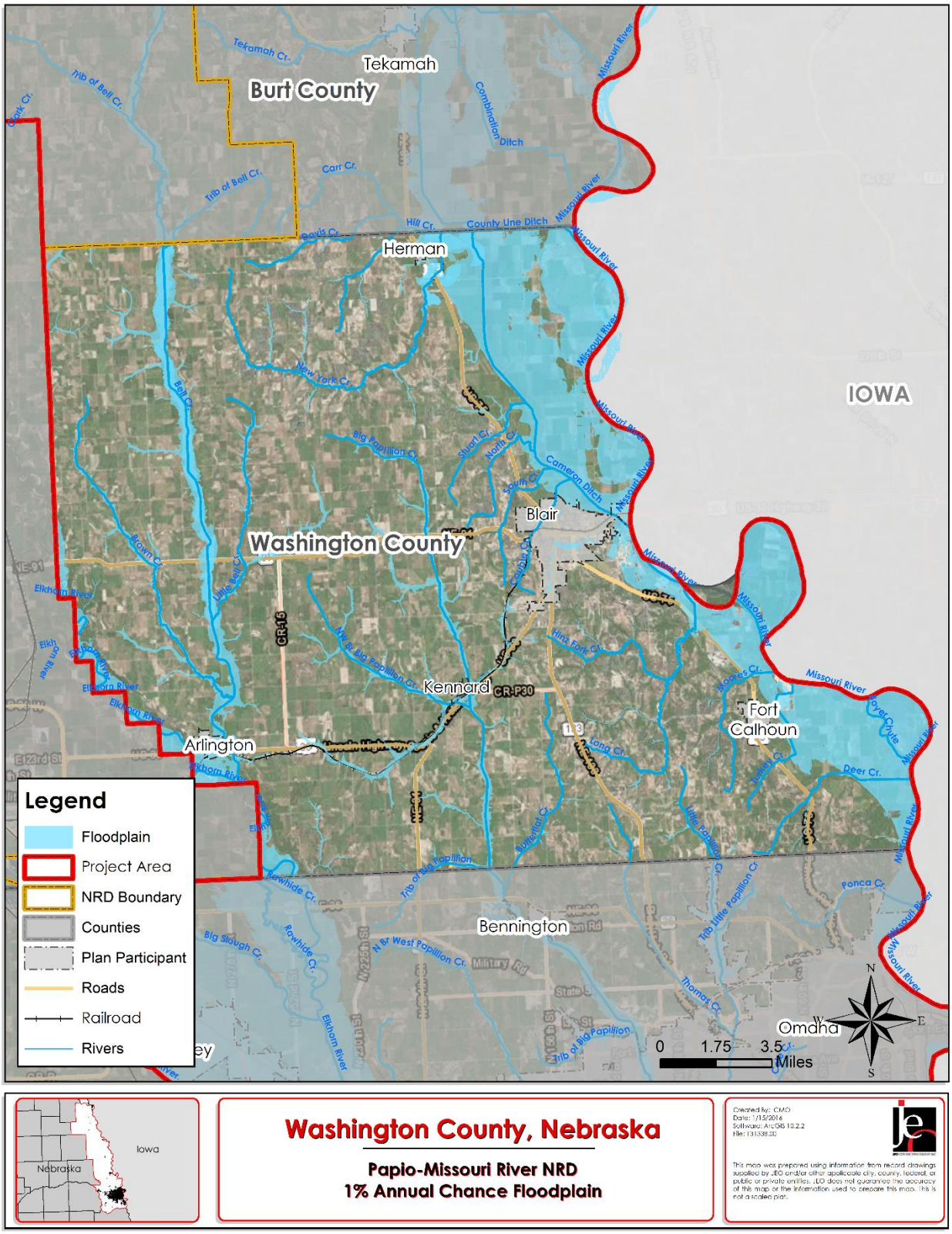


Figure WNC.8: Washington County 1% Annual Chance Floodplain



Tornados
There has not been a significant event in the last couple of years. However, the potential for significant damages and loss of life caused the local planning team to determine this hazard as a significant concern. The county does not have a safe room for residents to take shelter during a tornado or high wind event. Region 5/6 Emergency Management engages residents with several educational outreach activities throughout the year.

Implemented mitigation actions:
- Weather radios are available in critical facilities
- Reverse 911 is available in the county

Identified mitigation actions:
- Construct safe rooms
- Replace weather radios as needed
- Obtain back-up power generators for critical facilities

GOVERNANCE
A community's governance structure impacts its capability to implement mitigation actions. Washington County is governed by a 7 member board of supervisors. The county also has the following offices and departments:

- County Clerk
- County Assessor
- County Treasurer
- Attorney
- Clerk District Court
- Election Commissioner
- Emergency Manager
- Highway Superintendent
- Planning and Zoning Administrator
- Register of Deeds
- Sheriff
- Surveyor
- Veterans Services Officer
- Weed Superintendent

According to the 2012 Census of Governments, there are 35 total general or special purpose governments located in Washington 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 WNC.12: Governments in Washington County

Level	Number
County	1
Municipal	6
Town or Township	5
Special District	20
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 WNC.19: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	Yes
	Floodplain Management Plan	Yes
	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 Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes
	GIS Coordinator	Yes
	Chief Building Official	Yes
	Civil Engineering	Yes
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	No
	Other (if any)	
Fiscal Capability	Capital Improvement Project Funding	Yes
	Community Development Block Grant	No
	Authority to Levy Taxes for Specific Purposes	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	Yes
	General Obligation Revenue or Special Tax Bonds	Yes
	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.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes

Survey Components/Subcomponents		Existing (Yes/No)
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Public-private partnership initiatives addressing disaster-related issues	Yes
	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 Washington County's participant section.

Table WNC.20: Sources, Plans, Reports, and Regulations

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

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.

Washington County participated in the 2011 Papio-Missouri River NRD Hazard Mitigation Plan, which was an update to the original 2006 plan. The 2011 HMP was referred to throughout the development of the 2016 HMP update.

The LEOP, which was last updated in 2011, is an all-hazards plan that provides clear assignment of responsibility in case of an emergency. It includes, as annexes, LEOPs for the Cities of Blair and Fort Calhoun, and the Villages of Arlington, Herman, Kennard, and Washington.

Completed Mitigation Actions

Description	Provide Adequate Emergency Notification System
Analysis	Improve city cable TV interrupt warning system and implement telephone interrupt system such as Reverse 911, emergency text
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	Flood
Location	Countywide
Funding	Private funds
Year Completed	2015

Description	Establish Safe Evacuation Routes
Analysis	Create an evacuation plan with safe emergency roadways and a safe destination with a safe second exit
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	All
Location	Countywide
Funding	Local emergency management budget
Year Completed	2014

Description	Remap Washington County Floodplains
Analysis	Update Washington County FIRM maps
Goal/Objective	Goal 1/ Objective 1.1
Hazard(s) Addressed	Flood
Location	Countywide
Funding	FEMA
Year Completed	2012

Ongoing or New Mitigation Actions

Description	Emergency Power Generation for Critical Facilities
Analysis	Provide backup power for critical facilities
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All
Estimated Cost	$100,000
Funding	HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	911, Region 5/6 EMA
Status	Generators available at the Courthouse and Sherriff's Department.

Description	Increase Public Awareness of Tornado/High Wind/Flood Mitigation
Analysis	Through activities such as outreach projects and distribution of maps increase public awareness of hazards and can include purchasing equipment.
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	Tornado, High Wind, Flood
Estimated Cost	$10,000
Funding	Local funds
Timeline	Ongoing
Priority	High
Lead Agency	Region 5/6 EMA
Status	Ongoing

Description	Complete Flood Mitigation and Watershed Study for the Bell Creek
Analysis	Preliminary flood mitigation and watershed study to identify and prioritize improvements to address flooding/watershed issues for Bell Creek
Goal/Objective	Goal 3/ Objective 3.3
Hazard(s) Addressed	Flood
Estimated Cost	$35,000
Funding	Local funds, FMA, P-MRNRD
Timeline	2-5 years
Priority	Medium
Lead Agency	Region 5/6 EMA, Planning Department
Status	Not yet started

Description	**First Aid Training**
Analysis	Promote first aid training for all residents
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	All hazards
Estimated Cost	$500
Funding	Local funds
Timeline	Ongoing
Priority	High
Lead Agency	Region 5/6 EMA, ARC
Status	Ongoing

Description	**Alert/Warning Sirens**
Analysis	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens where lacking and remote activation.
Goal/Objective	Goal 1/ Objective 1.3
Hazard(s) Addressed	All hazards
Estimated Cost	$25,000/siren
Funding	Local funds, HMGP, PDM
Timeline	1-3 years
Priority	Low
Lead Agency	Region 5/6 EMA, Local Jurisdiction
Status	Ongoing

Description	**Weather Radios**
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	Flood, Thunderstorm, High Wind, Hail, Tornado, Severe Winter Storm
Estimated Cost	$50/radio
Funding	Local funds, HMGP, Salvation Army
Timeline	Ongoing
Priority	Low
Lead Agency	Region 5/6 EMA
Status	Ongoing

Description	**Civil Service Improvements**
Analysis	Improve emergency rescue and response equipment and facilities by providing additional or updating existing emergency response equipment. This includes ATV's, fire trucks, water tanks/trunks, snow removal equipment, etc.
Goal/Objective	Goal 3/ Objective 3.
Hazard(s) Addressed	All hazards
Estimated Cost	Varies
Funding	Local funds, Fire Departments, HMGP
Timeline	Ongoing
Priority	High
Lead Agency	Fire Department, EMA
Status	Ongoing

Description	**Back-up County Records**
Analysis	Develop protocol for back-up of critical county records
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$1,000+

Description	**Back-up County Records**
Funding	Local funds
Timeline	1-3 years
Priority	High
Lead Agency	IT
Status	Ongoing

Description	**Facilities for Vulnerable Populations**
Analysis	Ensure that facilities which will house vulnerable populations are placed in the least vulnerable areas. Harden existing facilities if applicable.
Goal/Objective	Goal 2/ Objective 2.3
Hazard(s) Addressed	All hazards
Estimated Cost	Varies
Funding	Local funds, CDC
Timeline	1-3 years
Priority	High
Lead Agency	Public Health Department, Region 5/6 EMA
Status	Ongoing

Description	**Database of Vulnerable Populations**
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 hazards
Estimated Cost	$10,000
Funding	Local funds, CDC
Timeline	1-3 years
Priority	High
Lead Agency	Public Health Department, Region 5/6 EMA
Status	Ongoing

Description	**Emergency Communication**
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 hazards
Estimated Cost	$10,000
Funding	Local funds
Timeline	1-3 years
Priority	High
Lead Agency	Sherriff's Department
Status	Ongoing

Description	**Emergency Operations**
Analysis	Identify and establish an Emergency Operations Center
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$20,000+
Funding	Local funds
Timeline	Ongoing
Priority	High
Lead Agency	Region 5/6 EMA

Description	**Emergency Operations**
Status	Ongoing

Description	**Short Term Residency Shelters**
Analysis	Design and construct short term shelters for rural residents after damage from an event. These structures would not serve as FEMA approved safe rooms. The building could also be used for things such as short term sheltering during a high heat event for those without A/C.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	Varies
Funding	Local funds, PDM
Timeline	3-5 years
Priority	Medium
Lead Agency	Region 5/6 EMA, ARC
Status	Not yet started.

Description	**Emergency Response Plan**
Analysis	Develop an Emergency Response Plan
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$20,000
Funding	Local funds
Timeline	1-3 years
Priority	Medium
Lead Agency	Region 5/6 EMA
Status	Ongoing

Description	**Emergency Management Exercise**
Analysis	Develop and facilitate an exercise to identify gaps in planning and to ensure that community response plans are sufficient to meet the needs of the jurisdiction.
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	All hazards
Estimated Cost	$10,000
Funding	Local funds
Timeline	2-5 years
Priority	Low
Lead Agency	Region 5/6 EMA, Planning and Zoning
Status	Ongoing

Description	**Shelter in Place**
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	Radiological Fixed Sites, Chemical Spills
Estimated Cost	$2,000+
Funding	Local funds
Timeline	1-3 years
Priority	High
Lead Agency	Region 5/6 EMA
Status	Ongoing

Description	Tornado Shelters/Safe Rooms
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	Tornado
Estimated Cost	$200-$300/sqft stand alone; $150-$200/sqft addition/retrofit
Funding	Local funds, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Region 5/6 EMA, Local Jurisdictions
Status	Not started

Description	Impact Resistant Roof Coverings
Analysis	Use roofing materials that are resistant to hail impacts for new buildings. Retrofit existing buildings with hail resistant material.
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	Tornado
Estimated Cost	$200-$300/sqft stand alone; $150-$200/sqft addition/retrofit
Funding	Local funds, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Region 5/6 EMA, Local Jurisdictions
Status	Not started

Description	Floodplain Buyouts
Analysis	Acquisition and/or demolition of properties located in the floodplain.
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	Local funds, FMA, PDM, P-MRNRD
Timeline	Ongoing
Priority	Medium
Lead Agency	Planning and Zoning, P-MRNRD, Local Jurisdictions
Status	Ongoing

Removed Mitigation Actions

None

PARTICIPANT SECTION
FOR THE

VILLAGE OF ARLINGTON

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 Arlingotn, 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 ALN.1 provides the list of participating members that comprised the Village of Arlington 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 ALN.1: Village Arlington Local Planning Team

Name	Title	Department / Jurisdiction
Linda Douglas	Clerk/Treasurer	Village of Arlington
Red Misfeldt	Board Member	Village of Arlington

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.

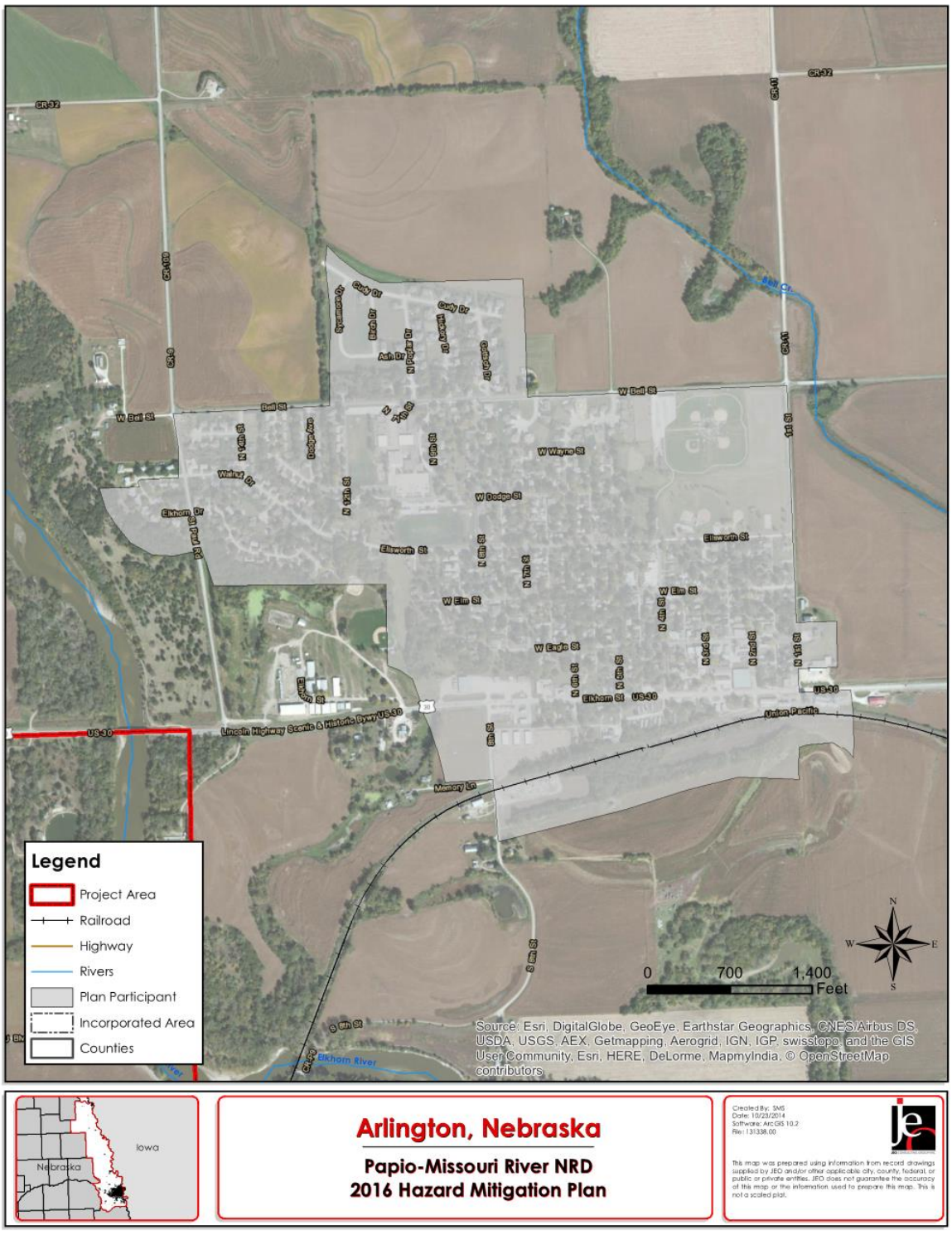
Table ALN.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
July 20, 2015	Passed Resolution of Participation	Village Office
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

The Village of Arlington is located in the southwest portion of Washington County and covers an area of 0.6 square miles. Major waterways in the area include the Elkhorn River to the west and Bell Creek to the east.

Figure ALN.1: Map of the Village of Arlington



CLIMATE

For Arlington, the average high temperature for the month of July is 89.2 degrees Fahrenheit and the average low temperature for the month of January is 12.4 degrees Fahrenheit. On average, Arlington gets 29.29 inches of rain and 31.0 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table ALN.3: Climate Data for Arlington

Age	Arlington	Planning Area	State of Nebraska
July High Temp	89.2F	85.6°F	88.0°F
January Low Temp	12.4°F	11.8°F	12.0°F
Annual Rainfall	29.29 inches	30.64 inches	30.3 inches
Annual Snowfall	31.0 inches	31.2 inches	25.9 inches

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

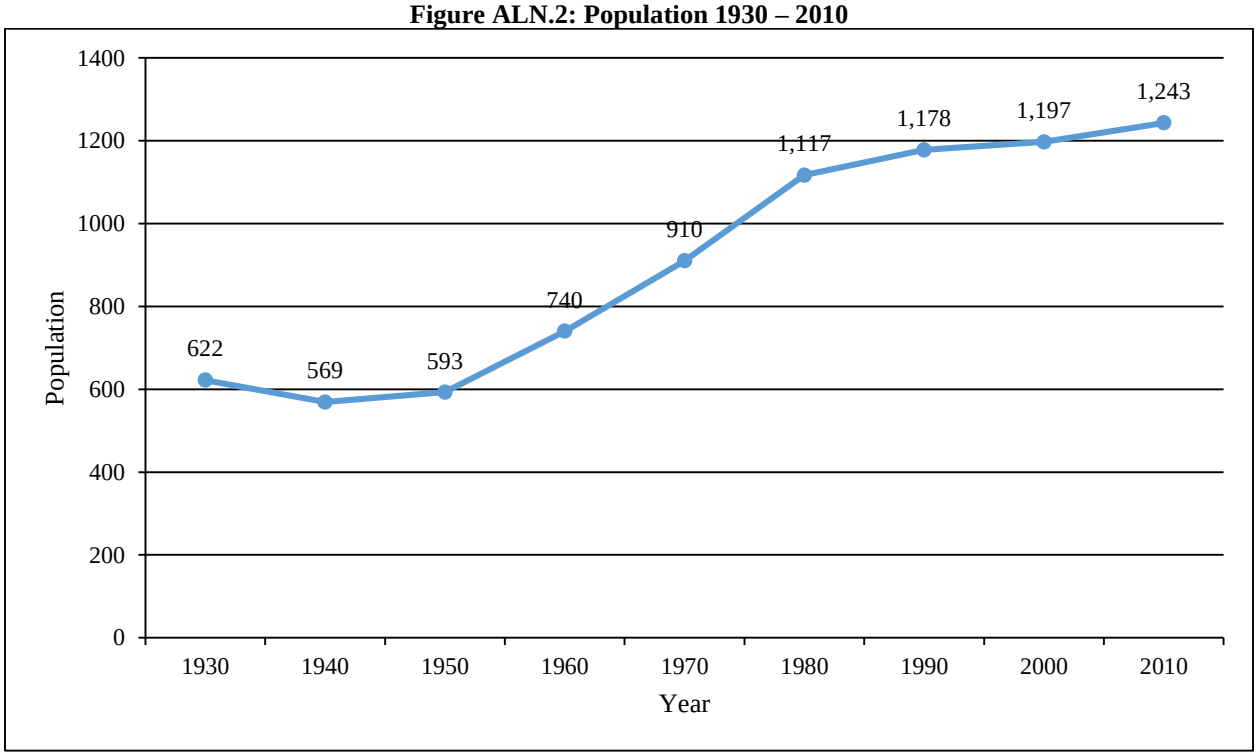
TRANSPORTATION

Arlington's major transportation corridors includes Highway 30 that averages 5,005 vehicles per day. Arlington has one Union Pacific rail line across the southern edge of the community. This information is important to hazard mitigation plans because 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 Arlington has been steadily increasing since 1940. A growing population results in more tax revenue for the community to implement hazard mitigation projects.

Figure ALN.2: Population 1930 – 2010



Source: U.S. Census Bureau

The following table indicates that Arlington has a larger percentage of children under five than the rest of Washington County. The percentage of residents over sixty-four years old is less than the county and statewide averages. The very young and elderly populations may be more vulnerable to certain hazards than other population groups. For a more elaborate discussion of this vulnerability, please see *Section Four: Risk Assessment*.

Table ALN.4: Population by Age

Age	Arlington	Washington County	State of Nebraska
<5	7.2%	5.6%	7.2%
5-64	79.8%	79.8%	79.2%
>64	12.9%	14.5%	13.6%
Median	37.9	41.0	36.2

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

The following table indicates that Arlington's median household income is lower than the Washington County average, however, it is higher than the state average. Arlington has a median home value lower than the state and county averages. 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.

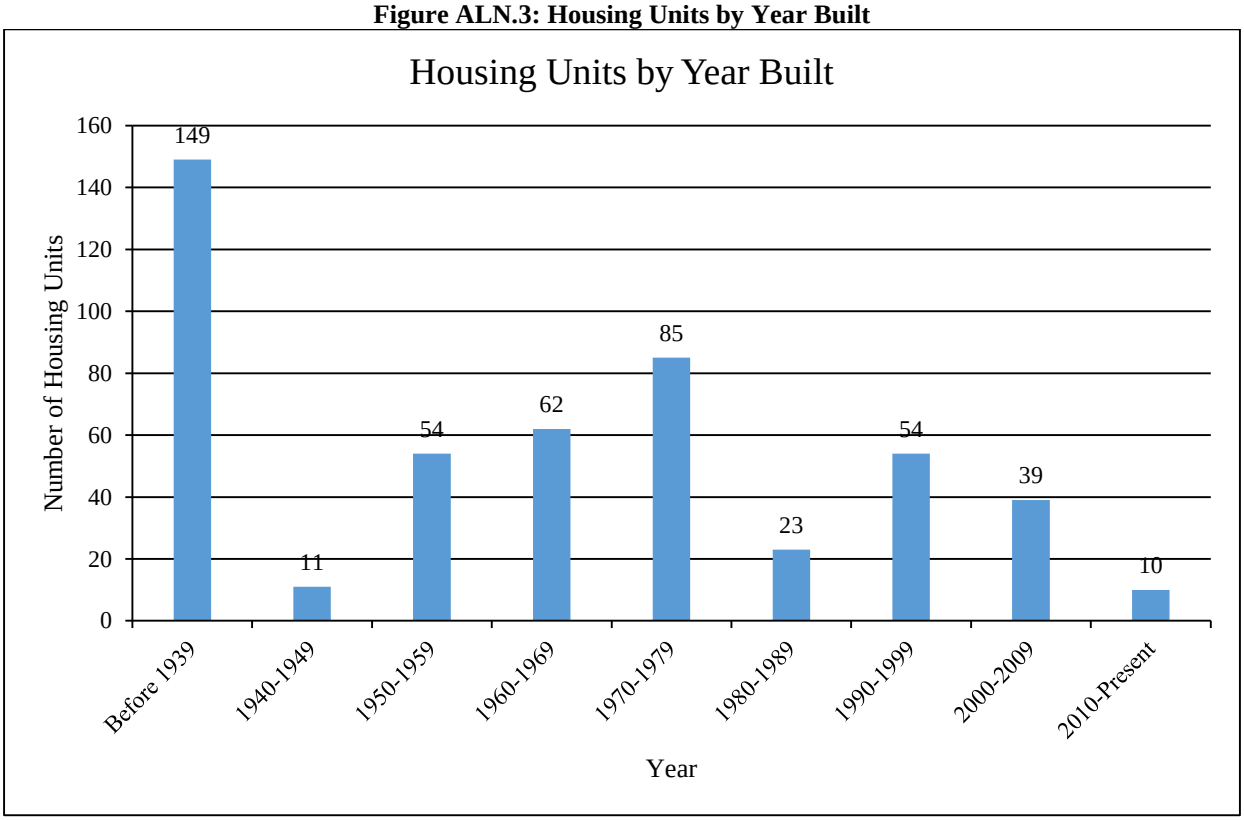
Table ALN.5: Housing and Income

	Arlington	Washington County	State of Nebraska
Median Household Income	$59,464	$65,409	$51,672
Per Capita Income	$26,162	$29,328	$26,899
Median Home Value	$123,000	$169,700	$128,000
Median Rent	$806	$722	$706

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

The following figure indicates that approximately a third of the housing in Arlington was built prior to 1940. According to 2009-2013 ACS 5-year estimates, the community has 474 housing units with 91.8 percent of those units occupied. There are approximately 23 mobile homes in the community and most of the mobile homes are located south of Highway 30 between 3rd and 4th Streets. This housing information is relevant to hazard mitigation insofar as the age of housing may indicate which housing units were built prior to the statewide building codes being developed in 1987. Furthermore, 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.

Figure ALN.3: Housing Units by Year Built



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

Table ALN.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Arlington	435	91.8%	39	8.2%		338	77.7%	97	22.3%
Washington County	7,647	91.9%	665	8.0%		5,971	78.1%	1,676	21.9%

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

MAJOR EMPLOYERS

The major employers in the community are the Arlington Public School District, Electric Company, and Construction Company. Many of the residents in Arlington commute to Omaha, Fremont, or Blair for work.

FUTURE DEVELOPMENT TRENDS

In the last five years, there were some businesses that were lost in the downtown area. Several of the vacant spaces are now used for personal storage. It is anticipated that a home and the municipal building will be demolished soon. The village has plans for the municipal hall to be rebuilt in the next 2-3 years. Although there are no plans for a formal housing development to occur in the next five years, additional new homes are likely to be built within the jurisdictional boundaries of Arlington on vacant lots. Also, one new business is anticipated to open in 2016 in an existing space. The population of Arlington is expected to continue to grow over the coming years. The local planning team attributed this growth to more awareness and marketing of Arlington as a great place to raise a family.

Figure ALN.4: Developed Areas

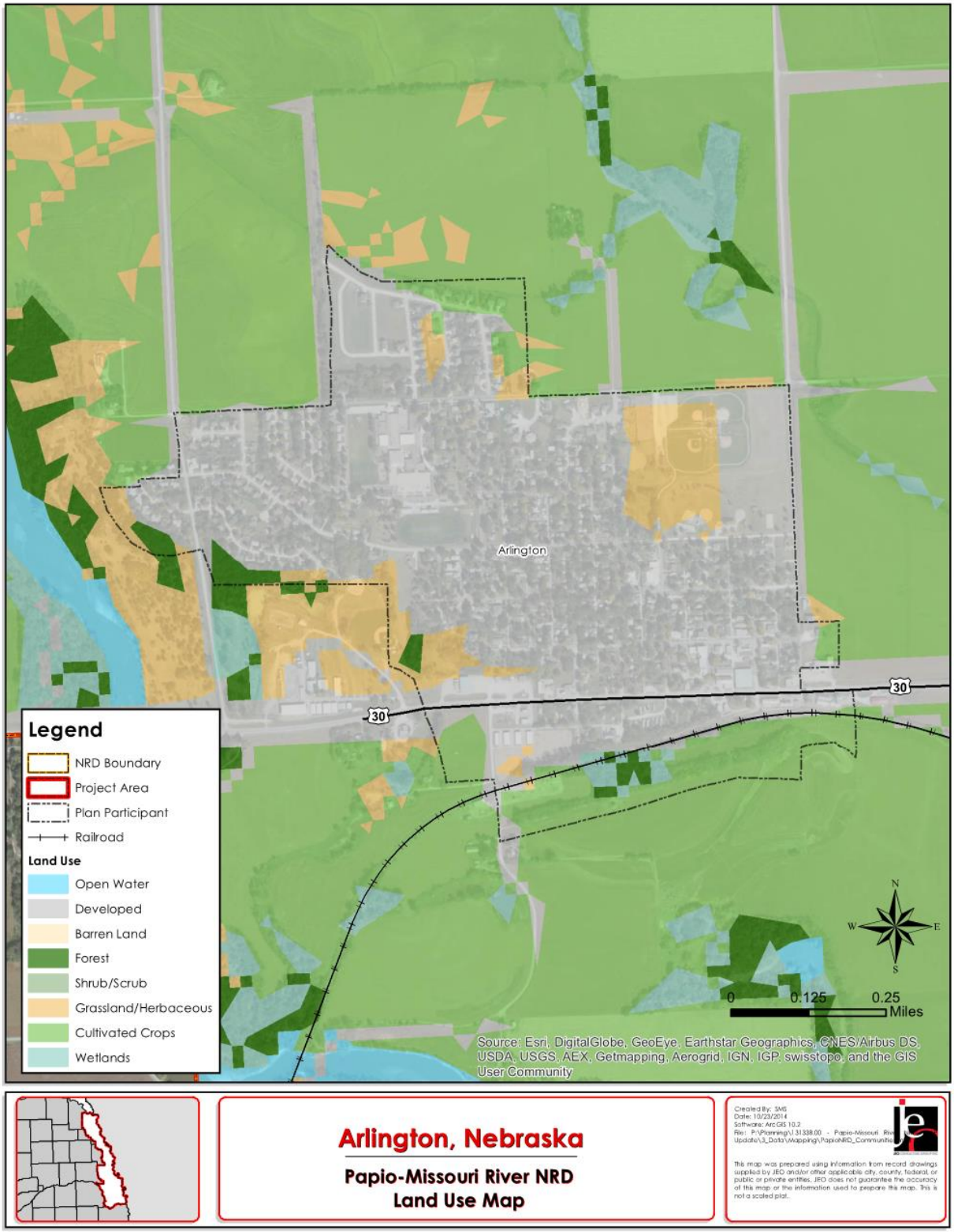
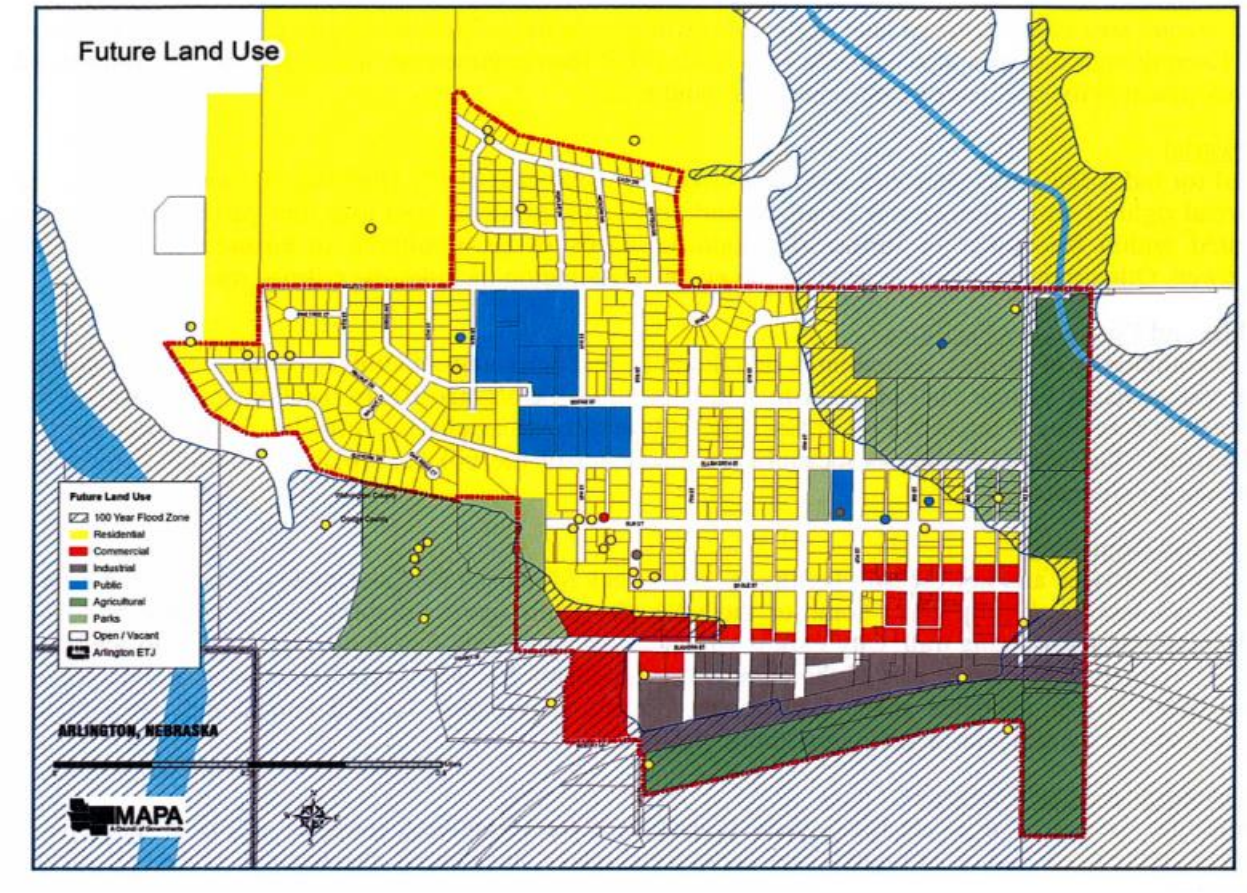


Figure ALN.5: Future Land Use Map



Source: Arlington's Comprehensive Plan, 2011

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 ALN.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
512	$50,196,735	$98,040	50	$3,718,145

Source: GIS Workshop/Washington 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 three chemical storage sites in Arlington, and two of these house materials that are categorized as hazardous. The following table lists the facility that houses hazardous materials.

Table ALN.7: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
AT&T Microwave Tower 0540	County Road 15, Arlington	Sulfuric Acid
Monke Bros Fertilizer	4870 County Road P9, Arlington	Anhydrous Ammonia

Source: Nebraska Department of Environmental Quality

HISTORIC SITES

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

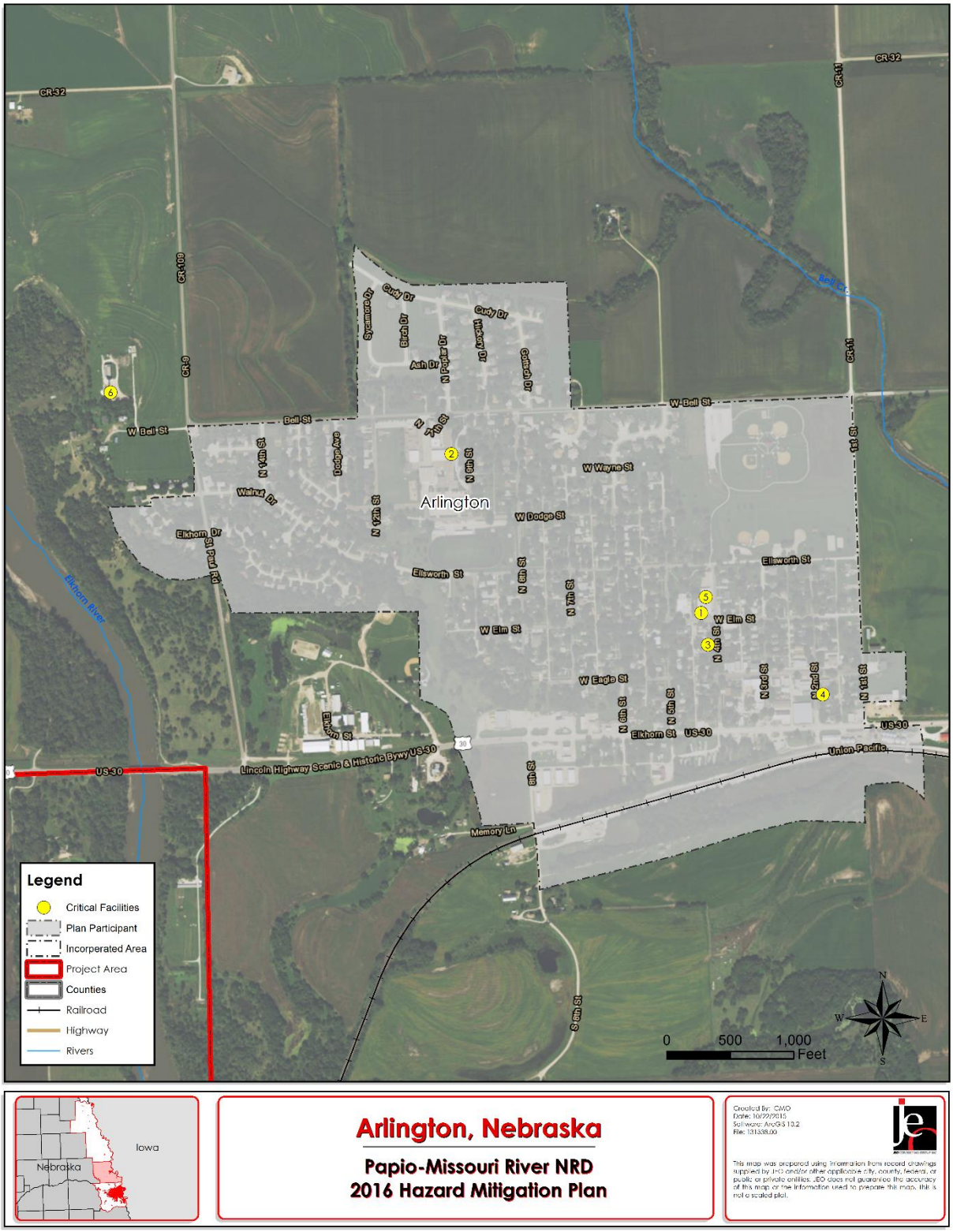
CRITICAL FACILITIES

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 ALN.8: List of Critical Facilities in Arlington

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Municipal Building	Arlington Community Building	410 West Elm	Y	N	N
2	School	Arlington Elementary and High School	705 N. 9th, Arlington	Y	N	N
3	Church	Arlington Community Church	355 N 4th Street	Y	N	N
4	Municipal Building	Arlington City Hall	245 N 2nd Street	N	N	N
5	Fire Station	Arlington Volunteer Fire Department	425 N 4th Street	N	N	N
6	Water Facility	Water Treatment Facility and Water Tower	1265 W Bell Street	N/A	Y	N

Figure ALN.6: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC reported 29 severe weather events from January 1996 through July 2015. Due to the large number of events only those with reported impacts are listed below. 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 provides crop damage by hazard, but at the county level only. For this information, please refer to Washington County's participant section.

Table ALN.9: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
6/20/1996	Tornado	F1	0	0	$300,000
7/5/1998	Severe Thunderstorm	55 kts.	0	0	$20,000
4/8/1999	Tornado	F0	0	0	$10,000
8/6/1999	Flash Flood	8 inches	0	0	$4,000,000
4/22/2001	Tornado	F1	0	1	$600,000
5/5/2007	Flash Flood	2.5 inches	0	0	$20,000
5/6/2007	Flash Flood	4 inches	0	0	$20,000
6/10/2010	Flood	3-5 inches	0	0	$75,000
6/12/2010	Flood	2-3 inches	0	0	$250,000
		Total	**0**	**1**	**$5,295,000**

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

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Arlington. 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 ALN.10: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	Yes	-	None
Agricultural Plant Disease	Yes	-	Emerald Ash Borer damage
Chemical Spills (Fixed Site)	No	-	None
Chemical Spills (Transportation)	No	-	None
Civil Disorder	No	-	None
Dam Failure	No	-	None
Drought	Yes	-	Water supply
Earthquakes	No	-	None

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Extreme Heat	Yes	-	Vulnerable populations
Flooding*	Yes	$4,365,000	Property damage; road closures; economic impacts; public safety
Grass/Wildfires	Yes	-	Property damage; road closures
Hail*	Yes	-	Property damage
High Winds	Yes	-	Property and tree damage; power outages
Landslides	No	-	None
Levee Failure	No leveed areas	-	None
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$20,000	Power outages; property damage
Severe Winter Storms*	Yes	-	Road closures; public safety; power outages; economic impacts
Terrorism	No	-	None
Tornados*	Yes	$910,000	Public safety and loss of life; property and critical facility damage; power outages
Urban Fire	No	-	Property damage

**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 Arlington's Risk Assessment Summary, that is relevant to each hazard.

Flooding

Flooding is a top concern for the village due to the proximity of Bell Creek and Elkhorn Creek and previous flood damages in the past. Bell Creek is of particular concern as it was explained that it doesn't take much for this creek to flood and cause issues on the northeastern portion of the village. In 2014 alone, the creek flooded as much as three times, and during the 2011 flood on the Missouri River, the creek backfilled and flooded the area for at least a week. Several roads are known to flood and be closed when Bell Creek floods, which are 1st Street and Bell Street. The village is interested in completing a flood mitigation study of Bell Creek to determine the best ways to mitigate the recurring flood issues.

The most devastating flood event according to the NCDC database occurred in August 1999 when 8 inches of rain fell over a short period of time causing flash flooding of the village. Streets flooded, especially near Bell Creek, and Highway 30 in Arlington was flooded. The flooding caused around $4 million in damage mainly due to flooded basements and vehicles and washed out roads and bridges.

The Village of Arlington is surrounded by floodplain on the west, south, and east. Arlington has thirteen NFIP policies in-force for $976,100. There are four repetitive flood loss properties in the Village of Arlington.

Table ALN.11: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$3,718,145	50	512	10%

Source: GIS Workshop/Washington County Assessor

Implemented mitigation projects:

- Member of the NFIP
- The local emergency operations plan is in place
- Continue educational opportunities

Identified mitigation projects:

- Bell Creek flood mitigation study

Hail

The local planning team is most concerned with the damage to property, businesses, and critical facilities from large hail. Although the NCDC database did not report any significant damages from hail in the past, large hail is common to the region and has caused significant damages to nearby communities, including Blair. The local planning team did not report any damages from hail to critical facilities.

Implemented mitigation projects:

- Municipal facilities are insured for hail damage
- Weather radios available in critical facilities

Identified mitigation projects:

- Consider installing hail resistant roofing and other building materials on critical facilities

Severe Thunderstorms

Severe thunderstorms are a common occurrence during the summer months in the region, and cause significant damages. These storms can bring a combination of high winds, heavy rain, flooding, lightning, and hail. A thunderstorm brought high winds, which destroyed a farm building near Arlington, and that caused about $20,000 in damages. There have been brief power outages from thunderstorm winds, but no damages to critical facilities was reported by local planning team.

Implemented mitigation projects:

- Code Red text alerts are offered through the County Emergency Management
- Back-up power generator available for the water treatment facility
- Continue educational opportunities

Identified mitigation projects:

- Obtain back-up power generators for critical facilities

Figure ALN.7: Arlington 1% Annual Chance Floodplain

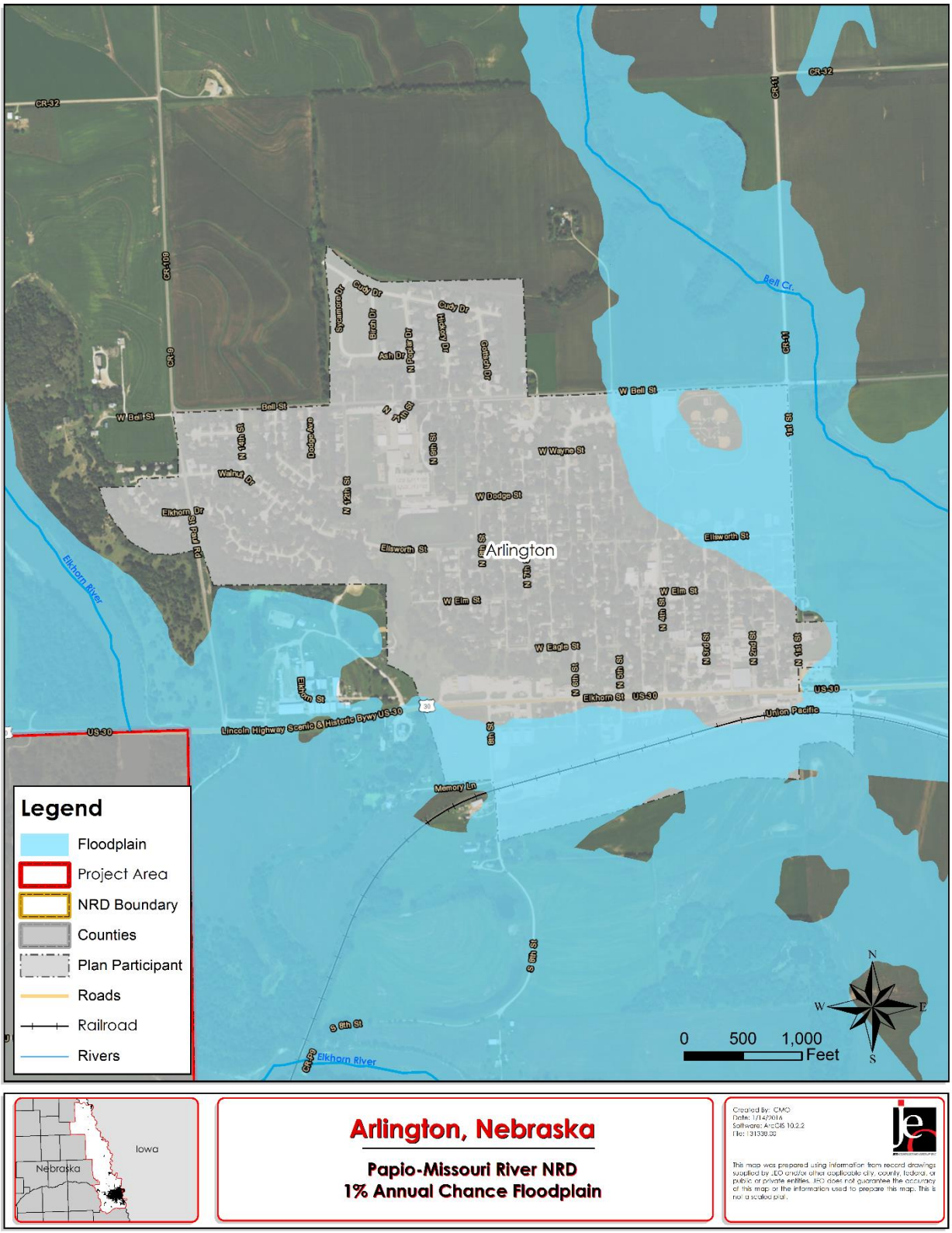
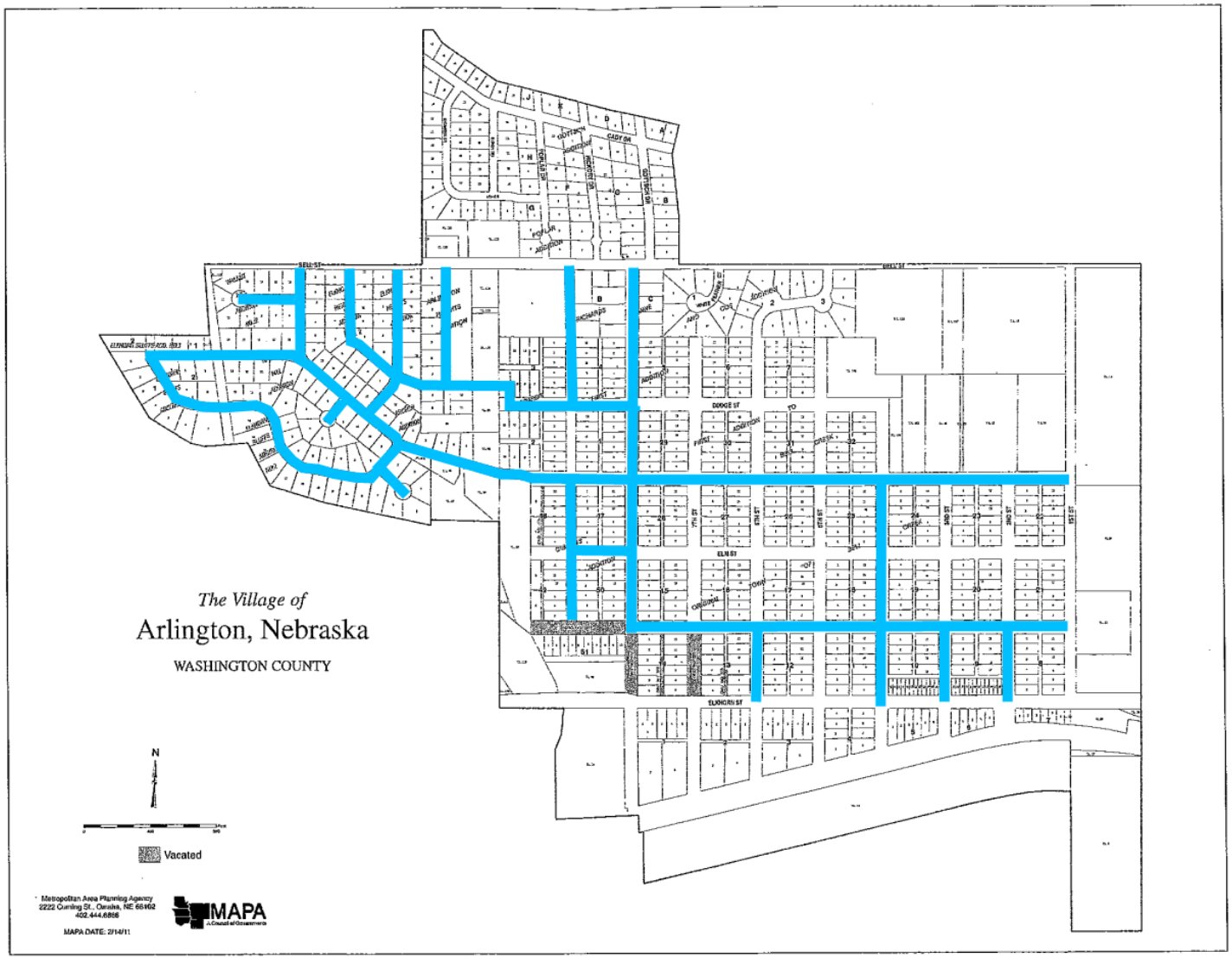


Figure ALN.8: Designated Snow Routes



Severe Winter Storms
Due to their ability to cause power outages, close roads, and cause infrastructure damage, severe winter storms was identified as a top concern for the village. One of the worst recent blizzards occurred over the Christmas holiday with winds gusting over 40 mph, dumping heavy amount of snow, and closing roads. This prolonged event made travel impossible during an important time of year for shopping and visiting families. Many drivers had to be rescued when their vehicles became stuck in the snow. Snow totals were well over a foot in much of the county. The community designates snow routes and is shown on the previous page.

Implemented mitigation projects:

- Back-up power generator available for the water treatment facility
- Continue educational opportunities
- Designated snow routes are identified

Identified mitigation projects:

- Obtain back-up power generators for critical facilities

Tornados
Three tornados have impacted areas right near Arlington since 1996. All three tornados were an F0 or F1. The first tornado occurred in June 1996 causing $300,000 in damages when it hit the St Paul's Lutheran Church and school north of the community as well as eight nearby farmsteads. The second tornado in April 1999 caused some tree and outbuilding damage near Arlington. Then just two years later in April 2001, a tornado touched down about 4.5 miles northeast of Arlington, moving away from the community. A total of $600,000 in damages to farmsteads, power lines, and trees. One man was injured during this tornado when a 2 by 4 flew through the window and hit him. The local planning team did not recall any significant damages from these tornados in the village or to critical facilities. In late 2015, one of the community's warning sirens was replaced.

Implemented mitigation projects:

- Back-up power generator available for the water treatment facility
- Replaced one tornado siren

Identified mitigation projects:

- Obtain back-up power generators for critical facilities
- Install a safe room or storm shelter in vulnerable areas
- Upgrade, replace, and/or add tornado sirens

GOVERNANCE

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Arlington has a number of offices or departments that may be involved in implementing hazard mitigation initiatives. The Village Board has 5 board members, including the Board Chairperson.

- Clerk/Treasurer
- Streets and Parks Commissioner
- Planning Commission
- Housing Authority
- Water and Sewer Department

- Volunteer Fire Department
- Village Engineer

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 ALN.12: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes (2011)
	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	No
	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 Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes
	GIS Coordinator	Yes (Contractor)
	Chief Building Official	No
	Civil Engineering	Yes
	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	Yes
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	
Education and Outreach	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No

Survey Components/Subcomponents		Existing (Yes/No)
Capability	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 Arlington's participant section.

Table ALN.13: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Local Emergency Operations Plan (LEOP)	2011
Comprehensive Plan	2011

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 paragraphs present a summary of the findings of this analysis.

The Local Emergency Operations Plan (LEOP) for Arlington, which was last updated in 2011, is an annex of Washington 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.

The Comprehensive Plan, which was updated in 2011, discusses the location of the floodplain and the limited options for future growth for the community. It states that development opportunities will be limited to north and northwest from the community to stay clear of the floodplain. The plan goes further to encourage limiting development in flood-prone areas and to consider removal of existing properties in the floodplain.

New Mitigation Actions

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.

Description	**Maintain Good Standing in the NFIP**
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	**Flood Mitigation Study for Bell Creek**
Analysis	Conduct a flood mitigation study to identify possible mitigation projects to reduce flooding for Bell Creek, especially on the northeastern side of the village where flooding occurs around the baseball fields and floods nearby roadways
Goal/Objective	Goal 3/Objective 3.3
Hazard(s) Addressed	Flooding
Estimated Cost	$35,000
Funding	Village funds, FMA, HMGP
Timeline	1-3 years
Priority	High
Lead Agency	Planning Commission and Floodplain Administrator
Status	Not yet started

Description	**Alert/Warning Sirens**
Analysis	Perform an evaluation of existing alert sirens in order to determine sirens which should be replaced or upgraded. Install new sirens where lacking and remote activation.
Goal/Objective	Goal 1/Objective 1.3
Hazard(s) Addressed	All hazards
Estimated Cost	$15,000+
Funding	Village funds, HMGP, PDM
Timeline	3-5 years
Priority	Medium
Lead Agency	Village Board and Village Engineer
Status	A new siren was installed in 2015. The village's second siren may need to be replaced in the near future.

Description	**Back-up Power Generators**
Analysis	Provide a portable or stationary source of back-up power to redundant power supplies, water facilities, municipal hall, and other critical facilities.
Goal/Objective	Goal 2/Objective 2.2
Hazard(s) Addressed	Tornados, High Winds, Severe Winter Storms, Flooding, Severe Thunderstorms
Estimated Cost	$50,000+
Funding	Village funds, HMGP, PDM
Timeline	1-3 years
Priority	High
Lead Agency	Village Board and Village Engineer
Status	A new siren was installed in 2015. The village's second siren may need to be replaced in the near future.

PARTICIPANT SECTION
FOR THE

CITY OF BLAIR

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 Blair, 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 BLR.1 provides the list of participating members that comprised the City of Blair 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 BLR.1: City of Blair Local Planning Team

Name	Title	Department / Jurisdiction
Phil Green	Assistant City Administrator	City of Blair
Rod Storm	City Administrator	City of Blair
Al Schoemaker	Public Works Director	Blair Public Works

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.

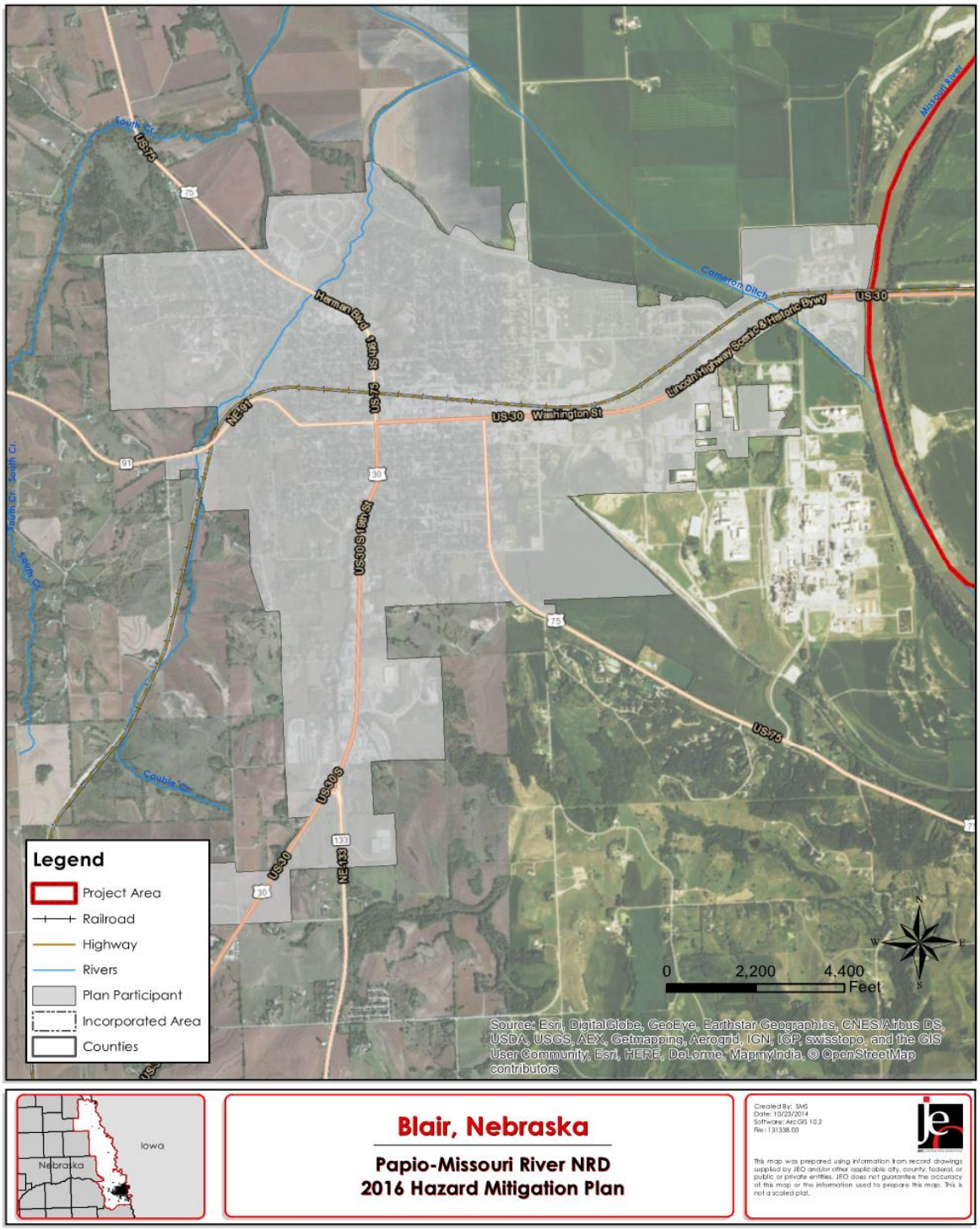
Table BLR.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
May 2015	Post Project Flyer	City Hall
April 14, 2015	Passed Resolution of Participation	City Council Meeting
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

The City of Blair is located in far east-central portion of Washington County and covers an area of 5.51 square miles. Major waterways in the area include the Missouri River, forming a portion of the eastern boundary of the city, Cameron Ditch, Unnamed Creek, and Cauble Creek.

Figure BLR.1: Map of the City of Blair



CLIMATE

For Blair, the average high temperature for the month of July is 89.2 degrees Fahrenheit and the average low temperature for the month of January is 12.4 degrees Fahrenheit. On average, Arlington gets 29.29 inches of rain and 31.0 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table BLR.3: Climate Data for Blair

Age	Blair	Planning Area	State of Nebraska
July High Temp	89.2F	85.6°F	88.0°F
January Low Temp	12.4°F	11.8°F	12.0°F
Annual Rainfall	29.29 inches	30.64 inches	30.3 inches
Annual Snowfall	31.0 inches	31.2 inches	25.9 inches

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

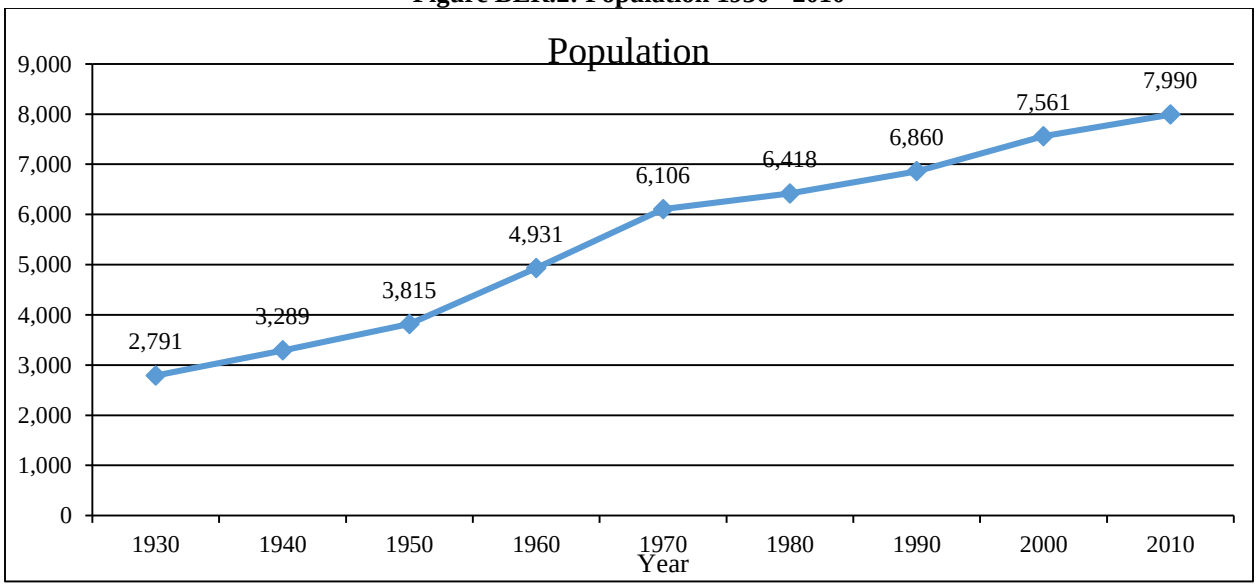
TRANSPORTATION

Blair's major transportation corridors include U.S. Highways 75 and 30, and County Route 91. U.S. Highway 30 has 6,270 vehicles per day with 1,030 of those heavy commercial vehicles. U.S. Highway 75 has 6,795 vehicles per day of which 630 of them are heavy commercial vehicles. County Route 91 has an average of 1885 vehicles and 245 heavy commercial vehicles. The Union Pacific Railroad has a rail line that goes through the center of Blair from west to east. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk to transportation incidents. Some critical facilities are located along main transportation routes. The hospital is located along U.S. Highway 75. The Union Pacific Railroad line runs near the water treatment plant.

DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Blair has been increasing since 1930. When population is increasing, areas of the city may experience housing developments or a lack of properties available for rent or to own. Increasing populations can also represent increasing tax revenue for the community, which could make implementation of mitigation actions possible.

Figure BLR.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates the City of Blair has a higher percentage of children under the age of 5 than the rest of the county. The median age is five years younger as compared to the county. Very young populations may be more vulnerable to certain hazards than other population groups. For a more elaborate discussion of this vulnerability, please see *Section Four: Risk Assessment*.

Table BLR.4: Population by Age

Age	Blair	Washington County	State of Nebraska
<5	7.1%	5.6%	7.2%
5-64	78.1%	79.8%	79.2%
>64	14.8%	14.5%	13.6%
Median	36.0	41.0	36.2

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

The following table indicates that Blair's median household income is significantly lower than the rest of the county, and the median home value and rent are also lower than the county. 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.

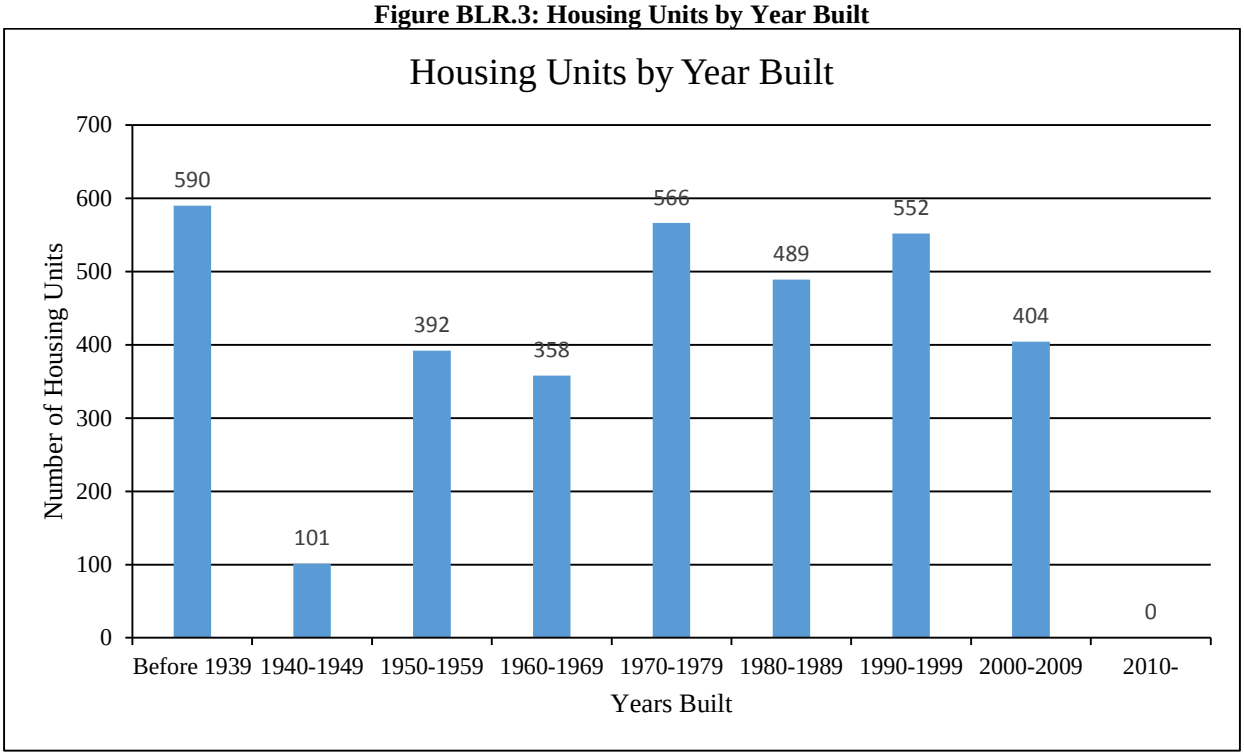
Table BLR.5: Housing and Income

	Blair	Washington County	State of Nebraska
Median Household Income	$50,417	$65,409	$51,672
Per Capita Income	$24,041	$29,328	$26,899
Median Home Value	$140,400	$169,700	$128,000
Median Rent	$687	$722	$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 (58 percent) in Blair was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the community has 3,452 housing units with 88.3 percent of those units occupied. The initial Flood Insurance Rate Map (FIRM) was identified on July 16, 1981. Housing built prior to 1981 may not be constructed to include the base flood elevation requirements and are at risk to flooding. 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. Furthermore, 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. There are approximately 73 mobile homes in the community. The Longview Mobile Home Park is located on Lincoln Street between 10th and 11th Streets.

Figure BLR.3: Housing Units by Year Built



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

Table BLR.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Blair	3,049	88.3%	403	11.7%		2,101	68.9%	948	31.1%
Washington County	7,647	91.9%	665	8.0%		5,971	78.1%	1,676	21.9%

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

MAJOR EMPLOYERS

Major employers in the community include Blair Public Schools, Memorial Community Hospital, and industrial businesses. A number of residents commute to communities such as Omaha, Council Bluffs, and Fremont. However, a number of people commute into Blair from surrounding areas as well.

FUTURE DEVELOPMENT TRENDS

No major developments have occurred in the past five years in Blair due to a slower economy. According to the census data, Blair's population is experiencing steady growth. This growth is attributable to healthy industrial businesses in Blair and the proximity to the Omaha metro. Continued steady growth is expected in the next five years.

Figure BLR.4: Developed Areas

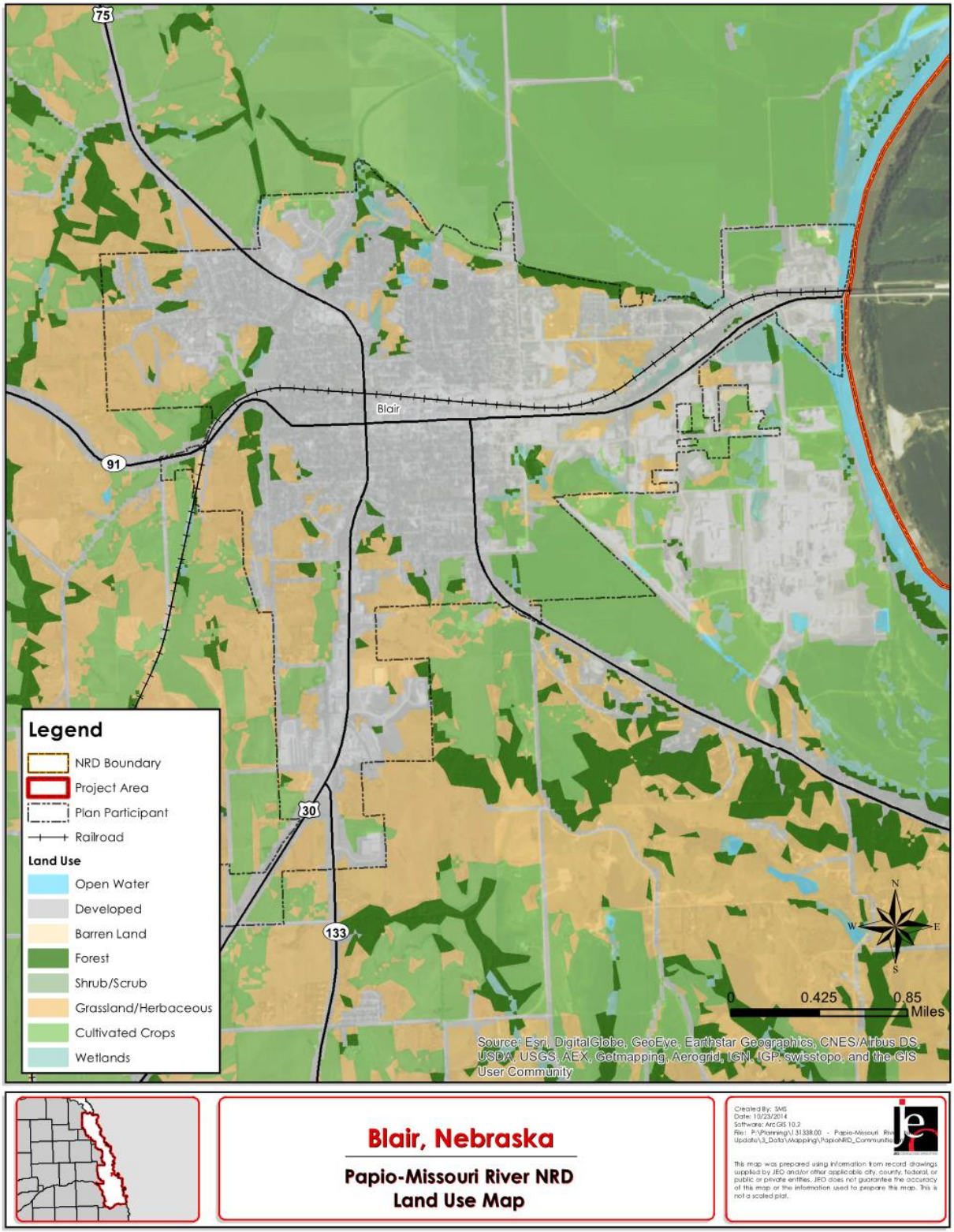
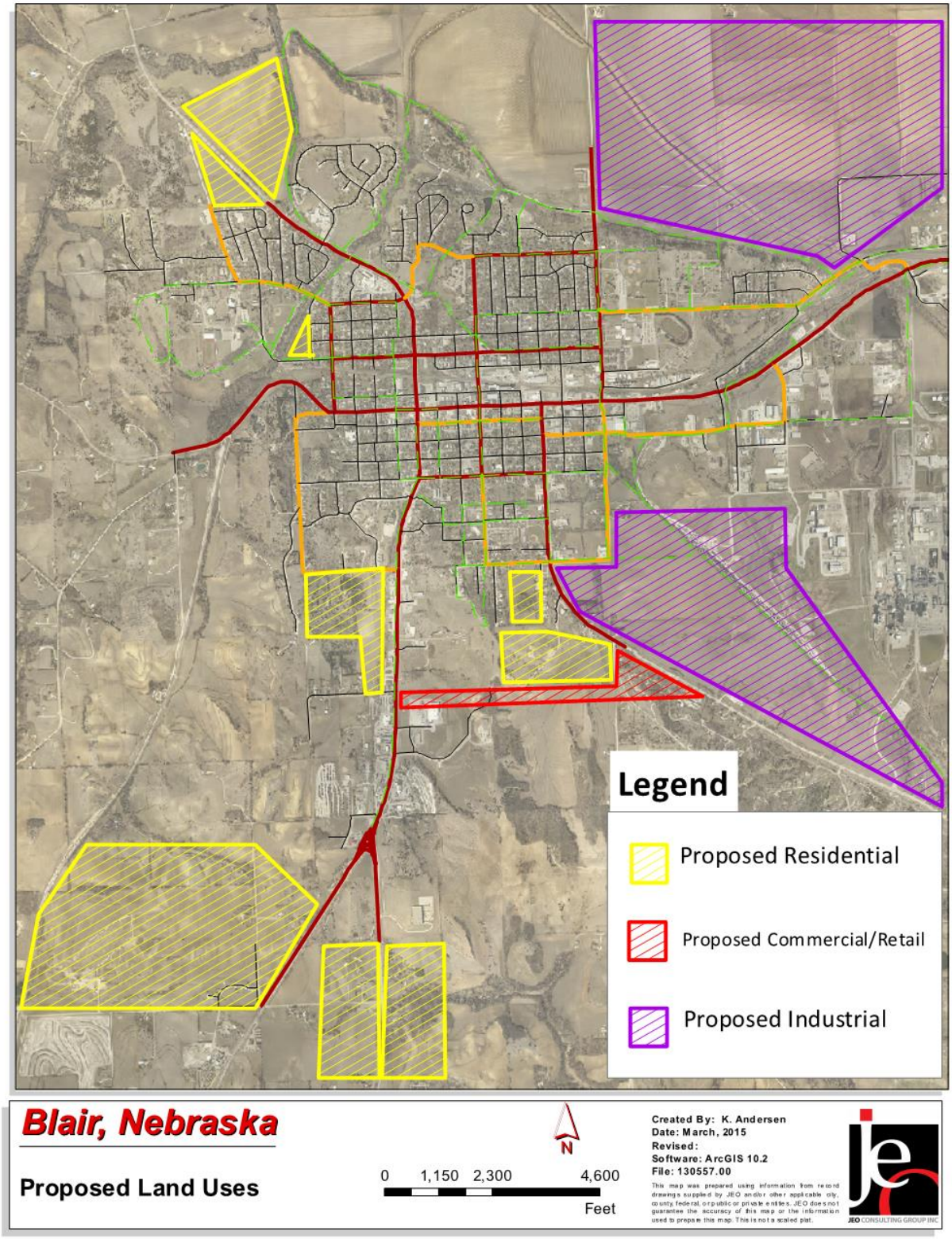


Figure BLR.5: Proposed Land Use



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 BLR.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
2,279	$451,728,810	$198,214	263	$42,270,805

Source: GIS Workshop/Washington 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 12 chemical storage sites in Blair that house materials that are categorized as hazardous.

Table BLR.8: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
Blair Potable Water Treatment	742 E Fairview Dr., Blair	Chlorine
CF Industries Sales LLC	250 S. Industrial Park Dr., Blair	Anhydrous Ammonia
Cargill Inc.	650 Industrial Park Dr., Blair	Sulfuric Acid
Evonik Corporation	650 Industrial Park Dr., Blair	Anhydrous Ammonia, Sulfuric Acid
Gerhold Concrete Co	201 Industrial Park Dr., Blair	Formaldehyde Solution
Nature Works LLC	650 Industrial Park Dr., Blair	Sulfuric Acid
Novozymes Blair Inc.	600 S. 1st St., Blair	Sulfuric Acid
OPPD Fort Calhoun Station	9610 Power Ln, Blair	Sulfuric Acid, Hydrazine Aqueous Solution
OPPD Substation No. 1226	State Highway 91, Blair	Sulfuric Acid
OPPD Substation No. 1298	County Road P35A, Blair	Sulfuric Acid
PURAC America Inc South	650 Industrial Park Dr., Blair	Sulfuric Acid
Verizon Wireless 19th & Colfax	1617 State St., Blair	Sulfuric Acid

Source: Nebraska Department of Environmental Quality

The local planning team is concerned that the community may not have the appropriate warning systems and notification in the event of a chemical spill. In the event of a spill, the local fire department with hazmat inter-local agreements will respond.

HISTORIC SITES

According to the National Register of Historic Places for Nebraska, there are 4 historic sites located in or near Blair.

Table BLR.9: National Historic Registry

Site Name	Date Listed	In Floodplain?
Congregational Church of Blair	2/1/1979	N
Abraham Castetter House	6/25/1982	N
Blair High School	3/14/1991	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 jurisdiction.

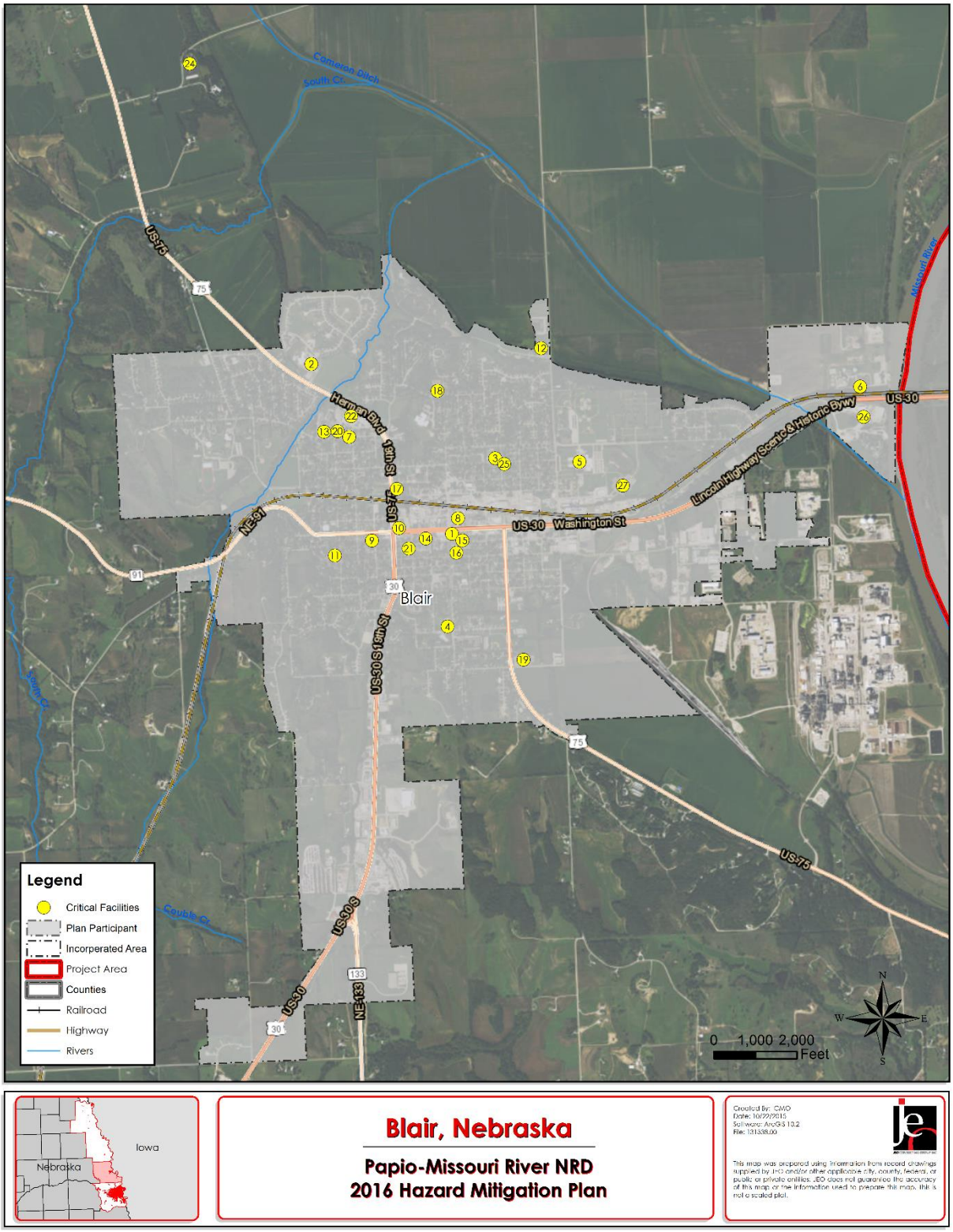
Table BLR.10: List of Critical Facilities in Blair

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	School	Superintendent of Schools	140 S. 16th, Blair	N	N	N
2	School	Deerfield Elementary School	1100 Deerfield Blvd., Blair	N	N	N
3	School	Blair North Elementary School	1326 Park St., Blair	Y	N	N
4	School	Blair South Elementary School	1616 Butler St, Blair	Y	N	Y
5	School	Blair High School	440 N. 10th St, Blair	Y	N	N
6	Wastewater Facility	Blair WWTF	850 Fairview Dr.	N	Y	Y
7	School	Good Tidings Preschool	2146 Wright St.	N	N	N
8	School	Goldenrod Hills Head Start	1551 Front St, Blair	N	N	N
9	School	Joy Preschool	141 S. 20th St, Blair	N	N	N
10	College	Metropolitan Community College	810 N 22nd Street	N	N	N
11	Nursing Home	Crowell Home	245 S 22nd Street	N	Unknown	N
12	Nursing Home	Enlivant	1028 JoAnn Dr	N	Unknown	N
13	Nursing Home	Good Shepard Lutheran Community	2242 Wright Street	N	Unknown	N
14	Police	Blair Police Department	1730 Lincoln Street	N	Y	N
15	Municipal	Blair City Hall	218 S 16th Street	N	N	N
16	Fire	Blair South Fire Station	16th & Linden Streets	N	Y	N
17	Fire	Blair North Fire Station	19th & Nebraska	N	Y	N
18	School	Blair Arbor Park Middle School	1717 Adams St, Blair	Y	N	N

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
19	Community Building	YMCA	1278 Wilber St.	Y	N	N
20	Church	First Lutheran Church	2145 Wright St.	Y	N	N
21	Church	First Baptist Church	205 S. 18th St.	Y	N	N
22	Hospital	Memorial Community Hospital	810 N 22nd Street	N	Y	N
23*	Airport	Blair Municipal Airport	2735 NE-133	N	N	N
24	Church	Country Bible Church	13121 Co Road 16	Y	N	N
25	Nursing Home	Autumn Point	501 N 13th	N	N	N
26	Port Facility	Consolidated Blenders, Blair Terminal Dock	550 Marina Drive	N/A	N/A	Y
27	School	Gerald Otte Blair Middle School	555 Jackson St, Blair	Y	N	N

**This is not mapped as it is too far south off the map. See Washington County's section for a location on the map.*

Figure BLR.6: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 61 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 provides crop damage by hazard, but at the county level only. For this information, please refer to Washington County's participant section.

Table BLR.11: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
5/31/1996	Lightning	-	0	0	$35,000
4/14/1998	Thunderstorm Wind	60 kts	0	0	$44,000
5/22/2004	Hail	2.75 in.	0	0	$10,000,000
7/12/2004	Thunderstorm Wind	65 kts EG	0	0	$100,000
7/1/2011	Flood	-	0	0	$500,000
8/1/2011	Flood	-	0	0	$25,000
9/1/2011	Flood	-	0	0	$100,000
6/3/2014	Hail	2.75-4.50 in.	0	0	Unknown*
6/21/2014	Flood	-	0	0	$5,000
		Total	**0**	**0**	**$10,809,000**

Source: January 1996-July 2015 NCDC
in. = inches; kts = knots; EG = Estimated Gust
**This hail event was well documented and hit several car dealerships in Blair. NCDC does not have an estimate at this time.*

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Blair. 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 BLR.12: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	Yes	-	Economic impacts
Agricultural Plant Disease	Yes	-	Economic impacts
Chemical Spills (Fixed Site)	No	-	Public safety
Chemical Spills (Transportation)	Yes	-	Public safety; road closures
Civil Disorder	No	-	None
Dam Failure	No	-	None
Drought	Yes	-	None

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Earthquakes	No	-	None
Extreme Heat	Yes	-	Vulnerable Populations
Flooding*	Yes	$4,000,000**	Public safety; damage to critical facilities; possible evacuations; road closures
Grass/Wildfires	Yes	-	None
Hail*	Yes	$10,000,000	Property damages; economic impacts
High Winds	Yes	-	Property damages; power outages
Landslides	No	-	None
Levee Failure	No	-	None
Radiological Incident (Fixed Site)	No	-	Possible evacuation; public safety
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$179,000	Property damages; power outages
Severe Winter Storms*	Yes	-	Power outages; road closures
Terrorism	No	-	None
Tornados*	No	-	Public safety; economic impacts; property and critical facility damages; power outages
Urban Fire	No	-	Property damages

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

For more information regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following discussion provides community specific information as reported in Blair's Risk Assessment Summary, that is relevant to each hazard.

Flooding

Due to damages from previous events and its proximity to the Missouri River, the local planning team identified flooding as a top concern for the community. In the summer of 2011, there was significant flooding throughout the planning area. According to the NCDC, flooding in that summer caused over $625,000 in damages. However, the local planning team estimates that flood damages within the last five years total over $4,000,000. In July 2011, the Missouri River near Blair climbed to 32 foot flood stage. The city spent $500,000 to build up a levee surrounding the water treatment plant. Recreational areas and roads along the river were flooded. Flooding persisted through August due to record releases from the Gavins Point Dam on the Missouri River. For additional information regarding the flooding of 2011, please refer to *Section Four: Risk Assessment*.

The City of Blair is a member of the NFIP and has 73 policies in force for a total of $13,390,900. There are no repetitive flood loss properties in the City of Blair.

Table BLR.13: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$42,270,805	263	2,279	11.5%

Source: Washington County Assessor

Implemented mitigation actions:

- Member of the NFIP

Identified mitigation actions:

- Enforce floodplain regulations
- Channel maintenance and stabilization
- Stormwater management ordinance
- Increase channel capacity

Hail

Hail is not only one of the most common hazards in Blair, it is also the most costly. A hail event in 2004, caused $10 million in damages. Ten years later, in June 2014, another large hail event caused significant damages throughout the city. Hailstones from that event measured from 2.75 inches to 4.5 inches and caused significant damages to siding, windows, roofs, and cars. Critical facilities have experienced damages from past hail events. Damages to roofs, air conditioning units, and the wastewater treatment plant were identified by the local planning team.

Implemented mitigation actions:

- Municipal facilities are insured for hail

Identified mitigation actions:

- Consider hail resistant material for roofs

Radiological Incidents (Fixed Site)

The Fort Calhoun Nuclear Power Plant is located about five miles southeast of Blair. Although not identified as a top concern for the community, the City of Blair would be in the evacuation zone in the event of an emergency. For additional information regarding the Fort Calhoun Nuclear Power Plant, please refer to *Section Four: Risk Assessment*.

Implemented mitigation actions:

- Emergency exercises are conducted regularly

Identified mitigation actions:

- Provide educational outreach opportunities

Severe Thunderstorms

Severe thunderstorms are a regular part of the climate in Blair. Severe thunderstorms can lead to additional hazards such as high winds, hail, lightning, and flash floods. The local planning team indicated that past events have caused power outages, damaged trees, and blocked roads. Municipal records are protected with surge protectors on electronic devices. Some critical facilities have backup power generators such as the fire station. The wastewater treatment plant is in the process of obtaining backup power. Approximately 20% of power lines have been buried within Blair. All new subdivisions have buried power lines.

Implemented mitigation actions:

- New subdivisions have power lines buried

Identified mitigation actions:

- Obtain back-up power generators for critical facilities

Severe Winter Storms

Severe winter weather regularly occurs in Blair as well as the planning area. Severe winter storms can result in major snow fall and ice accumulation that damages power lines, creates dangerous driving conditions, and closes schools. According to the local planning team, the last major event was in October of 1997, which caused significant icing and damaged power lines and trees. Streets are cleared by city staff and snow removal resources have been determined to be sufficient for local events.

Implemented mitigation actions:

- Sufficient snow removal equipment

Identified mitigation actions:

- Obtain back-up power generators for critical facilities

Tornados

Although there has not been a recorded tornadic event in Blair, tornados are common within the planning area. Tornados have the potential to cause loss of life and significant damages to property. The community does not have a safe room and thus residents seeking shelter have limited options. Past high wind events have caused power outages and tree damages. According to the local planning team, critical facilities have experienced minor damages from past high wind events. The county offers text alerts to warn residents of impending hazard events. Region 5/6 Emergency Management engages in outreach activities to educate the public regarding tornados and high winds. In the event of a disaster, Blair does have a mutual aid agreement with neighboring communities.

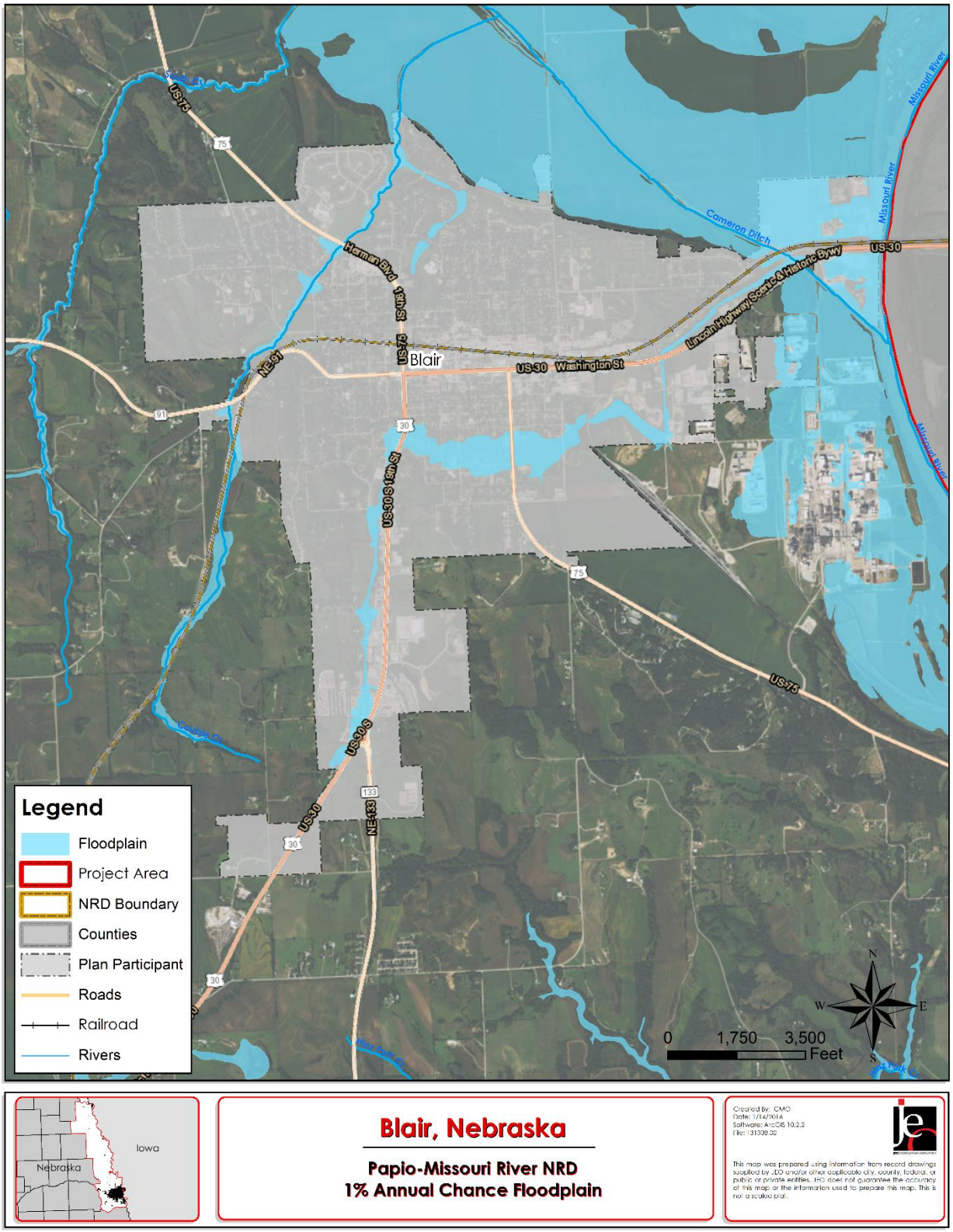
Implemented mitigation actions:

- Provides educational outreach opportunities
- Mutual aid agreement with neighboring communities

Identified mitigation actions:

- Obtain back-up power generators for critical facilities

Figure BLR.X: Blair 1% Annual Chance Floodplain



GOVERNANCE

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Blair has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- City Administration
- Clerk
- Treasurer
- Public Works Department
- Building Department
- Cemetery and Parks Department
- Fire and Rescue Department
- Police Department
- Economic Development
- Municipal Airport
- Planning Commission

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 BLR.14: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Under Development
	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	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes
	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	Yes
	Civil Engineering	Yes

Survey Components/Subcomponents		Existing (Yes/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	Yes
	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.	Yes
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
	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)	Tree City USA

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 Blair's participant section.

Table BLR.15: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2011
Comprehensive Plan	Under Development

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 paragraphs present a summary of the findings of this analysis.

Blair participated in the 2011 Papio-Missouri River NRD Hazard Mitigation Plan, which was an update to the original 2006 plan. The 2011 HMP was referred to throughout the development of the 2016 HMP update.

The Local Emergency Operations Plan (LEOP) for Blair, which was last updated in 2011, is an annex of Washington 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.

The city's Comprehensive Plan was currently under development at the time of this plan. However, an early draft was available for review. The plan does discuss the location of the floodway, the 1 percent annual chance floodplain, and the 0.2 percent annual chance floodplain. It is recommended that the plan address the Hazard Mitigation Plan, the hazards addressed, and the mitigation actions identified that the community is interested in implementing.

Ongoing or New Mitigation Actions

Description	**Back-up Power Generator**
Analysis	Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters.
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+
Funding	Local funds, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works
Status	Ongoing

Description	**Intake Structure for Water Treatment Plant**
Analysis	Install a lower intake structure at Blair's Water Treatment Plant
Goal/Objective	Goal 2/ Objective 2.4
Hazard(s) Addressed	All hazards
Estimated Cost	$100,000+
Funding	Local funds, FMA, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works
Status	Not yet started

Description	**Maintain Good Standing with 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	Existing Staff
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator
Status	Ongoing

Description	Stormwater Management Ordinance
Analysis	Adopt a stormwater management ordinance for all commercial and residential subdivision developments to limit the future impact of local floods
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	Flooding, Earthquake, Tornado, Severe Thunderstorms
Estimated Cost	$10,000
Funding	Local funds
Timeline	1-3 years
Priority	High
Lead Agency	City Council
Status	Not yet started

Description	Urban Tree Management Plan
Analysis	Develop an urban tree management plan
Goal/Objective	Goal 3/ Objective 3.7
Hazard(s) Addressed	High Winds, Tornados, Hail, Flooding, Severe Winter Storms
Estimated Cost	$50,000
Funding	Local funds, Arbor Day Foundation
Timeline	2-5 years
Priority	Medium
Lead Agency	Planning Commission
Status	Not yet started

Description	Adequate Severe Weather Notifications
Analysis	Ensure adequate severe weather notification to critical facilities by purchasing weather radios.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$50/radio
Funding	Local funds, HMGP, Salvation Army
Timeline	Ongoing
Priority	Medium
Lead Agency	Fire Department
Status	Ongoing

Description	Complete Structural Inventory
Analysis	Complete a structural inventory of Blair. Data can be used in the event of a hazard or disaster.
Goal/Objective	Goal 3/ Objective 3.3
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000
Funding	Local funds
Timeline	2-5 years
Priority	Medium
Lead Agency	Planning Commission
Status	Not yet started

Description	Identify, Designate, and Publicize Tornado Shelters
Analysis	Ensure that residents are aware of and are able to locate tornado shelters in the event of an emergency
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	Tornado, Flooding, Severe Thunderstorms, Earthquake
Estimated Cost	$10,000

Description	**Identify, Designate, and Publicize Tornado Shelters**
Funding	Local funds, HMGP
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Management
Status	Ongoing

Description	**Provide Severe Weather Notification**
Analysis	Improve and/or provide severe weather notifications to residents via reverse 911 or other new technology such as text alerts.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000
Funding	Local funds
Timeline	Ongoing
Priority	Low
Lead Agency	City Administration
Status	Text alerts are provided through the county

Description	**Increase Channel Capacity**
Analysis	Increase channel capacity of area creeks at culverts.
Goal/Objective	Goal 3/ Objective 3.5
Hazard(s) Addressed	Flooding
Estimated Cost	$1,000,000+
Funding	Local funds, FMA, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works
Status	Not yet started.

Description	**Channel Maintenance and Stabilization**
Analysis	Maintain channels and stabilize in order to protect more than one parcel. Channel stabilization can protect structures, increase conveyance, and provide flooding benefits.
Goal/Objective	Goal 3/ Objective 3.2
Hazard(s) Addressed	Flooding
Estimated Cost	Unknown
Funding	Local funds, FMA, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works
Status	Not yet started.

Description	**Assess storm shelter needs and availability**
Analysis	Assess storm shelter needs and availability and provide shelters to vulnerable populations.
Goal/Objective	Goal 1/ Objective 1.2
Hazard(s) Addressed	Tornados, Severe Thunderstorms, Flooding, Earthquakes
Estimated Cost	$200-$300/sqft stand alone; $150-$200/sqft addition/retrofit
Funding	Local funds, HMGP, PDM
Timeline	5 years
Priority	Low
Lead Agency	City Administration
Status	Not yet started.

PARTICIPANT SECTION
FOR THE

CITY OF FORT CALHOUN

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 Fort Calhoun, 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 FTC.1 provides the list of participating members that comprised the City of Fort Calhoun 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 FTC.1: City of Fort Calhoun Local Planning Team

Name	Title	Department / Jurisdiction
Linda Welsher	City Clerk and Treasurer	City of Fort Calhoun

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.

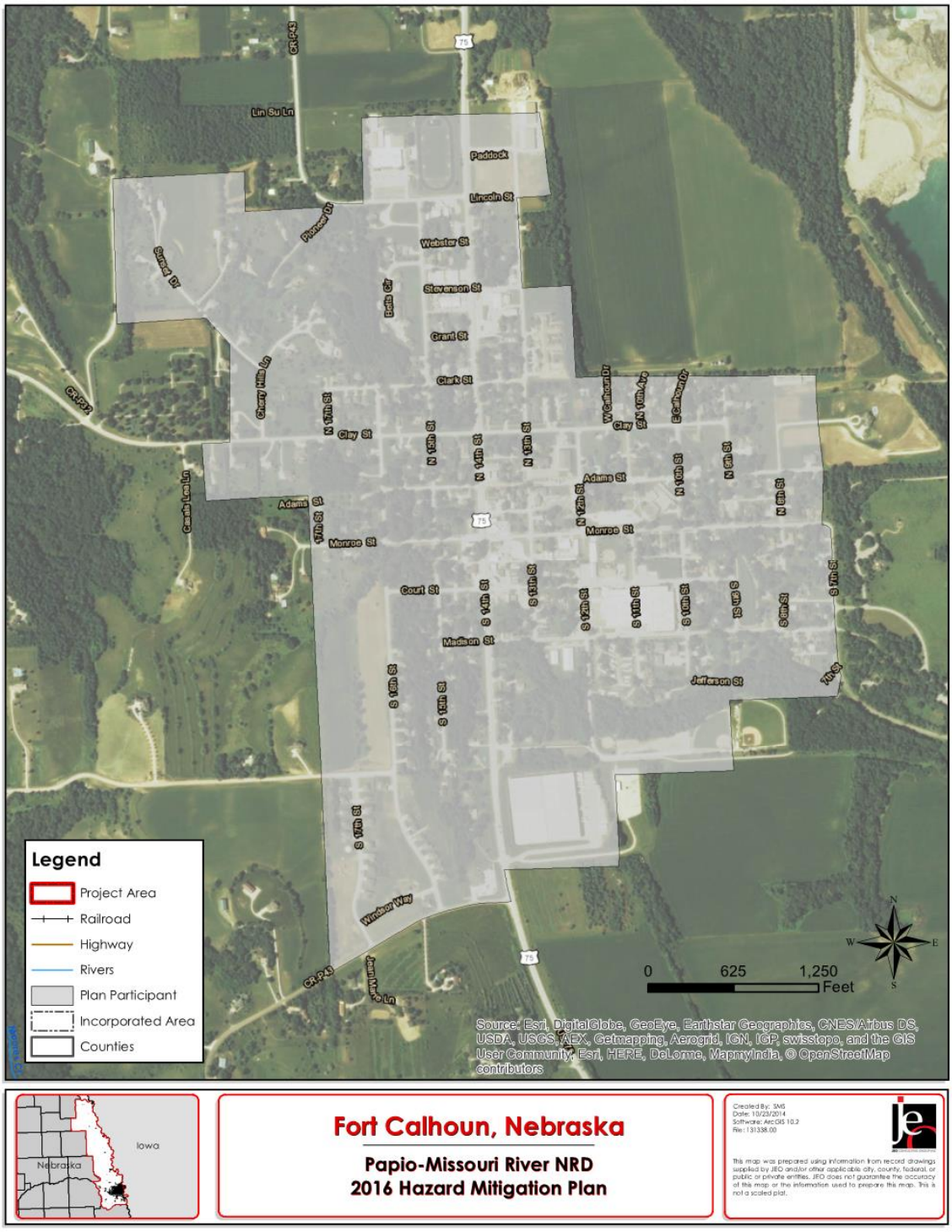
Table FTC.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
May 18, 2015	Passed Resolution of Participation	City Hall
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

The City of Fort Calhoun is located in the southeastern portion of Washington County and covers an area of 0.65 square miles. The Missouri River is located just a couple miles northeast of the city boundaries. The community is situated on higher ground in between the bluffs and the flatland. There are two tributaries that may flood during extreme rainfall events.

Figure FTC.1: Map of the City of Fort Calhoun



CLIMATE

For Fort Calhoun, the average high temperature for the month of July is 89.2 degrees Fahrenheit and the average low temperature for the month of January is 12.4 degrees Fahrenheit. On average, Arlington gets 29.29 inches of rain and 31.0 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table FTC.3: Climate Data for Fort Calhoun

Age	Fort Calhoun	Planning Area	State of Nebraska
July High Temp	89.2F	85.6°F	88.0°F
January Low Temp	12.4°F	11.8°F	12.0°F
Annual Rainfall	29.29 inches	30.64 inches	30.3 inches
Annual Snowfall	31.0 inches	31.2 inches	25.9 inches

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

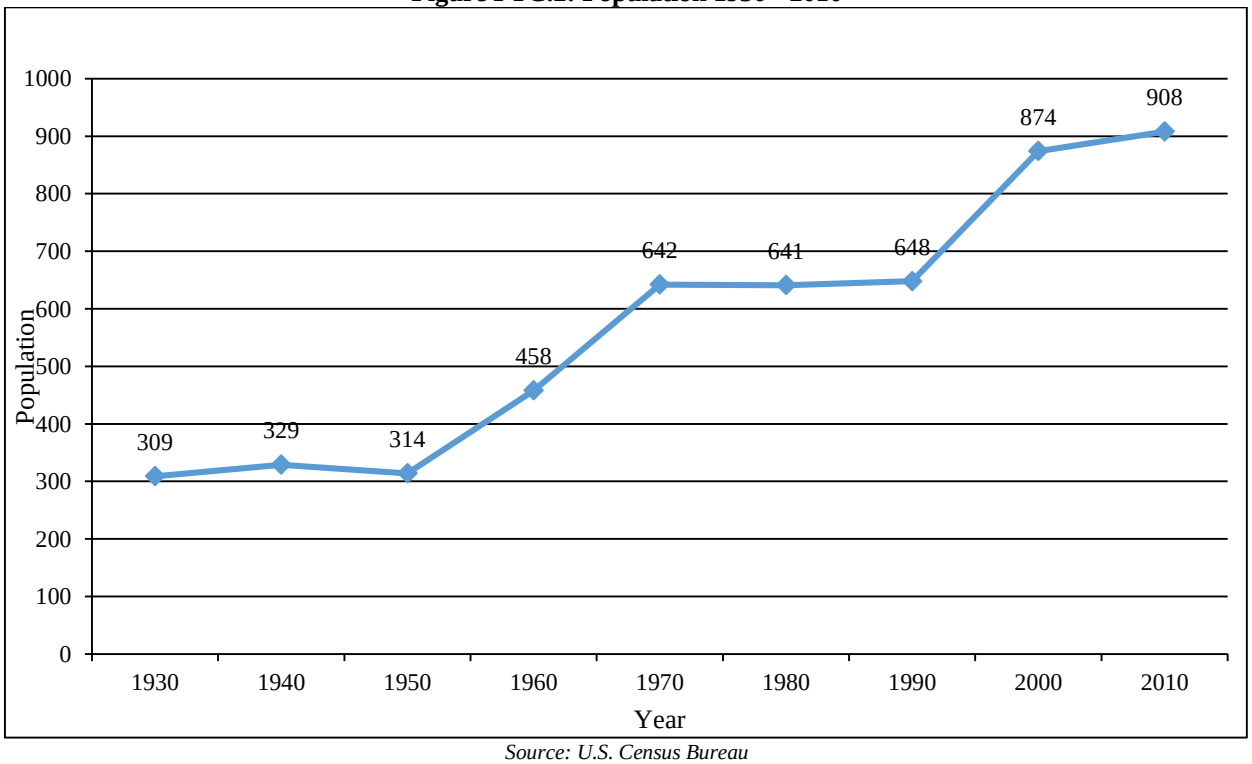
TRANSPORTATION

Fort Calhoun's major transportation corridors include U.S. Highway 75, which has an average of 6900 vehicles per day and 665 heavy commercial vehicles. There are no rail lines in or near 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. This figure indicates that the population of Fort Calhoun has been increasing since 1950. When population is increasing, areas of the city may experience housing development or a lack of properties available for rent or to own. Increasing populations can also represent increasing tax revenue for the community, which could make implementation of mitigation actions possible.

Figure FTC.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates the City of Fort Calhoun has a higher percentage of residents over the age of 64 as compared to the county. The median age is also higher than the county and the state. Elderly populations may be more vulnerable to certain hazards than other population groups. For a more elaborate discussion of this vulnerability, please see *Section Four: Risk Assessment*.

Table FTC.4: Population by Age

Age	Fort Calhoun	Washington County	State of Nebraska
<5	5.5%	5.6%	7.2%
5-64	78.4%	79.8%	79.2%
>64	16.1%	14.5%	13.6%
Median	43.7	41.0	36.2

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

The following table indicates that Fort Calhoun's median household income is lower than the county average but higher than the state average. Fort Calhoun's median home value is also lower than the county average but higher than the state average. 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.

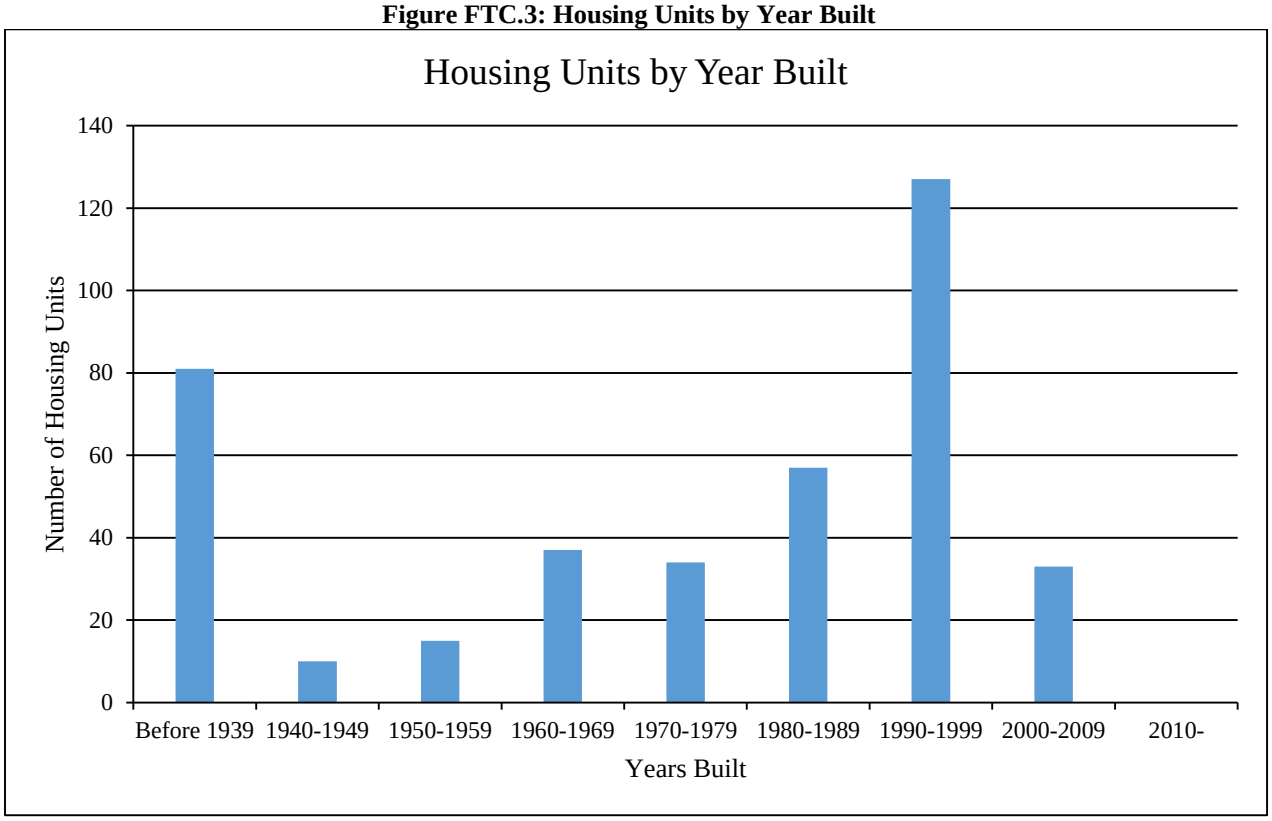
Table FTC.5: Housing and Income

	Fort Calhoun	Washington County	State of Nebraska
Median Household Income	$56,719	$65,409	$51,672
Per Capita Income	$30,194	$29,328	$26,899
Median Home Value	$137,500	$169,700	$128,000
Median Rent	$579	$722	$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 Fort Calhoun was built following 1970. Approximately 40 percent of housing units were built from 1990 – 2010. According to 2009-2013 ACS 5-year estimates, the community has 394 housing units with 90.1 percent of those units occupied. There are approximately 22 mobile homes in the community. The mobile home park is located on Madison Street between 11th and 12th Streets. 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.

Figure FTC.3: Housing Units by Year Built



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

Table FTC.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Fort Calhoun	355	90.1%	39	9.9%		230	64.8%	125	35.2%
Washington County	7,647	91.9%	665	8.0%		5,971	78.1%	1,676	21.9%

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

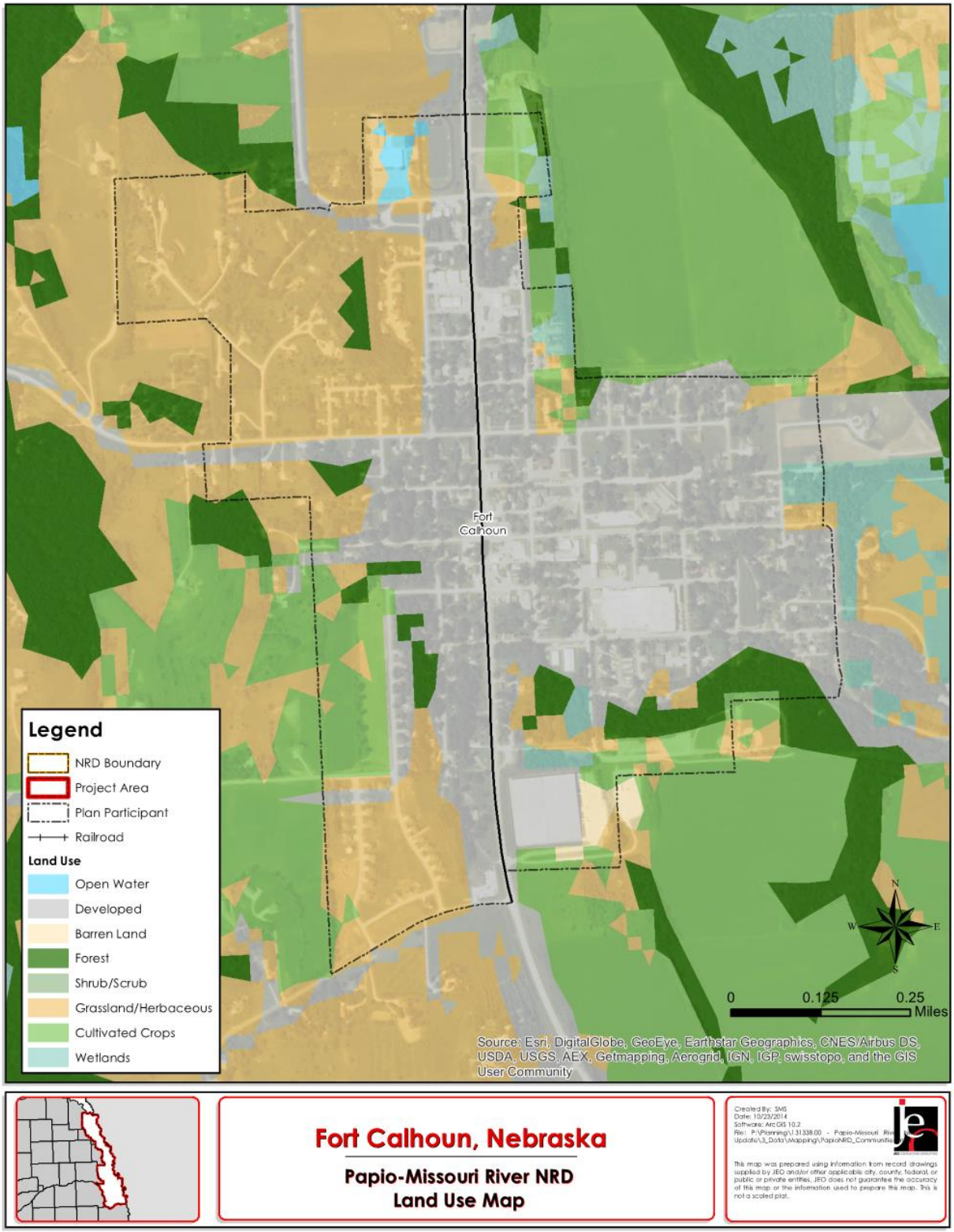
MAJOR EMPLOYERS

Major employers include Fort Calhoun Community School, Martin Marietta, and Memorial Community Health System. A large percentage of residents also commute to Omaha and Blair.

FUTURE DEVELOPMENT TRENDS

In the past five years, several houses were demolished and new homes have been built. According to the census data, Fort Calhoun's population is growing. One acreage style housing development is planned for the next five years.

Figure FTC.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 FTC.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
368	$52,499,080	$142,661	20	$2,057,745

Source: GIS Workshop/Washington 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 one chemical storage sites in Fort Calhoun and the facility does not house materials that are categorized as hazardous. The following table lists fixed site chemical storage facilities.

Table FTC.8: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
OPPD Substation No. 1297	1123 Washington Street	No

Source: Nebraska Department of Environmental Quality

HISTORIC SITES

According to the National Register of Historic Places for Nebraska, there is 1 historic site located in the City of Fort Calhoun.

Table FTC.9: National Historic Registry

Site Name	Date Listed	In Floodplain?
Alfred H. and Sarah Frahm House	3/2/2006	N

Source: Nebraska State Historical Society

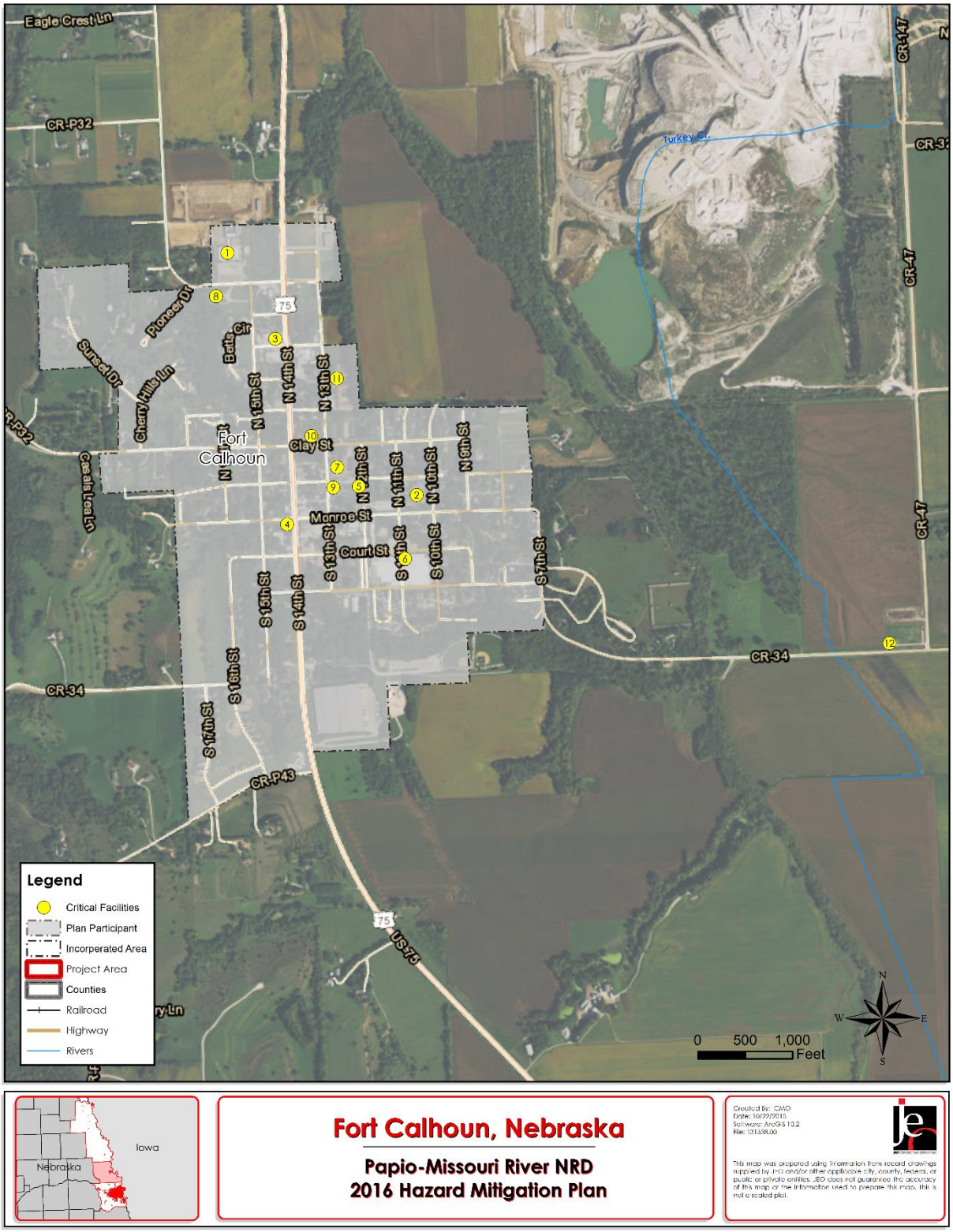
CRITICAL FACILITIES

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 jurisdiction.

Table FTC.10: List of Critical Facilities in Fort Calhoun

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	School	Fort Calhoun High School	1506 Lincoln Street	Y	N	N
2	School	Fort Calhoun Elementary School	1120 Monroe Street.	Y	N	N
3	Fire Station	Fort Calhoun Fire Hall	602 N. 14th Street	N	Y	N
4	Municipal	City Hall	110 S 14th Street	N	N	N
5	Municipal	City Shop	1200 Monroe	N	N	N
6	Community Center	Fort Calhoun Community Center	South 11th St. and Court	N	N	N
7	Church	St. John the Baptist	215 N 13th Street	Y	N	N
8	Church	Abiding Faith	710 N 15th Street	N	N	N
9	Church	FC Presbyterian	123 N 13th Street	N	N	N
10	Day Care	Christi Care	1304 Clay Street	N	N	N
11	Assisted Living	Autumn Point	501 N 13th St	N	Unknown	N
12	Wastewater Facility	Fort Calhoun WWTF	3401-5533 Road 34	N	Y	Y

Figure FTC.5: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 29 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 provides crop damage by hazard, but at the county level only. For this information, please refer to Washington County's participant section.

Table FTC.11: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
4/14/1998	Thunderstorm	N/A	0	0	$15,000
4/14/1998	Hail	1 in.	0	0	$0
5/15/1998	Thunderstorm	70 kts	0	0	$0
5/24/1998	Hail	1.25 in.	0	0	$0
6/26/1998	Hail	1 in.	0	0	$0
6/13/2000	Hail	1.75 in.	0	0	$0
5/9/2001	Hail	.75 in.	0	0	$0
8/22/2002	Hail	1 in.	0	0	$0
9/25/2002	Hail	.75 in.	0	0	$0
10/1/2002	Thunderstorm	90 kts E	0	0	$3,000,000
10/1/2002	Hail	2 in.	0	0	$0
5/8/2002	Thunderstorm	50 kts EG	0	0	$0
8/28/2005	Hail	.88 in.	0	0	$0
9/16/2006	Thunderstorm	50 kts EG	0	0	$0
7/18/2007	Thunderstorm	50 kts EG	0	0	$0
6/11/2008	Hail	.75 in.	0	0	$0
7/2/2008	Hail	1 in.	0	0	$0
11/5/2008	Hail	.75 in.	0	0	$0
6/1/2010	Thunderstorm	62 kts MG	0	0	$0
3/22/2011	Hail	1.25 in.	0	0	$0
5/21/2011	Hail	.88 in.	0	0	$0
8/18/2011	Hail	2.5 in.	0	0	$0
8/18/2011	Thunderstorm	61 kts EG	0	0	$0
5/19/2012	Thunderstorm	50 kts MG	0	0	$0
4/9/2013	Hail	1.75 in.	0	0	$0
5/30/2013	Hail	1 in.	0	0	$0
6/3/2014	Hail	4.5 in.	0	0	$0
6/3/2014	Hail	2.75 in.	0	0	$0
8/31/2014	Thunderstorm	50 kts MG	0	0	$0

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
		Total	**0**	**0**	**$3,015,000**

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 Fort Calhoun. 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 FTC.12: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	Yes	-	None
Agricultural Plant Disease	Yes	-	None
Chemical Spills (Fixed Site)	No	-	Public safety; possible evacuation
Chemical Spills (Transportation)	No	-	Public safety; road closures; possible evacuation
Civil Disorder	No	-	None
Dam Failure	No	-	None
Drought	Yes	-	None
Earthquakes	No	-	None
Extreme Heat	Yes	-	Vulnerable populations
Flooding*	Yes	-	Public safety; property and critical facility damage; road closures
Grass/Wildfires	Yes	$15,000	None
Hail*	Yes	-	Property damage; economic impacts
High Winds*	Yes	-	Power outages; property damage
Landslides	No	-	None
Levee Failure	No	-	None
Radiological Incident (Fixed Site)	No	-	Public safety; possible evacuation
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$3,000,000	Power outages; property damage
Severe Winter Storms*	Yes	-	Power outages; road closures
Terrorism	No	-	None
Tornados*	No	-	Public safety; power outages; property and critical facility damages; economic impacts
Urban Fire	Yes	-	Property damage

**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 hazards of most concern to the City of Fort Calhoun are: flooding, hail, high winds, severe thunderstorms, severe winter storms, and tornados. The following provides community specific information, reported in Fort Calhoun's Risk Assessment Summary, that is relevant to each hazard.

Flooding

There have been a number of significant events including the 2011 flood of the Missouri River that affected most of the planning area. No critical facilities have been damaged by flooding. The City of Fort Calhoun is concerned with reducing the potential impacts on the waste water pump station. Main Street was identified as having poor stormwater drainage, and is currently being improved.

The City of Fort Calhoun is a member of the NFIP and has 1 NFIP policy in-force for $210,000. There are 4 repetitive flood loss properties, all single family homes, in the City of Fort Calhoun.

Table FTC.13: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$2,057,745	20	368	5.4%

Source: GIS Workshop/Washington County Assessor

Implemented mitigation actions:

- Member of the NFIP

Identified mitigation actions

- Enforce floodplain regulations
- Construct detention cells
- Complete storm sewer improvements

Hail

Although the NCDC did not report any damages from hail events, the local planning team indicated that hail events in 2011 and 2014 caused significant amounts of damage to buildings. Roofs, siding, and windows were damaged on critical facilities such as the waste water pump station and other city buildings. Municipal buildings are insured for hail.

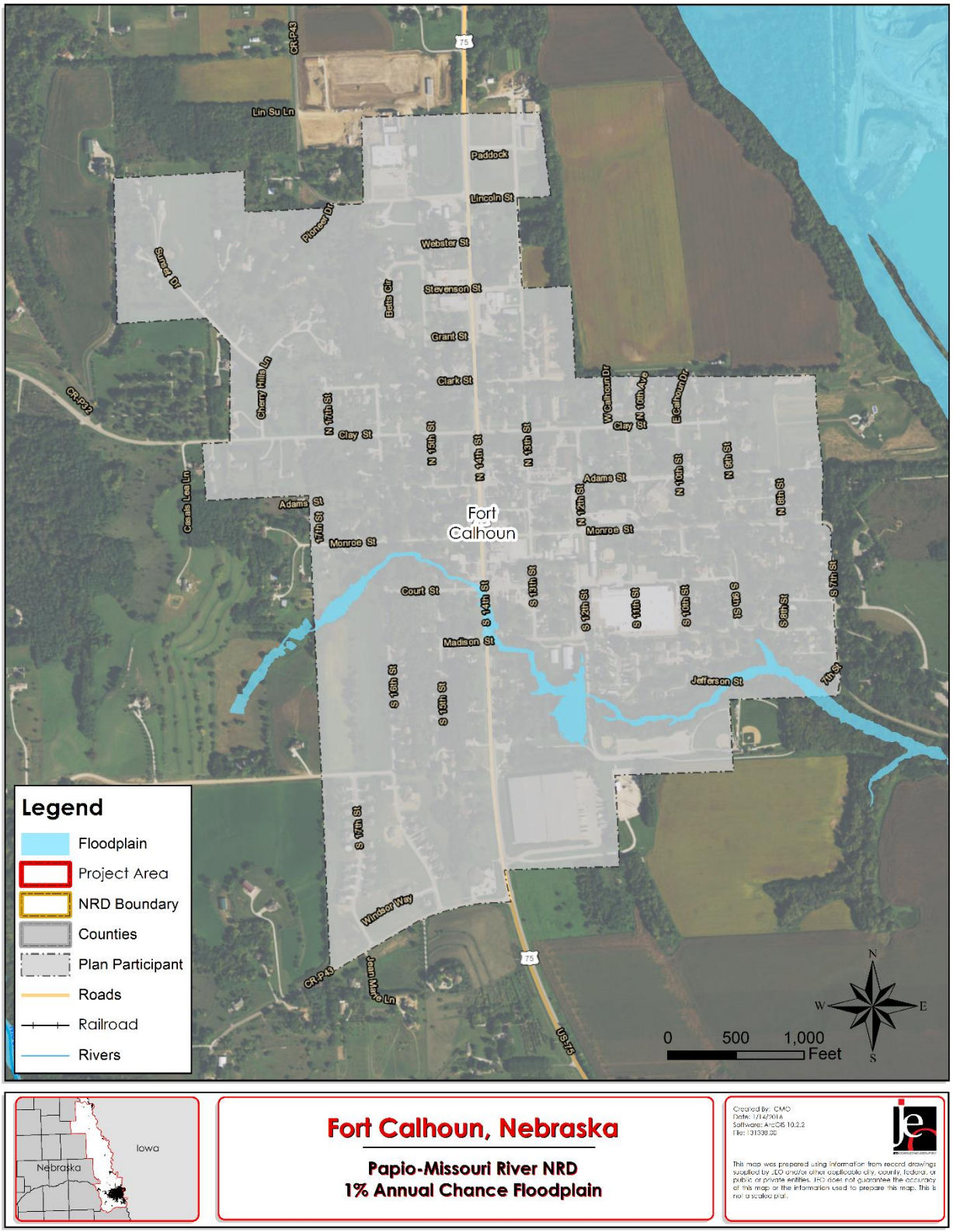
Implemented mitigation actions:

- Municipal facilities are insured for hail damage

Identified mitigation actions

- Implement a tree management plan

Figure FTC.6: Fort Calhoun 1% Annual Chance Floodplain



Severe Thunderstorms
The main local concern regarding this hazard is the effects on local trees. Past events have caused significant tree damage in parks and along streets and alleys. Power lines are not buried within the City, and thus are more vulnerable from falling trees and branches. Falling trees and branches can cause power outages. The local planning team indicated that a major tree assessment is needed to identify the locations of hazardous trees. Property damages from past events are estimated at $3,015,000. The waste water pumping station does have backup power generation; the city hall does not.

Implemented mitigation actions:
- Some critical facilities have generators

Identified mitigation actions
- Obtain back-up power generators for critical facilities
- Implement tree management plan

Severe Winter Storms
Severe winter storms regularly occur in Fort Calhoun and the rest of the planning area. The streets are cleared by city staff, and resources are usually sufficient for local events. However, large winter storms can put a strain on municipal resources to adequately respond to events. In 2009, there was a significant snow storm that required the city to hire help and rent equipment to clear the streets. In that same storm, the water tower was damaged.

Implemented mitigation actions:
- Sufficient snow removal equipment for most events

Identified mitigation actions
- Obtain back-up power generators for critical facilities
- Implement tree management plan

Tornados and High Winds
Although there has not been a tornado in Fort Calhoun reported to NCDC, the potential for significant loss of life and property causes this hazard to be a concern. The community does not have a safe room and many residents would not have access to adequate shelter in a tornado or high wind event. In case of an event such as a tornado, municipal records are backed up in two off-site locations. Fort Calhoun is a member of the statewide Water/Wastewater Agency Response Network (WARN). This is a mutual aid association of utilities that helps communities respond to hazardous events.

Implemented mitigation actions:
- Member of WARN
- Mutual aid agreement with neighboring communities

Identified mitigation actions
- Obtain back-up power generators for critical facilities

GOVERNANCE
A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Fort Calhoun is governed by a four member city council led by a

mayor. Fort Calhoun has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Utility Superintendent
- Fire Chief
- Sewer Commissioner
- Street Commissioner
- Water Commissioner
- Park Commissioner
- Planning Commissioners
- Utility Clerk
- Maintenance Worker

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 FTC.14: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes (2008)
	Capital Improvements Plan	Yes
	Hazard Mitigation Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	No
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	No
	Floodplain Management Plan	Yes
	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 Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes (Region 5/6)
	GIS Coordinator	No
	Chief Building Official	No
	Civil Engineering	Yes
	Staff Who Can Assess Community's Vulnerability to Hazards	No
	Grant Manager	No
	Other (if any)	

Survey Components/Subcomponents		Existing (Yes/No)
Fiscal Capability	Capital Improvement Project Funding	No
	Community Development Block Grant	No
	Authority to Levy Taxes for Specific Purposes	No
	Gas/Electric Service Fees	No
	Storm Water Service Fees	No
	Water/Sewer Service Fees	Yes
	Development Impact Fees	Yes
	General Obligation Revenue or Special Tax Bonds	Yes
	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 Fort Calhoun's participant section.

Table FTC.15: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2011
Comprehensive Plan	2008

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 paragraphs present a summary of the findings of this analysis.

Fort Calhoun participated in the 2011 Papio-Missouri River NRD Hazard Mitigation Plan, which was an update to the original 2006 plan. The 2011 HMP was referred to throughout the development of the 2016 HMP update.

The Local Emergency Operations Plan (LEOP) for Fort Calhoun, which was last updated in 2011, is an annex of Washington 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.

Completed Mitigation Actions

Description	**U.S. Hwy 75 Drainage 100 Year Flood Path**
Analysis	Construct and improve draining along U.S. Hwy 75 to reduce flooding during 100 year flood
Goal/Objective	Goal 3/ Objective 3.5
Hazard(s) Addressed	Flood
Location	Damaged drainage structure and ditch along Hwy 75, north of warehouse
Year Completed	2015

Ongoing or New Mitigation Actions

Description	**Detention Cells West of 16th Street**
Analysis	Construct detention cells west of 16th Street
Goal/Objective	Goal 3/ Objective 3.4
Hazard(s) Addressed	Flood
Estimated Cost	$175,000
Funding	Local budget, FMA, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	City Council

Description	**Maintain good standing with National Flood Insurance Program**
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	Flood
Estimated Cost	Existing staff
Funding	N/A
Timeline	On-going
Priority	Medium
Lead Agency	Floodplain Administrator

Description	**Develop an Urban Tree Management Plan**
Analysis	To protect the power and water infrastructure and prevent lines from coming down or being washed out during storm events.
Goal/Objective	Goal 3/ Object 3.7
Hazard(s) Addressed	Severe Winter Storms and Thunderstorms, Tornado, Disease
Estimated Cost	Existing Staff
Funding	Local budget, Arbor Day Foundation
Timeline	On-going
Priority	High
Lead Agency	City Council

Description	**U.S. Hwy 75 Storm Sewer Improvements Court St. to Jefferson St.**
Analysis	Storm sewer improvements by upsizing pipes and additional inlets to convey runoff during peak rain events along US Hwy 75 from Court Street to Jefferson Street
Goal/Objective	Goal 3/ Objective 3.4

Description	**U.S. Hwy 75 Storm Sewer Improvements Court St. to Jefferson St.**
Hazard(s) Addressed	Flood
Estimated Cost	$137,000
Funding	Local budget, FMA, HMGP, PDM
Timeline	5+ years
Priority	Medium
Lead Agency	City Council

Description	**Back-up Power Generator**
Analysis	Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters.
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+
Funding	Local budget, HMGP, PDM
Timeline	2-5 years
Priority	High
Lead Agency	City Council
Status	Not yet started

PARTICIPANT SECTION
FOR THE

VILLAGE OF HERMAN

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 Herman, 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 HMN.1 provides the list of participating members that comprised the Village of Herman 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 HMN.1: Village of Herman Local Planning Team

Name	Title	Department / Jurisdiction
Vicky Kellogg	Village Clerk	Village of Herman

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 HMN.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
July 7, 2015	Passed Resolution of Participation	Village Office
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

The Village of Herman is located in the northern portion of Washington County and covers an area of 0.14 square miles. Hill Creek and New York Creek are located to the north and east of Herman. Herman is a few miles west of the Missouri River.

Figure HMN.1: Map of the Village of Herman

CLIMATE

For Herman, the normal high temperature for the month of July is 85.7 degrees and the normal low temperature for the month of January is 13.0 degrees. On average, Herman gets 31.29 inches of rain and 28.7 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table HMN.3: Climate Data for the Village of Herman

Age	Herman	Planning Area	State of Nebraska
July High Temp	85.7°F	85.6°F	88.0°F
January Low Temp	13.0°F	11.8°F	12.0°F
Annual Rainfall	31.69 inches	30.64 inches	30.3 inches
Annual Snowfall	28.7 inches	31.2 inches	25.9 inches

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

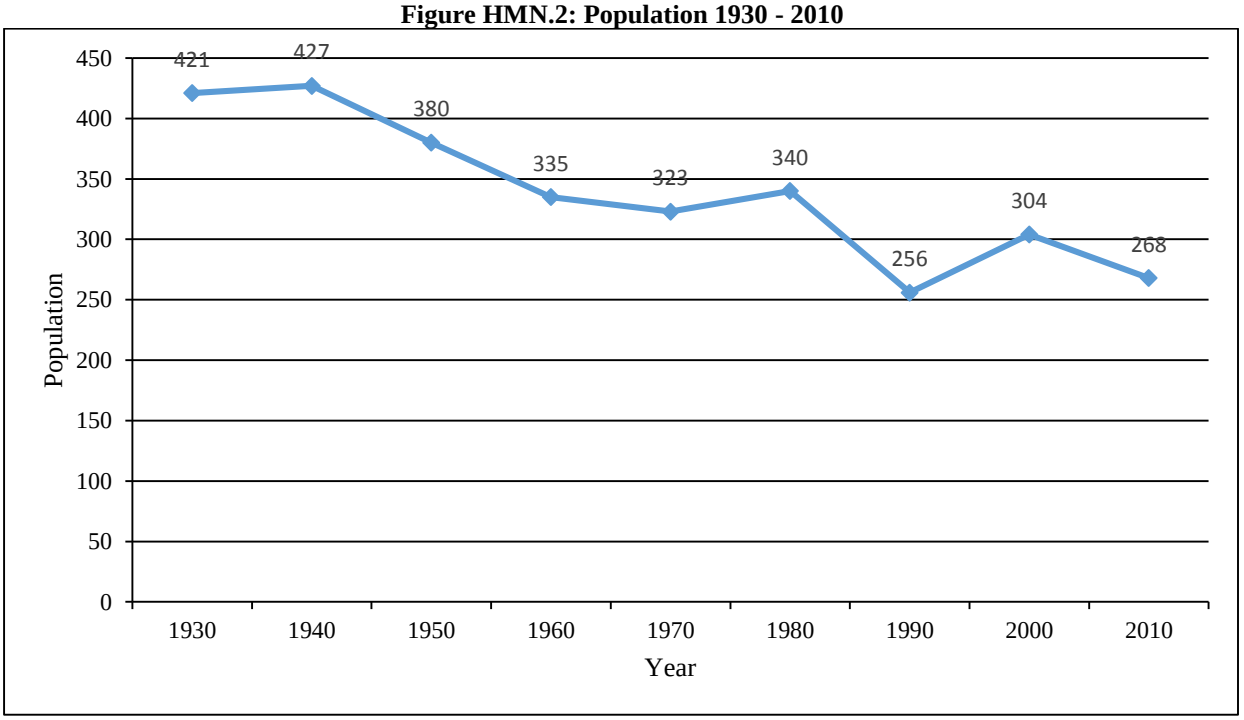
TRANSPORTATION

Herman's major transportation corridors includes Highway 75 that averages 4,720 vehicles per day according to the Nebraska Department of Roads. The local planning team mentioned that various chemicals are transported on Highway 75 on a regular basis, but it is not known the type or quantity of chemicals transported. 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 Herman has been decreasing since 1940. The declining population may lead to higher levels of unoccupied housing and decreasing tax revenue. These factors may affect the village's ability to implement hazard mitigation projects. However, the local planning team anticipates that the population will remain about the same over the next several years.

Figure HMN.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates that the percentage of Herman's population that are either children under five and residents over sixty-four years old is slightly higher than the Washington County average. This is relevant to hazard mitigation insofar as the very young and 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 HMN.4: Population by Age

Age	Herman	Washington County	State of Nebraska
<5	6.1%	5.6%	7.2%
5-64	78.0%	79.8%	79.2%
>64	15.9%	14.5%	13.6%
Median	41.6	41.0	36.2

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

The following table indicates that Herman's median household income is significantly lower than the county average. Herman has a median home value approximately 46 percent lower than the county average. 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 after hazardous events.

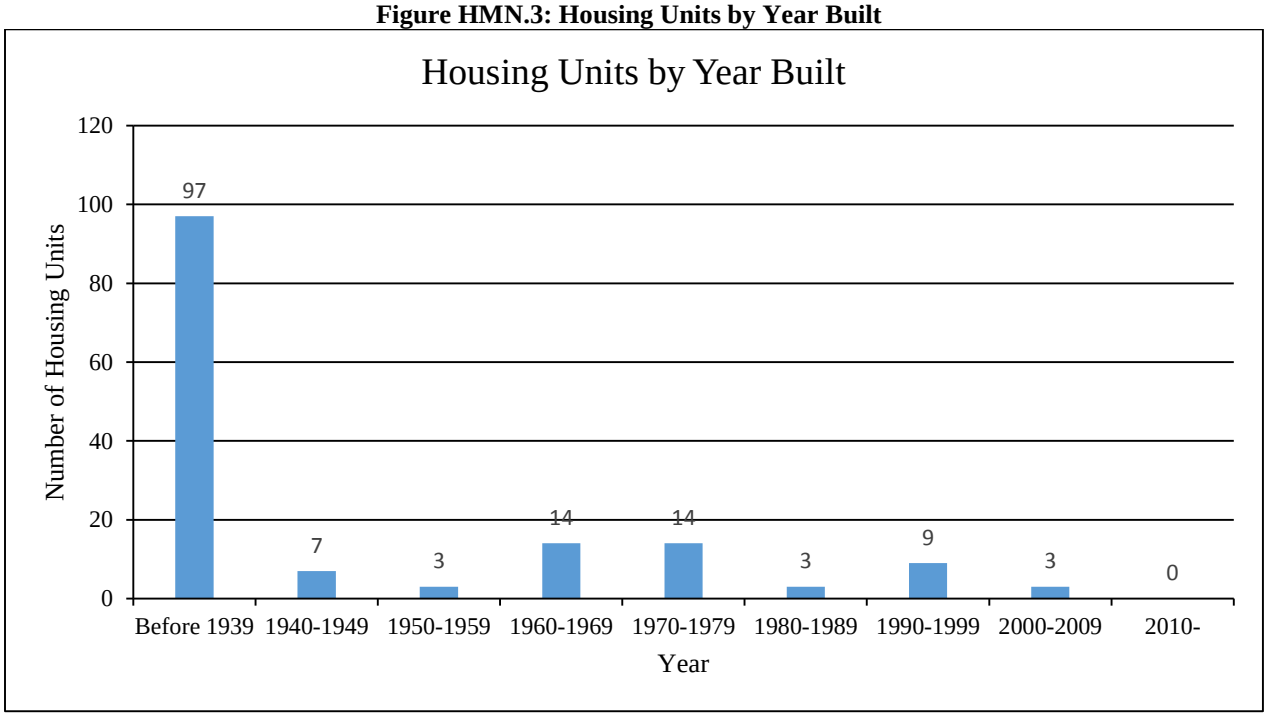
Table HMN.5: Housing and Income

	Herman	Washington County	State of Nebraska
Median Household Income	$46,875	$65,409	$51,672
Per Capita Income	$19,909	$29,328	$26,899
Median Home Value	$79,600	$169,700	$128,000
Median Rent	$575	$722	$706

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

The following figure indicates that nearly sixty-five percent of the housing in Herman was built prior to 1940. According to 2009-2013 ACS 5-year estimates, the community has 150 housing units; with 81.3% percent of those units occupied. 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 in 1987. Further, unoccupied housing may suggest that future development may be less likely to occur.

Figure HMN.3: Housing Units by Year Built



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

Table HMN.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units		
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Herman	122	81.3%	28	18.7%		101	82.8%	21	17.2%
Washington County	7,647	91.9%	665	8.0%		5,971	78.1%	1,676	21.9%

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

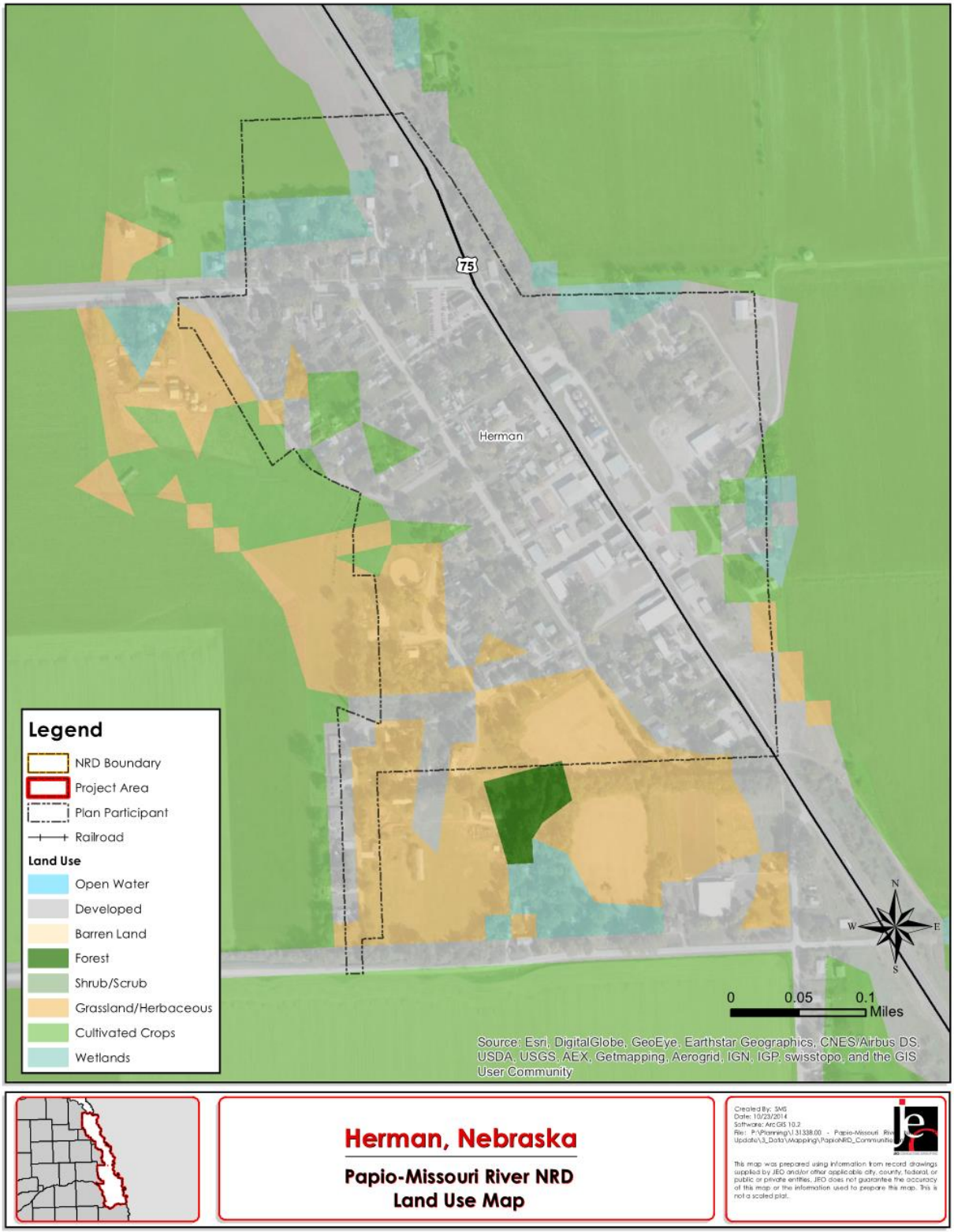
MAJOR EMPLOYERS

Major employers within the village include the school, and Peterson's Bar 75. A large percentage of the population commutes to Blair and Omaha for work.

FUTURE DEVELOPMENT TRENDS

In the past five years, some old buildings have been demolished, and the village built a new fire station. There are no residential or commercial development planned for the next five years.

Figure HMN.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 HMN.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
151	$8,156,630	$54,017	5	$256,175

Source: GIS Workshop/Washington 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 no chemical storage sites in Herman.

HISTORIC SITES

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

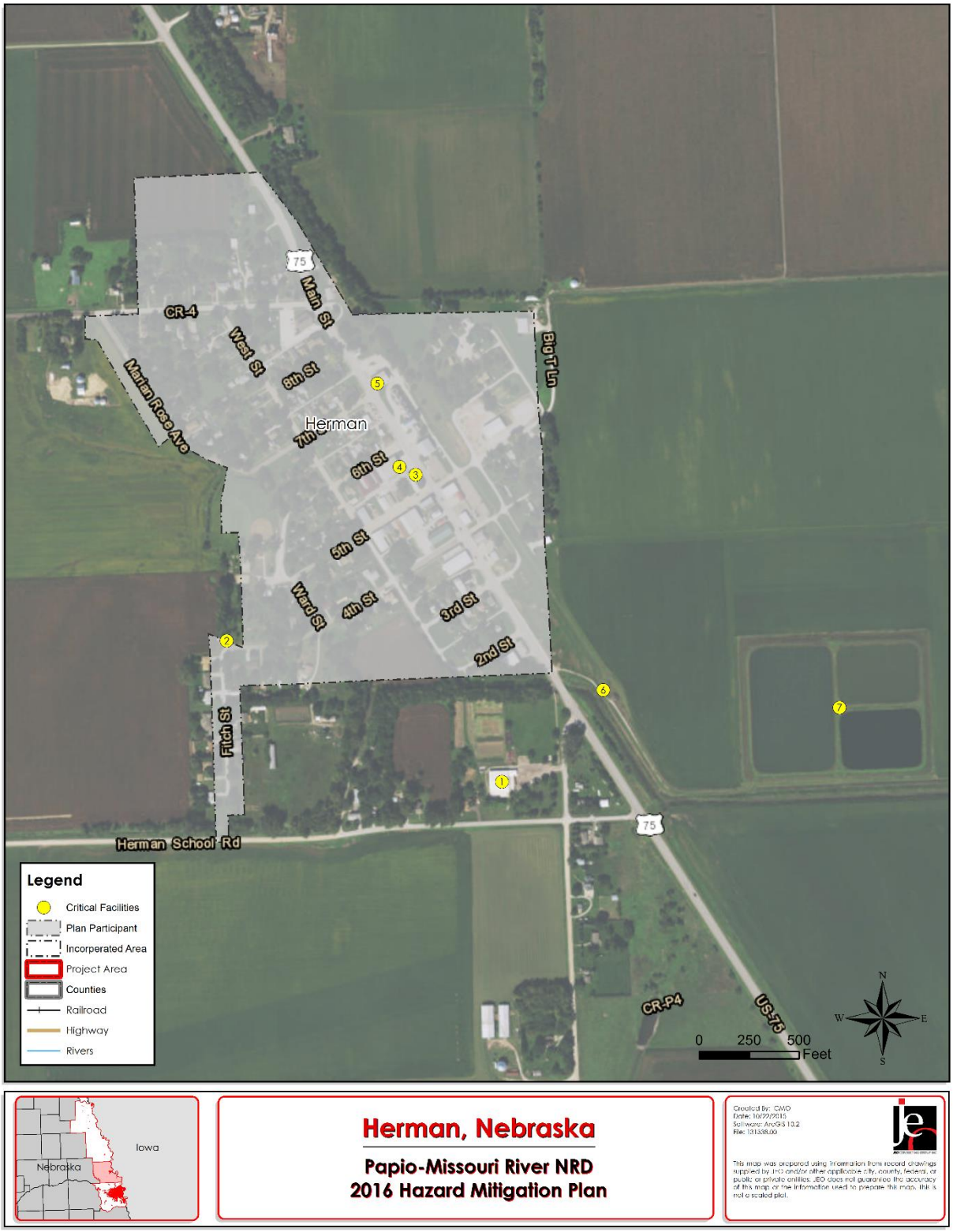
CRITICAL FACILITIES

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 HMN.8: List of Critical Facilities in Herman

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	School	Herman Elementary	20051 Co Rd 25	N	N	N
2	Water Tower	Water Tower	4th and Fitch	N	N	N
3	Municipal Building	Village Office	504 Main	N	N	N
4	Fire Department/Village Shops	Fire Station/Village Shops	508/509 Main	N	Y/N	N
5	Community Hall	Legion Hall	700 Main	Y	N	N
6	Pump Station	Lift Station	1st and Hwy 75	N	Y	Y
7	Wastewater	Lagoon	1st and Hwy 75	N	N	Y

Figure HMN.6: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC reported 11 severe weather events from January 1996 to 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 provides crop damage by hazard, but at the county level only. For this information, please refer to Washington County's participant section.

Table HMN.9: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
6/8/1998	Flash Flood	-	0	0	$0
9/2/2000	Hail	0.88 in.	0	0	$0
9/2/2000	Thunderstorm Wind	55 kts EG	0	0	$3,000
6/18/2001	Thunderstorm Wind	55 kts EG	0	0	$0
9/20/2001	Hail	0.75 in.	0	0	$0
4/16/2002	Thunderstorm Wind	60 kts EG	0	0	$0
4/17/2002	Hail	1.75 in.	0	0	$0
3/31/2007	Tornado	EF1	0	0	$15,000
5/14/2007	Hail	0.75 in.	0	0	$0
7/18/2007	Thunderstorm Wind	52 kts EG	0	0	$0
5/29/2008	Thunderstorm Wind	61 kts. EG	0	0	$0
		Total	**0**	**0**	**$18,000**

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 Herman. 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 HMN.10: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	Yes	-	None
Agricultural Plant Disease	Yes	-	None
Chemical Spills (Fixed Site)	No	-	None
Chemical Spills (Transportation)	No	-	Type and quantity of chemicals transported on Hwy 75 unknown
Civil Disorder	No	-	None
Dam Failure	No	-	None

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Drought	Yes	-	None
Earthquakes	No	-	None
Extreme Heat	Yes	-	None
Flooding*	Yes	-	Property damages; road closures
Grass/Wildfires	Yes	-	None
Hail*	Yes	Roof replacement	Crop and property damages; economic impacts
High Winds*	Yes	Water tower roof replaced	Downed trees and power lines; power outages
Landslides	No	-	None
Levee Failure	No	-	None
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$3,000	Power outages; blocked roads
Severe Winter Storms*	Yes	-	Road closures; stranded motorists; power outages
Terrorism	No	-	None
Tornados*	Yes	$15,000	Property damages; loss of life; economic impacts
Urban Fire	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 Herman's Risk Assessment Summary that is relevant to each hazard.

Flooding

Flooding was identified by the local planning as a hazard of top concern for Herman. According to NCDC, there has been one flash flood event since 1996, which occurred on June 8, 1998. During the flash flood, 8 to 12 inches of water was flowing across Highway 75, and there was some flooding near homes southwest of Herman. The report does not indicate any damages nor does it indicate if any homes were flooded as result of this event. The local planning team did not identify any other flood events. Furthermore, no critical facilities have been damaged by flooding. However, the local planning team did note that the area under the bridge on the south side is full of debris and can cause some poor drainage. Additionally, the village park on the west side of the village is next to farmland. Heavy rains will flow from the fields into the park, causing ponding and other localized flooding issues. The village is going to buy cement pavers along with building a berm to try to alleviate the flooding through the park from the fields.

The Village of Herman has a delineated floodplain on the very south side of the village and also northeast outside the corporate boundaries of the village. Herman has two NFIP policies in-force for $245,000 and there are no repetitive flood loss properties in the Village of Herman.

Table HMN.11: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$256,175	5	151	3.3%

Source: GIS Workshop/Washington County Assessor

Implemented mitigation actions:

- Member of the NFIP

Identified mitigation actions:

- Alleviate flooding from open fields into village park
- Enforce floodplain regulations

Hail

Hail is a common occurrence in Herman as well as the rest of the planning area. There have been four reported hail events ranging in size from 0.75 to 1.75 inches. Although there are no reported damages through the NCDC, the village has experienced some losses from hail events. Past hail events have caused damage to roofs at the Village Office and the Legion Hall, which were replaced. It was noted that in 2012 a severe hail storm caused many homeowners to replace their roofs due to significant hail damage.

Implemented mitigation projects:

- Roofs replaced on critical facilities
- Weather radios available in critical facilities

Identified mitigation projects:

- Obtain back-up power generators for critical facilities

Severe Thunderstorms

The local planning team identified severe thunderstorms as a hazard of top concern for Herman. Heavy rain, high winds, lightning, and hail are possible hazards that are associated with severe thunderstorms and can impact the village with downed power lines, localized flooding, property damages, and blocked evacuation or emergency routes. According to NCDC, outbuildings were damaged near Herman from 60 mph thunderstorm winds on September 2, 2000 and 60 knot winds on April 16, 2002 downed power lines near Herman. Extensive tree damage also occurred from thunderstorm winds in Herman on June 18, 2001. The local planning team mentioned that none of the power lines in the village are buried, which are at risk to power outages from thunderstorm wind and lightning.

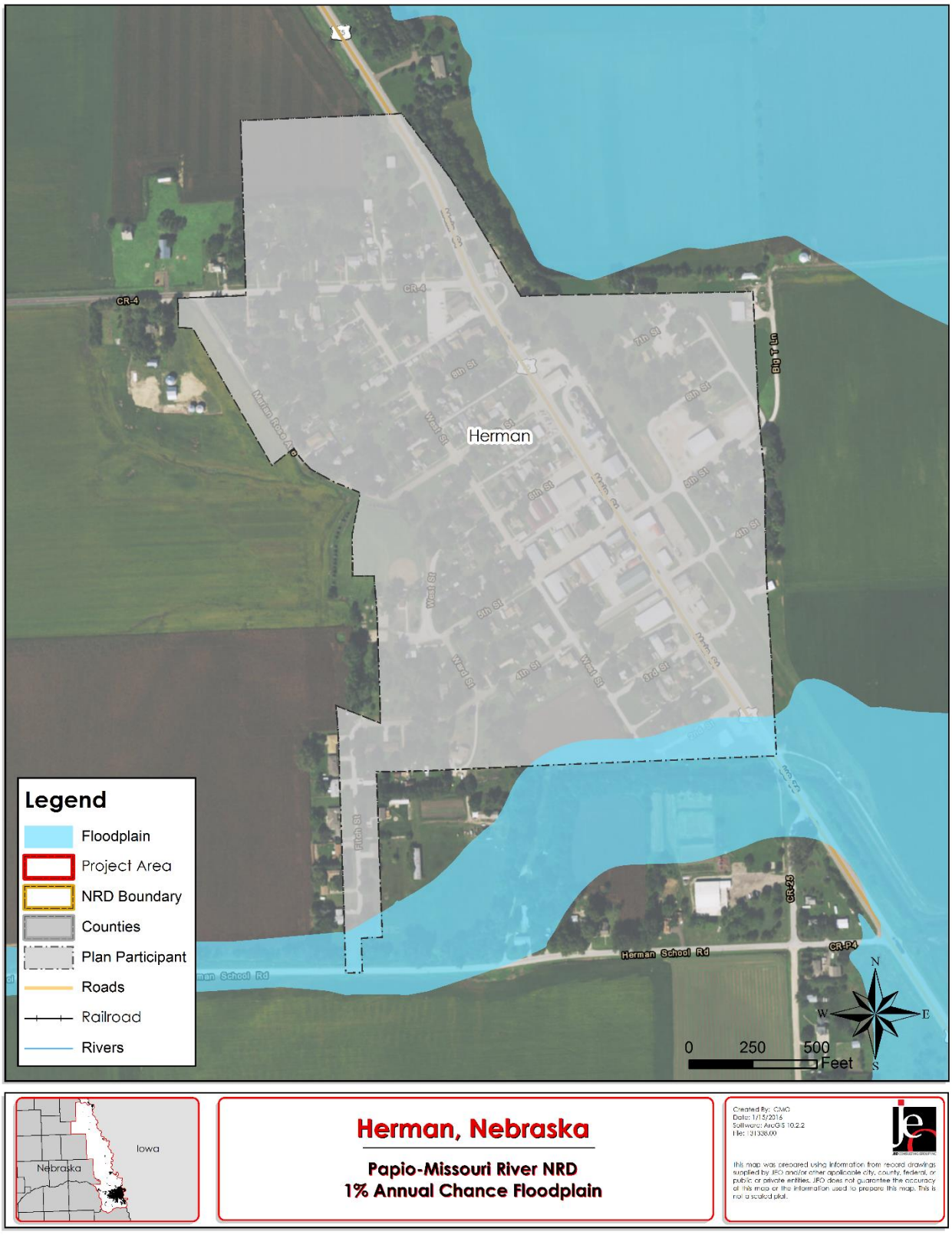
Implemented mitigation projects:

- Electronic devices use surge protectors
- Lift station and fire station have back-up power generators
- Weather radios available in critical facilities

Identified mitigation projects:

- Obtain back-up power generators for critical facilities

Figure HMN.X: Herman 1% Annual Chance Floodplain



Severe Winter Storms
Severe winter storms was selected as a top concern for the village by the local planning team. The winter of 2009-2010 included several severe winter storms that greatly impacted the region. The Christmas Winter Storm of 2009, which began on December 24 and ended on the 26th, brought up to 16 inches of snow along with gusting winds over 40 mph. This caused significant blowing and drifting snow which brought traffic to a standstill for several days. The local planning team did not report any damages to facilities as a result of severe winter storms. Streets are cleared by Village Maintenance, and snow removal resources have been determined sufficient for local events.

Implemented mitigation projects:
- Snow fences utilized at 4th and Fitch Streets
- Sufficient snow removal equipment
- Village has designated snow routes

Identified mitigation projects:
- Obtain back-up power generators for critical facilities
- Back-up municipal records regularly

Tornados and High Winds
Tornados and high winds were identified as hazards of top concern due to previous damages and occurrences. On March 31, 2007, an EF-1 tornado touched down about 3 miles west of the Village of Herman. It tracked about one mile before lifting, and the tornado path width was measured at a quarter of a mile. The tornado did not damage any buildings in Herman; however some outbuildings were damaged and a horse barn was nearly destroyed. High winds have caused damages in the village to the water tower, which required the roof to be replaced in June 2014. The community does not have a safe room, but if community members are seeking safe shelter they could go to the legion hall basement.

Implemented mitigation projects:
- Educational outreach activities on severe weather are provided in the community
- Municipal records are regularly backed up
- Weather radios available in critical facilities
- Mutual aid agreements with neighboring communities and fire departments

Identified mitigation projects:
- Obtain back-up power generators for critical facilities
- Build or retrofit a building for a safe room

GOVERNANCE
A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. Herman has a limited number of offices or departments that may be involved in implementing hazard mitigation initiatives. The village board has 5 board members, including the Board Chairperson.

- Village Maintenance
- Planning Commission
- Volunteer Fire Department

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 HMN.12: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes (2008)
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Under Development
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Natural Resources Protection Plan	Yes (NRD)
	Open Space Preservation Plan	No
	Floodplain Management Plan	Yes
	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 Technical Capability	Planning Commission	Yes
	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	No
	Grant Manager	Yes (MAPA)
	Other (if any)	
Fiscal Capability	Capital Improvement Project Funding	Yes
	Community Development Block Grant	Yes
	Authority to Levy Taxes for Specific Purposes	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	Yes
	Water/Sewer Service Fees	Yes
	Development Impact Fees	Yes
	General Obligation Revenue or Special Tax Bonds	Yes
	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)	Yes
	Natural Disaster or Safety related school programs	Yes

Survey Components/Subcomponents		Existing (Yes/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 Herman's participant section.

Table HMN.13: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Local Emergency Operations Plan (LEOP)	2011

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 Herman, which was last updated in 2011, is an annex of Washington 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.

New Mitigation Actions

Description	Back-up Power Generator
Analysis	Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters.
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+
Funding	Local taxes, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Board Chairman
Status	Village office, Legion Hall, and Village Shop need generators.

Description	Back-up Municipal Records
Analysis	Develop protocol for back-up of critical municipal records
Goal/Objective	Goal 2/ Objective 2.2

Description	**Back-up Municipal Records**
Hazard(s) Addressed	All hazards
Estimated Cost	$1,000+
Funding	Local taxes
Timeline	Ongoing
Priority	High
Lead Agency	Village Clerk
Status	Ongoing

Description	**Tornado Shelters/Safe Rooms**
Analysis	Identify, construct and publicize tornado shelters or safe rooms
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornado
Estimated Cost	$200-$300/sqft stand alone; $150-$200/sqft addition/retrofit
Funding	Local taxes, HMGP, PDM
Timeline	1-2 years
Priority	High
Lead Agency	Board Chairman
Status	The Village Shop has been identified as a good location for a safe room retrofit as this side of the village does not have basements in homes.

Description	**Update Comprehensive Plan**
Analysis	Update comprehensive plan. Integrate plan with Hazard Mitigation Plan components.
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	All hazards
Estimated Cost	Staff Time
Funding	N/A
Timeline	2-3 years
Priority	Medium
Lead Agency	Planning Commission
Status	Not yet started

Description	**Maintain Good Standing with 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	Existing Staff
Funding	N/A
Timeline	Ongoing
Priority	Medium
Lead Agency	Floodplain Administrator
Status	Ongoing

Description	**Build Berm at Park**
Analysis	Construct a berm at the village park to reduce or eliminate flooding into park and nearby neighborhoods
Goal/Objective	Goal 3/ Objective 3.4
Hazard(s) Addressed	Flooding
Estimated Cost	Unknown
Funding	Local taxes, FMA
Timeline	1-2 years

Description	**Build Berm at Park**
Priority	High
Lead Agency	Board Chairman
Status	Not yet started

PARTICIPANT SECTION
FOR THE

ARLINGTON PUBLIC SCHOOL DISTRICT

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 Arlington Public School District, including the following elements:

- Participation
- Location / Services
- Demographics
- Future Development
- Critical Facilities
- School Drills and Staff Trainings
- Risk Assessment
- Administration / Capability Assessment
- Plan Integration
- Mitigation Strategy

PARTICIPATION

LOCAL PLANNING TEAM

Table APS.1 provides the list of participating members that comprised the Arlington Public School District 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 district, and prioritization of mitigation actions that address the hazards at risk to the district.

Table APS.1: Arlington Pubic Schools Local Planning Team

Name	Title	Department / Jurisdiction
Lynn Johnson	Superintendent	Arlington Public Schools
Lawrence Reed	Head of Maintenance	Arlington Public Schools

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 APS.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
August 10, 2015	Passed Resolution of Participation	School Board Meeting
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

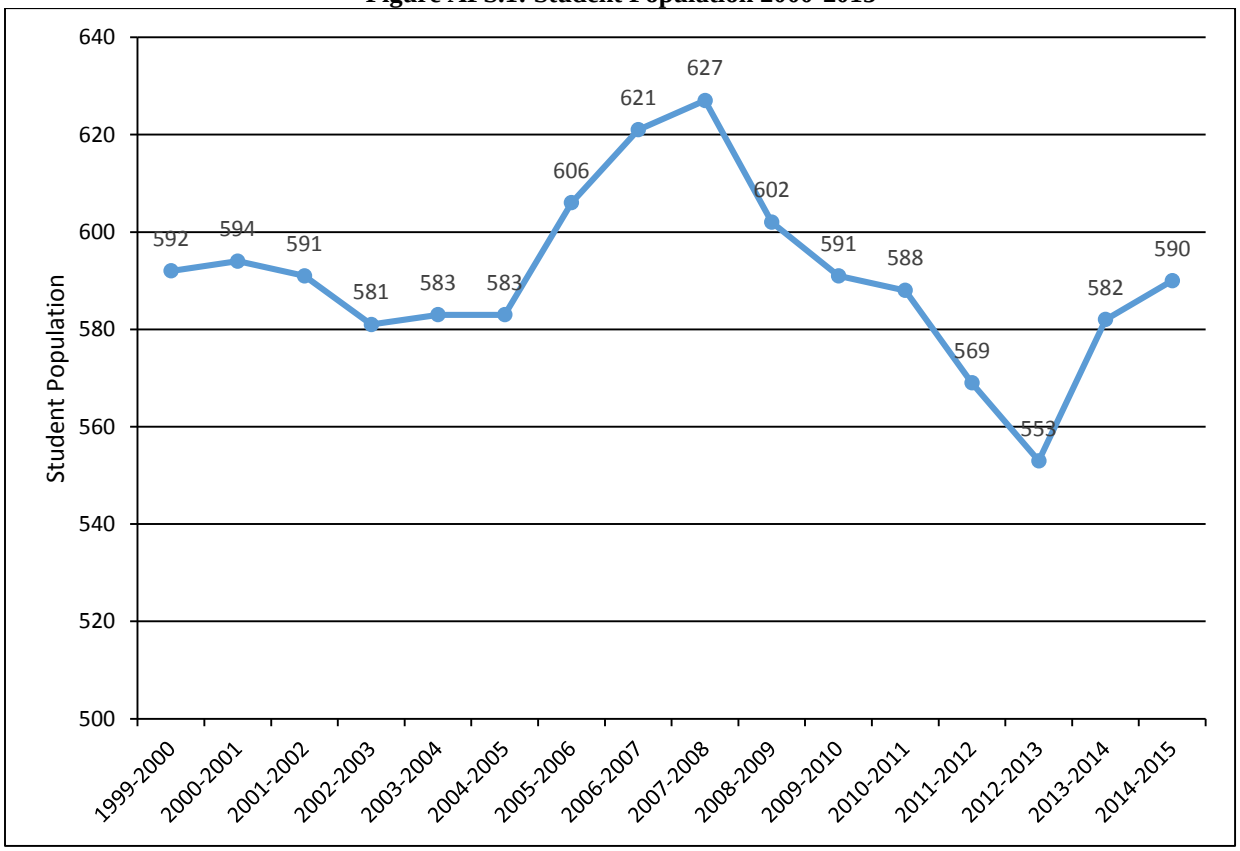
LOCATION AND SERVICES

Arlington Public Schools operates an elementary school and high schools with approximately 600 students enrolled. The district provides services to students living in portions of Washington, Dodge, and Douglas Counties and includes the communities of Arlington, Kennard, and Elk City. The school is utilized throughout the year after normal school hours for a variety of events.

DEMOGRAPHICS

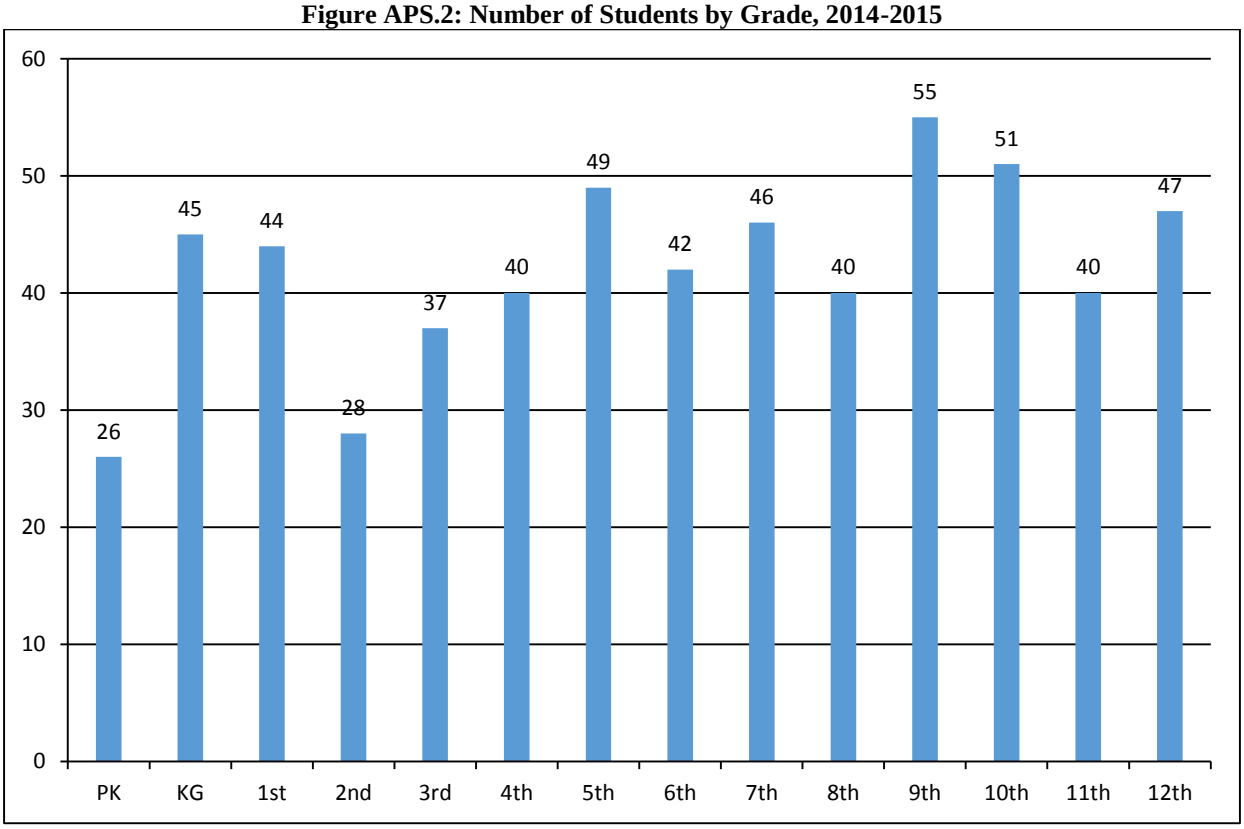
The following figure displays the historical student population trend starting with the 1999-2000 school year and ending with the 2014-2015 year. There are 590 students enrolled in the district. It is anticipated that enrollment will be consistent in the coming years.

Figure APS.1: Student Population 2000-2015



Source: Nebraska Department of Education

Figure APS.2: Number of Students by Grade, 2014-2015



Source: Nebraska Department of Education

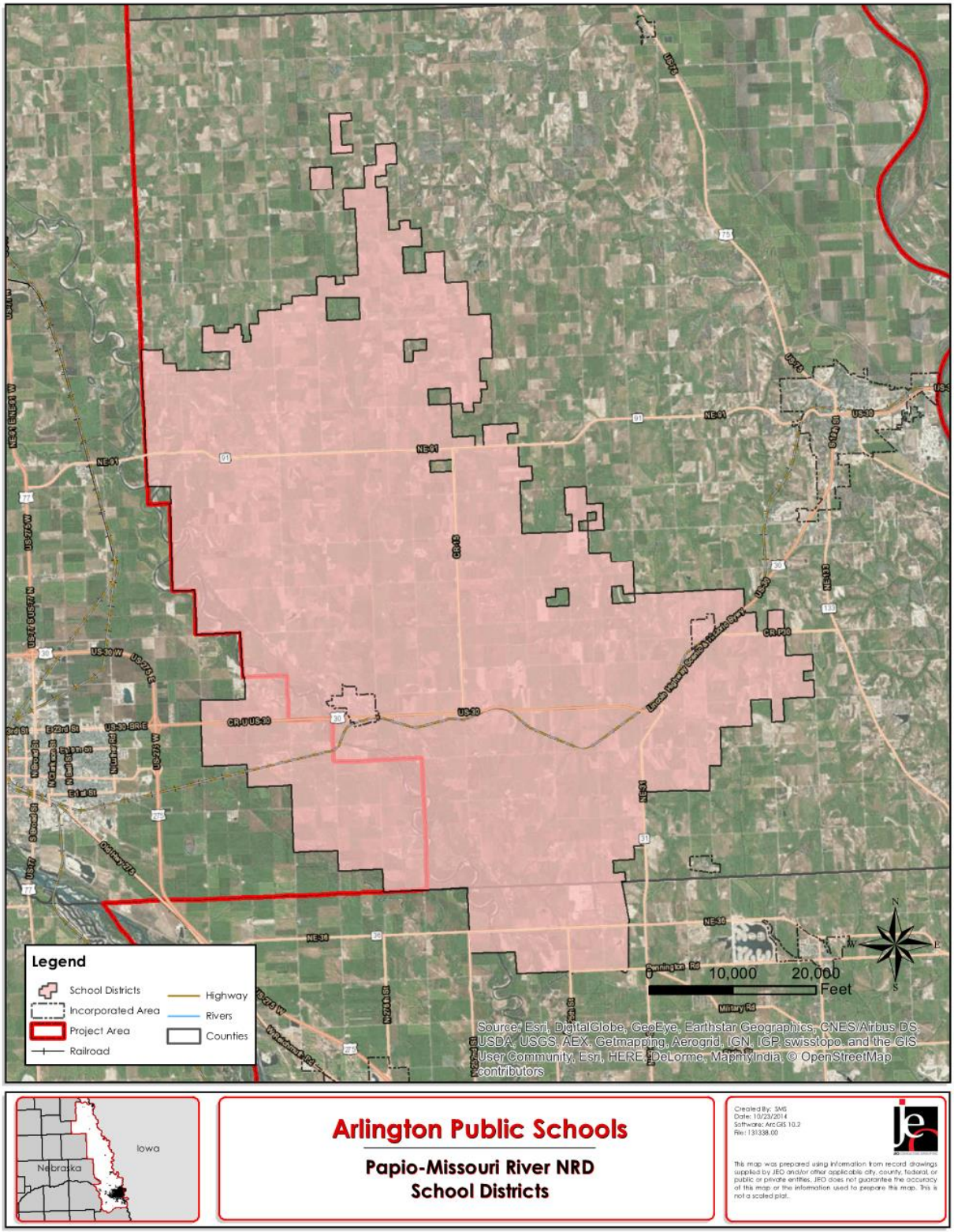
The figure above indicates that the largest number of students are in the 9th and 12th grades. The lowest population of students are pre-kindergarten, 1st, and 2nd grades. According to the Nebraska Department of Education, nearly 22 percent of students receive either free or reduced priced meals at school. This is significantly lower than the state average at nearly 45%. Additionally, nearly 12% of students are in the Special Education Program. These particular students may be more vulnerable during a hazardous event than the rest of the student population.

Table APS.3: Student Statistics, 2013-2014

	School District	State of Nebraska
Free/Reduced Priced Meals	21.65%	44.93%
School Mobility Rate	7.18%	12.10%
English Language Learners	*	6.04%
Special Education Students	11.67%	15.74%

Source: Nebraska Department of Education
**Information withheld*

Figure APS.1: School District Map



FUTURE DEVELOPMENT TRENDS

In 2009, the district completed a renovation project of 20,000 sq. ft. and 49,000 sq. ft. of new construction. These renovations included a new addition with fine arts, media space, and classrooms; a remodel of the entire elementary space; added buzz-in doors; and moved the administration offices. There are no additional plans for construction in the next five years.

CRITICAL FACILITIES

The school district operates one facility. The facility is listed below, along with information indicating the school's address, number of students and staff, if the facility is used as a shelter during an emergency (i.e. Red Cross Shelter), and the presence of a tornado safe room.

Table APS.1: Critical Facilities

CF #	Name	Address	Number of Students	Number of Staff	Red Cross Shelter (Y/N)	Safe Room (Y/N)	Located in Floodplain (Y/N)	Back-up Power Generator (Y/N)
1	Arlington Elementary and High School	705 N. 9th	311, 279	70	Y	N	N	N

SCHOOL DRILLS AND STAFF TRAINING

Students and staff participate in a number of drills throughout the school year. The school follows the Standard Response Protocol (SRP Model) for the types of drills that are covered, which are: shelter-in-place (i.e. tornado drills twice per year), evacuation (i.e. fire drills every month), lockdowns (i.e. active shooter), lockouts (i.e. threat or hazard outside the school building), and bus evacuations (twice per year).

Staff are trained on at least an annual basis utilizing the SRP model. The district works with the local fire department, Washington County Sheriff, Region 5/6 Emergency Management, and State Patrol to teach students about preparedness and assistance with district drills. The school also sends home information flyers to parents on the SRP model.

Figure APS.4: Critical Facilities

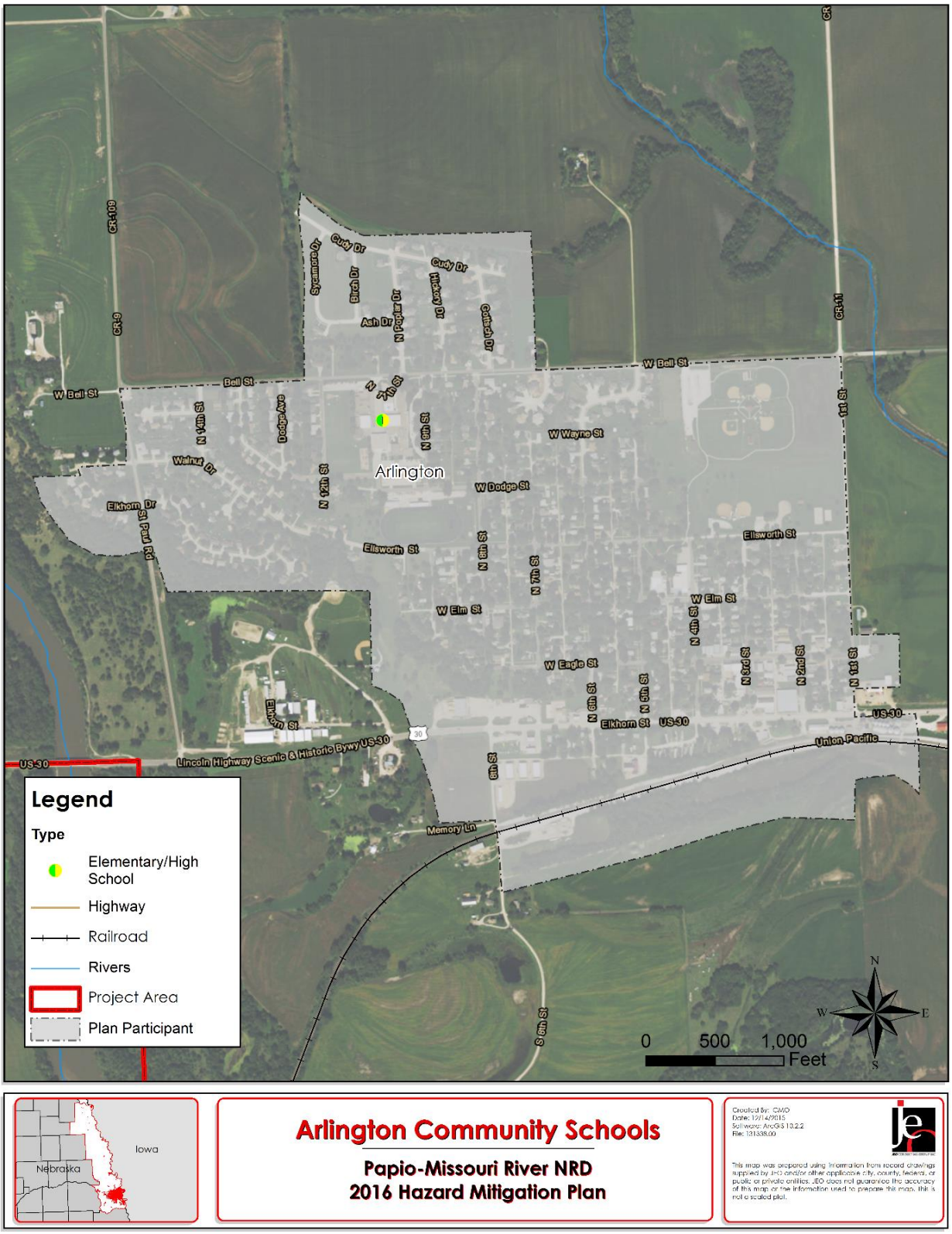
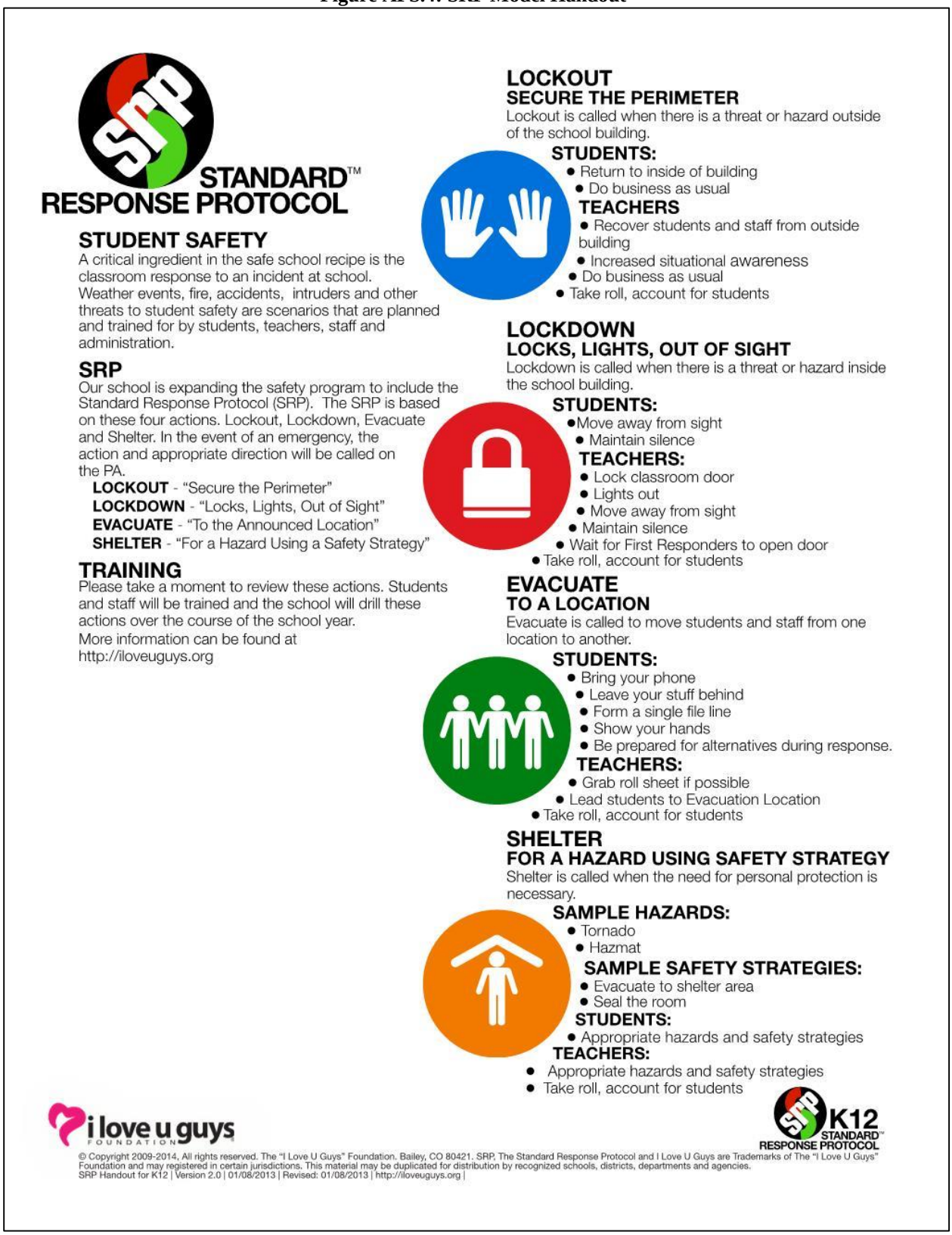


Figure APS.4: SRP Model Handout



HISTORICAL OCCURRENCES

For a table of historical weather hazard occurrences according to the National Climatic Data Center, please see the Participant Section for the Village of Arlington.

RISK ASSESSMENT

Hazard Identification

The following table is a localized risk assessment of hazards identified specifically for the district. 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 APS.5: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	N/A	N/A
Agricultural Plant Disease	N/A	N/A
Chemical Spills (Fixed Site)	No	None
Chemical Spills (Transportation)	No	None
Civil Disorder	No	None
Dam Failure	No	None
Drought	Yes	None
Earthquakes	No	None
Extreme Heat	Yes	None
Flooding*	Yes	Property damage
Grass/Wildfires	Yes	None
Hail*	Yes	Property damage
High Wind	Yes	Power outages
Landslides	No	None
Levee Failure	No	None
Radiological Incident (Fixed Site)	No	None
Radiological Incident (Transportation)	No	None
Severe Thunderstorms*	Yes	Power outages; property damage
Severe Winter Storms*	Yes	Power outages; property damage; cancelled classes
Terrorism	No	None
Tornados*	Yes	Student and staff safety; property damage
Urban Fire	No	None

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

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

Hail

Hail from severe thunderstorms is a common occurrence across the region and was identified as a top concern for the district. There have been reported damages from hail to facilities in the school district. Hail sizes of over an inch to 2.50 inches or larger can cause significant damages to roofs, windows, vehicles, and siding especially when the hail is wind-driven. The school skylights and the roof have been damaged by hail in June 2014.

Implemented mitigation projects:

- School facility is insured for hail damaged

Identified mitigation projects:

- Install hail resistant roofing
- Promote first aid training

Flooding

Flooding is a concern for the school district. The Village of Arlington does have a one percent floodplain identified due to the proximity of Bell Creek to the east and the Elkhorn River to the west of the village. The school building is located in the northwest portion of the community and is not located in a floodplain. However, the storage shed on the athletic field has been flooded twice in the past. However, the district recently fixed the grading around the school and completed some cement surfacing to alleviate the flooding. There are also drainage issues in the school courtyard and there were some flooding issues in 2012-2013. The doors are now sealed that lead out to the courtyard, and that has fixed leaking into the building from the courtyard.

Implemented mitigation projects:

- Doors sealed in courtyard to reduce leaking into building
- Grading and cement improvements to alleviate flooding on school grounds

Identified mitigation projects:

- Improve emergency communications

Severe Thunderstorms

Severe thunderstorms was identified as a top concern for the school district. The combination of high winds, heavy rain, lightning, and hail can cause significant damages to district property. A severe thunderstorm on June 1, 2010 caused minor structural damage and down tree limbs in the Village of Arlington from 60 mph wind gusts.

Implemented mitigation projects:

- Weather radio available

Identified mitigation projects:

- Obtain back-up power generator

Severe Winter Storms

Winter storms are a regular part of the climate for the region and can cause road closures, dangerously low temperatures, and power outages. The winter of 2009-2010 was especially harsh for the area. The Christmas Winter Storm of 2009 brought over a foot of snow and high winds gusting over 40 mph. These winds in combination with heavy snow produced widespread low visibilities and extremely low wind chills.

Implemented mitigation projects:

- School is closed during dangerous winter storms

Identified mitigation projects:

- Obtain back-up power generator

Tornados

Although school facilities have not been directly impacted by a tornado, the Village of Arlington has had three tornados since 1996 that have affected the edge of the village or nearby. On June 20, 1996, an F1 tornado touched down north of the village and damaged a church as well as eight nearby farmsteads. Damages were estimated at $300,000. A brief F0 tornado caused tree damage and damaged 4 outbuildings outside of Arlington. The third tornado was also an F1 and affected areas north of Arlington. Farm houses and barns, outbuildings, power lines, and trees were all damaged along its path, and total damage cost was estimated at $600,000. The school district is concerned with the safety of students and staff in the event of a tornado directly impacting their school, particularly during the school year.

Implemented mitigation projects:

- Tornado drills twice per year
- Utilize the SRP model

Identified mitigation projects:

- Obtain back-up power generator

ADMINISTRATION/CAPABILITY ASSESSMENT

The school district has a superintendent, two principals, one assistant principal, and supportive staff. The school board is made up of a six member panel. The district also has a number of additional departments and staff that may be available to implement hazard mitigation initiatives. They include:

- Bookkeeper/District Treasurer
- Student Services Coordinator
- Technology
- Custodians
- Nurse
- Maintenance
- Buildings and Grounds

PLAN INTEGRATION

Arlington Public Schools maintain and review their Emergency Response Manual every year. The plan outlines the responsibilities of the Crisis Team as well as procedures for the following:

- Emergency evacuations
- Lockouts
- Lockdowns
- Bomb threats
- Intruder or hostage situation
- Bus situations
- Chemical spills

The plan was to be updated in the fall of 2015.

MITIGATION STRATEGY

New Mitigation Actions

Description	Back-up Power Generator
Analysis	Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters.
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+
Funding	General budget, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Maintenance
Status	Not yet started

Description	Emergency Communications
Analysis	Establish an action plan to improve communication between schools and other government agencies to better assist students and staff during and following emergencies. Establish inner-operable communications. Van and bus radios are especially needed.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$2,000/unit
Funding	General budget, Homeland Security
Timeline	Ongoing
Priority	High
Lead Agency	Safety Committee
Status	Ongoing

Description	Warning Systems
Analysis	Install new fire alarm system with strobe lights and warning sounds.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	Fire
Estimated Cost	Unknown
Funding	General budget
Timeline	2-5 years
Priority	High
Lead Agency	Maintenance
Status	Not yet started

Description	Hail Resistant Roofing
Analysis	Encourage the use of hail resistant roofing for any new construction or retrofit.
Goal/Objective	Goal 3/ Objective 3.4
Hazard(s) Addressed	Hail, Severe Thunderstorms, High Winds
Estimated Cost	Varies
Funding	General budget
Timeline	2-3 years
Priority	High
Lead Agency	Maintenance
Status	Not yet started

Description	**Install Vehicular Barriers**
Analysis	Install vehicular barriers to protect school facilities where possible.
Goal/Objective	Goal 3/ Objective 3.4
Hazard(s) Addressed	Terrorism, Civil Disorder, Transportation
Estimated Cost	Unknown
Funding	General budget
Timeline	5+ years
Priority	Low
Lead Agency	Maintenance
Status	Not yet started

Description	**Promote First Aid**
Analysis	Promote first aid training for all staff.
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	All hazards
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Safety Committee, School Nurse
Status	This is done annually.

Description	**Security and Warning System**
Analysis	Alert staff and/or police department when a door is left open after normal business hours to signal if someone broke in to the building.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	Terrorism, Civil Disorder
Estimated Cost	Unknown
Funding	General budget, Homeland Security
Timeline	5+ years
Priority	Low
Lead Agency	Superintendent
Status	Not yet started.

PARTICIPANT SECTION
FOR THE

BLAIR COMMUNITY SCHOOL DISTRICT

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 Community (i.e. County, Municipal, and School District) Profiles. Community Profiles include similar information that's also provided in the Regional section, but rather is specific information for the Blair Community Schools, including the following elements:

- Participation
- Location / Services
- Demographics
- Future Development
- Critical Facilities
- School Drills and Staff Trainings
- Risk Assessment
- Administration / Capability Assessment
- Plan Integration
- Mitigation Strategy

PARTICIPATION

LOCAL PLANNING TEAM

Table BCS.1 provides the list of participating members that comprised the Blair Community School District 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 district, and prioritization of mitigation actions that address the hazards at risk to the district.

Table BCS.1: The Blair Community School District Local Planning Team

Name	Title	Department / Jurisdiction
Leon Haith	Director of District Services	Blair Community Schools

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 BCS.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
August 10, 2015	Passed Resolution of Participation	Board of Education Meeting
December 22, 2015 – January 30, 2016	Community Profile available for public comment and review	http://jeo.com/papiohmp/

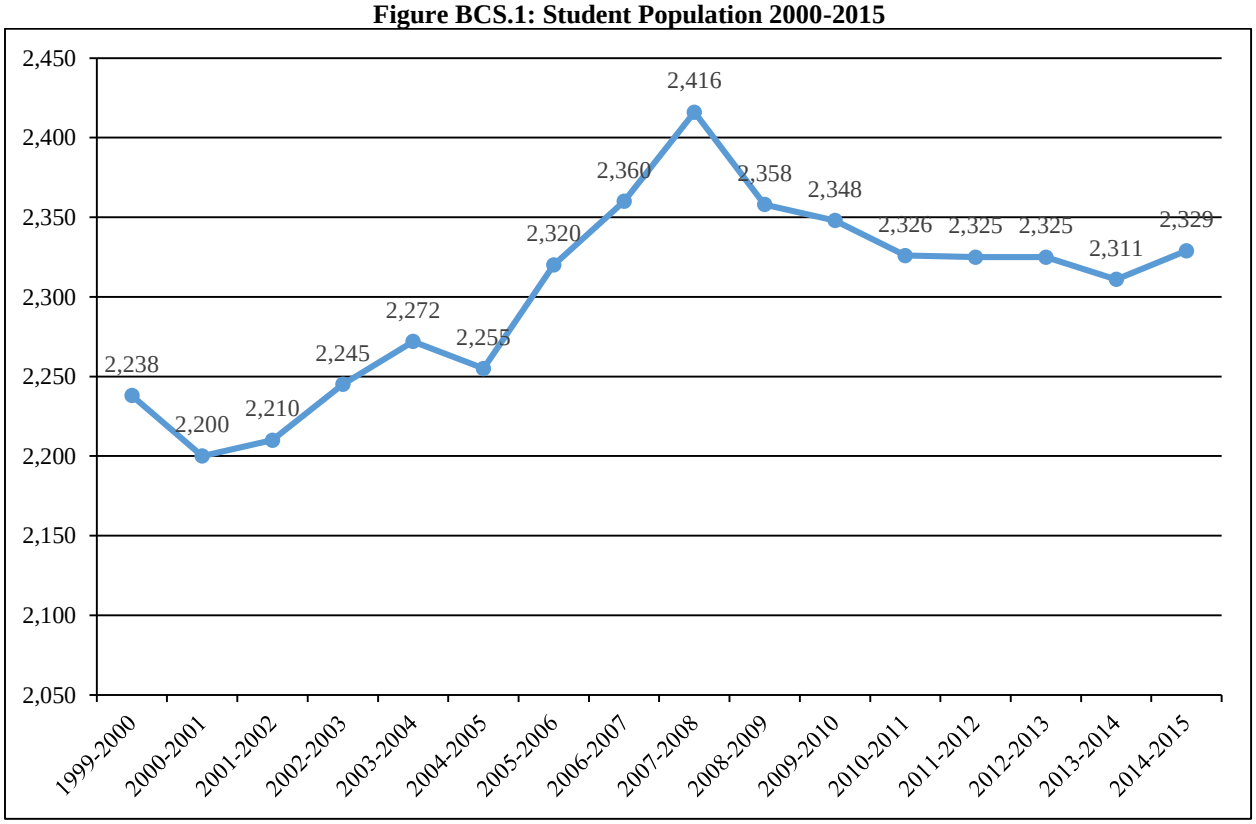
LOCATION AND SERVICES

Blair Community Schools operate six schools with three elementary schools (PK-3), one intermediate school (4-5), one middle school (6-8), and one high school (9-12). Across eastern Washington County, the school district covers over 142 square miles and serves students living in the City of Blair and rural areas of Washington County.

DEMOGRAPHICS

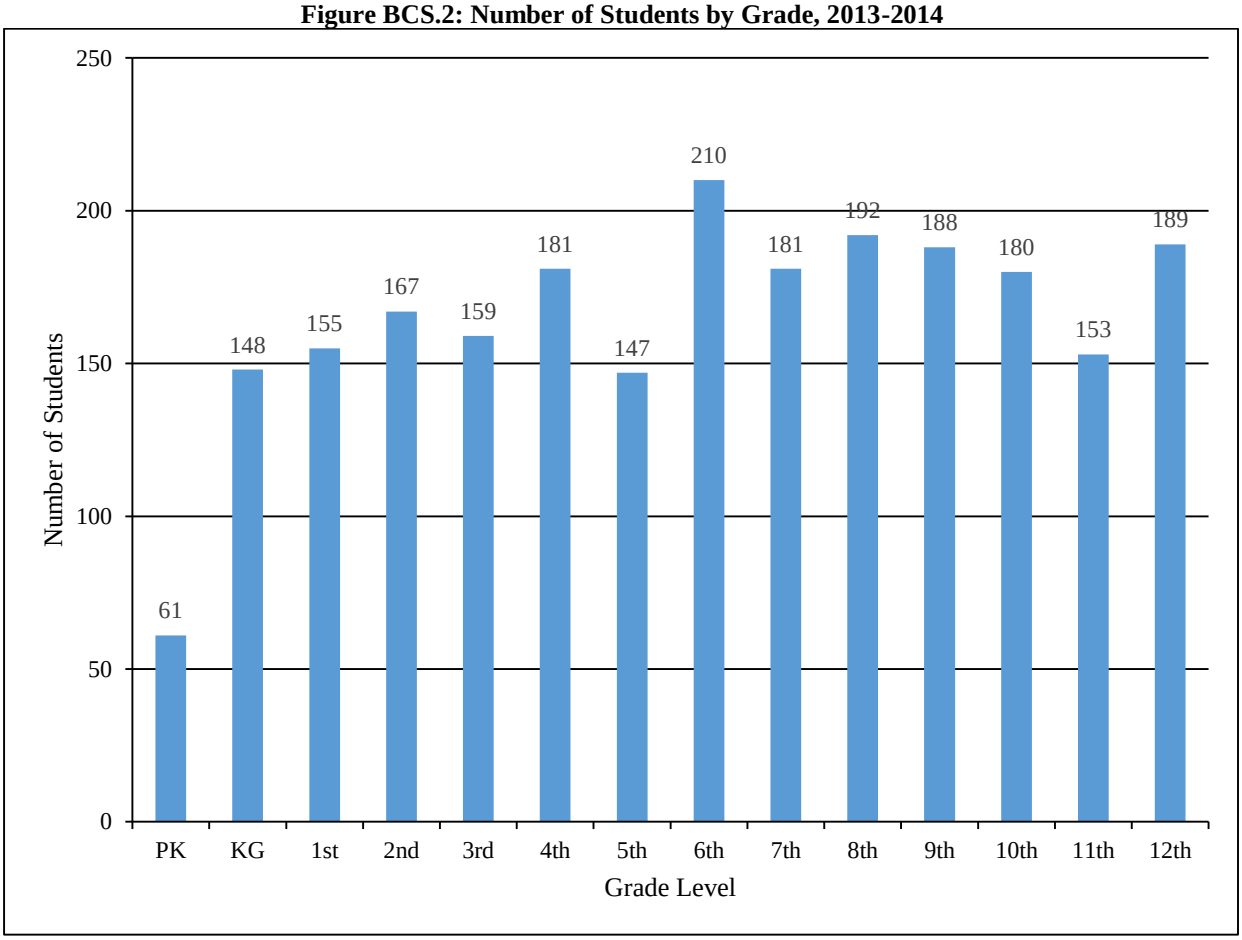
The following figure displays the historical student population trend starting with the 1999-2010 school year and ending with the 2014-2015 year. It indicates that the student population decreased between 2008 and 2010, and then held steady through 2012. As of the 2014-2015 school year, there are 2,329 students enrolled in Blair Community Schools.

Figure BCS.1: Student Population 2000-2015



Source: Nebraska Department of Education

Figure BCS.2: Number of Students by Grade, 2013-2014



Source: Nebraska Department of Education

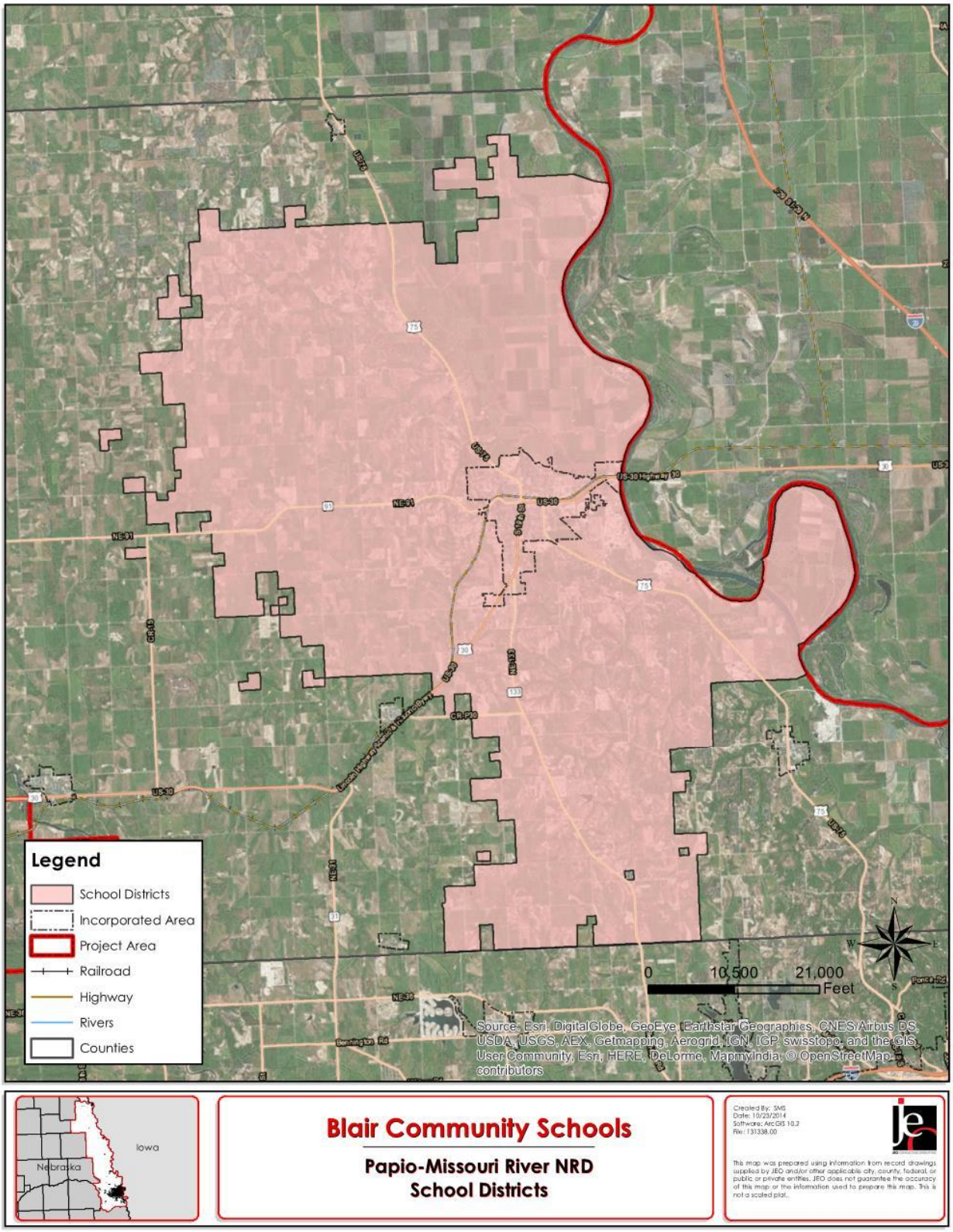
The figure above indicates that the largest number of students are in the 6th, 8th, and 12th grades. The lowest population of students are pre-kindergarten, 5th, and kindergarten. According to the Nebraska Department of Education, nearly 26 percent of students receive either free or reduced priced meals at school. This is significantly lower than the state average at nearly 45%. Additionally, there are just over one percent of students in the English Language Learners Program and nearly 14% of students are in the Special Education Program. These particular students may be more vulnerable during a hazardous event than the rest of the student population.

Table BCS.3: Student Statistics, 2013-2014

	Blair School District	State of Nebraska
Free/Reduced Priced Meals	25.79%	44.93%
School Mobility Rate	4.71%	12.10%
English Language Learners	1.16%	6.04%
Special Education Students	13.96%	15.74%

Source: Nebraska Department of Education

Figure BCS.3: School District Map



FUTURE DEVELOPMENT TRENDS

There are no plans for renovations or new construction in the district over the next five years. However, if new construction does occur, it is encouraged that the school district consider hazard mitigation projects into its design such as a safe room and back-up power generator.

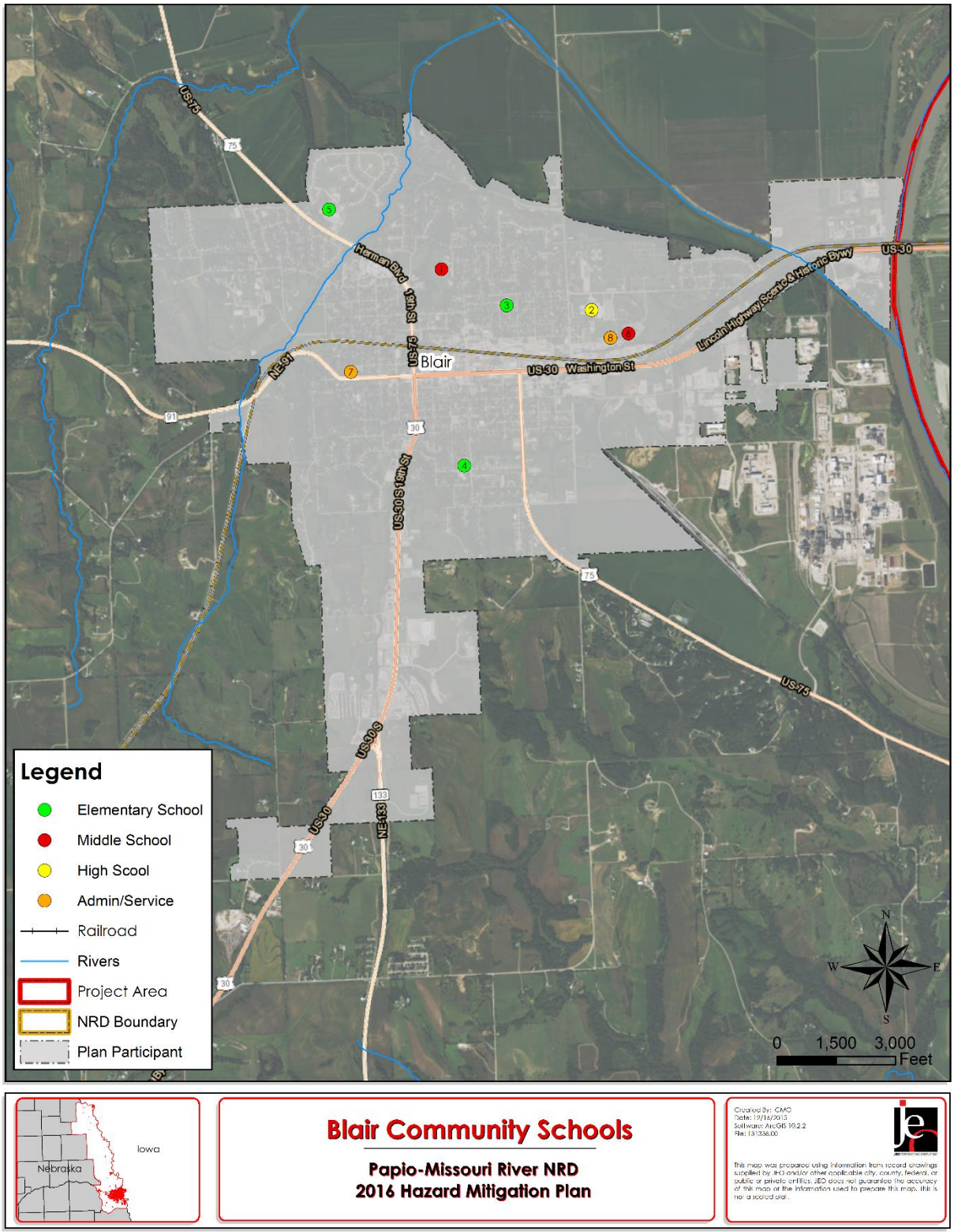
CRITICAL FACILITIES

The school district operates seven facilities, six of which are school buildings. These facilities are listed below, along with information indicating the school's address, number of students and staff, if the facility is used as a shelter during an emergency (i.e. Red Cross Shelter), and the presence of a tornado safe room.

Table BCS.4: Critical Facilities

CF #	Name	Address	Grades	# Students	# Staff	Red Cross Shelter (Y/N)	Safe Room (Y/N)	Back-up Power Generator (Y/N)	Located in Floodplain (Y/N)
1	Arbor Park Intermediate School	1717 Adams St.	3-5	352	37	Y	N	N	N
2	Blair High School	440 N. 10th St.	9-12	709	70	Y	N	N	N
3	North Elementary School	1326 Park St.	K-2	208	16	Y	N	N	N
4	South Elementary School	1616 Butler St.	K-2	172	23	Y	N	N	Y
5	Deerfield Elementary School	1100 Deerfield Blvd	PK-2	340	54	N	Y	Y	N
6	Gerald Otte Middle School	555 Jackson St.	6-8	548	52	Y	N	Y	N
7	Blair Community Schools Admin.	2232 Washington St.	N/A	N/A	9	N	N	N	N
8	Bus Barn	Iowa St.	N/A	N/A	N/A	N	N	N	N

Figure BCS.4: Critical Facilities



SCHOOL DRILLS AND STAFF TRAINING

The school district by law is required to conduct a number of drills throughout the year. Students participate in monthly fire drills, tornado drills twice per year, bus evacuations twice per year, and also an active shooter drill and school evacuation every other year. The school staff are trained throughout the year on how to conduct drills and other responses to emergencies.

HISTORICAL OCCURRENCES

For a table of historical weather hazard occurrences according to the National Climatic Data Center, please see the Participant Section for the City of Blair.

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for the district. 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 BCS.5: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	N/A	N/A
Agricultural Plant Disease	N/A	N/A
Chemical Spills (Fixed Site)	No	None
Chemical Spills (Transportation)*	Yes	Student and staff safety; possible evacuations
Civil Disorder	No	None
Dam Failure	No	None
Drought	Yes	None
Earthquakes	No	None
Extreme Heat	Yes	None
Flooding*	Yes	Property damages; transportation concerns
Grass/Wildfires	Yes	None
Hail*	Yes	Property damages
High Winds	Yes	Property damages; power outages
Landslides	No	None
Levee Failure	No	Not applicable
Radiological Incident (Fixed Site)*	No	Student and staff safety; possible evacuations
Radiological Incident (Transportation)	No	None
Severe Thunderstorms	Yes	Power outages; property damages
Severe Winter Storms	Yes	Transportation concerns
Terrorism	No	None
Tornados*	No	Property damages; student and staff safety; power outages
Urban Fire	No	None

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

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

Chemical Spills (Transportation)
The local planning team identified chemical spilled during transportation as a top concern for the district. The school facilities are located near rail lines and heavy semi-truck traffic. It is not known what chemicals are transported or the quantity through the City of Blair.

Implemented mitigation projects:
- Staff are trained on how to respond to spills
- Lockdown and evacuation drills are conducted annually

Identified mitigation projects:
- Continue educational opportunities and drills
- Improve emergency communication devices

Flooding
Although there has not been damages at the schools as a result of flooding, the district is concerned when roads wash out from heavy rain and flooding. Some of the facilities suffered water damage after the hail storm in June 2014, which damaged windows and siding, which allowed water to infiltrate into the building.

Implemented mitigation projects:
- Fixed water infiltration
- Weather radios available in some facilities

Identified mitigation projects:
- Improve emergency communication devices

Hail
In June 2014, the school district suffered significant damage from a major hail storm that hit the area with hail as large as 4.75 inches. The damage was variable across all the facilities in the district. The common threads of damage to all structures were roofs, HVAC units, windows, exterior wall panels, vehicle/bus damage, and interior water damage. As it was noted by the local planning team, any that was left in the open was vulnerable to the large hail and sustained some level of damage. The district's insurance company and associated contractors have been working diligently to assess damage, apply temporary fixes, secure all sites, and mitigate interior water infiltration and associated damages. Total damages are estimated at $7.8 million.

Implemented mitigation projects:
- District is insured for hail damage
- Completed repairs to HVAC units, windows, etc. after hail event

Identified mitigation projects:
- Provide or replace weather radios in all facilities

Radiological Incident (Fixed Site)
The Fort Calhoun Nuclear Power Plant is located about five miles southeast of Blair. The plant is heavily regulated and is inspected frequently. The school district is in the evacuation zone in the event of an emergency. For additional information regarding the Fort Calhoun Nuclear Power Plant, please refer to *Section Four: Risk Assessment*.

Implemented mitigation actions:
- Emergency exercises are conducted regularly

Identified mitigation actions:
- Provide educational outreach opportunities

Tornados
Although there has not been a recorded tornado that has impacted school facilities, tornados are common within the region. Tornados have the potential to cause loss of life and significant damages to property. Deerfield Elementary School does have a safe room available to students and staff as well as a back-up power generator. Twice per year students and staff conduct at tornado drill.

Implemented mitigation projects:
- One safe room available in one school
- Drills are conducted twice per year

Identified mitigation projects:
- Obtain back-up power generators for facilities
- Construct safe rooms for the rest of the school buildings

ADMINISTRATION/CAPABILITY ASSESSMENT
The school district has a superintendent, six principals, and three assistant principals. The school board is made up of a nine member panel. There is also an administrative secretary, administrative assistant, and business manager.

- District Services
- Technology Department
- Curriculum & Instruction Director
- Student Services
- Food Services
- Transportation Services
- Maintenance Services
- English Language Learners Program
- Health Services

PLAN INTEGRATION
The emergency operations plan for the school district is called the Emergency Management Procedure, and the manual is updated annually. Additionally, the district's plan is reviewed with all staff members annually. As noted earlier, each year a number of mock drills are conducted with staff and students. Furthermore, the Nebraska Department of Education requires a safety audit annually. These are completed in the spring of each year.

MITIGATION STRATEGY

New Mitigation Actions

Description	Safe Rooms
Analysis	Install or retrofit facilities to add safe rooms in needed schools for safety of students and staff
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornados, Severe Thunderstorms, High Winds
Estimated Cost	$200-$300/sf stand alone; $150-200/sf addition/retrofit
Funding	Bonds, HMGP, PDM
Timeline	5+ years
Priority	Medium
Lead Agency	District Services
Status	One school has a safe room.

Description	Backup Generators
Analysis	Provide a portable or stationary source of backup power to schools, administration centers, supply centers, safe rooms, etc.
Goal/Objective	Goal 2/Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+/generator
Funding	General budget, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	District Services
Status	One generator available. The rest of the schools are in need.

Description	Purchase or Replace Weather Radios
Analysis	Ensure adequate severe weather notifications to critical facilities by purchasing or replacing weather radios
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	$50/radio
Funding	General budget, HMGP, PDM
Timeline	Ongoing
Priority	Medium
Lead Agency	District Services
Status	Some weather radios available.

Description	Emergency Communication Devices
Analysis	Purchase, replace, or upgrade emergency communication devices such as portable radios for use during and after a hazardous event.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	Varies
Funding	Bonds, Homeland Security
Timeline	Ongoing
Priority	High
Lead Agency	District Services
Status	Ongoing

PARTICIPANT SECTION
FOR THE

FORT CALHOUN COMMUNITY SCHOOLS

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 Fort Calhoun Community Schools, including the following elements:

- Participation
- Location / Services
- Demographics
- Future Development
- Critical Facilities
- School Drills and Staff Trainings
- Risk Assessment
- Administration / Capability Assessment
- Plan Integration
- Mitigation Strategy

PARTICIPATION

LOCAL PLANNING TEAM

Table FCS.1 provides the list of participating members that comprised the Fort Calhoun Community Schools 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 district, and prioritization of mitigation actions that address the hazards at risk to the district.

Table FCS.1: The Fort Calhoun Community Schools Local Planning Team

Name	Title	Department / Jurisdiction
Don Johnson	Superintendent	Fort Calhoun Community Schools
David Genoways	Safety Director	Fort Calhoun Community Schools

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 FCS.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
August 26, 2015	Passed Resolution of Participation	Board of Education Meeting
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

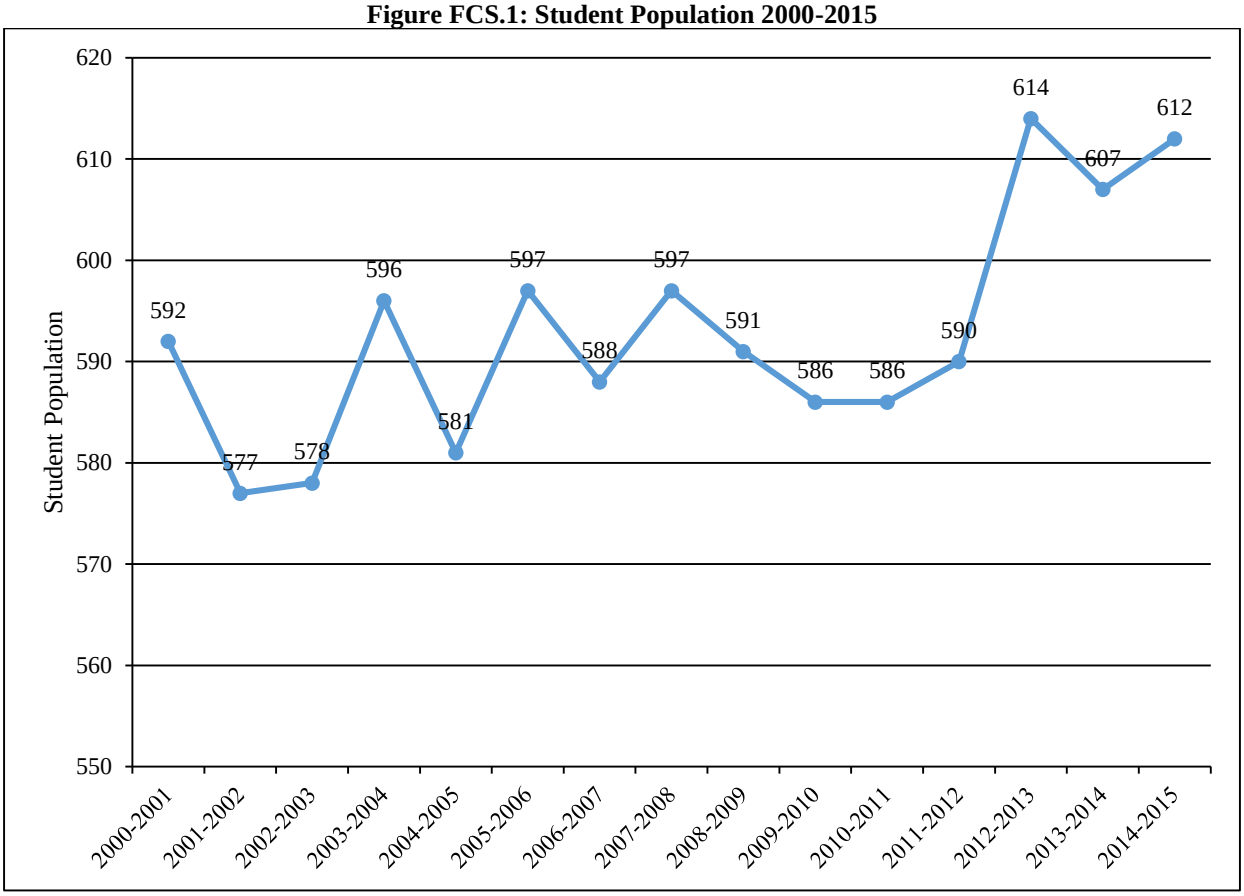
LOCATION AND SERVICES

Fort Calhoun Community Schools operates three schools with one elementary school, a combined junior and senior high school, and a learning center. The school district provides services to students in the community of Fort Calhoun, southeastern Washington County, and small portions of northern Douglas County.

DEMOGRAPHICS

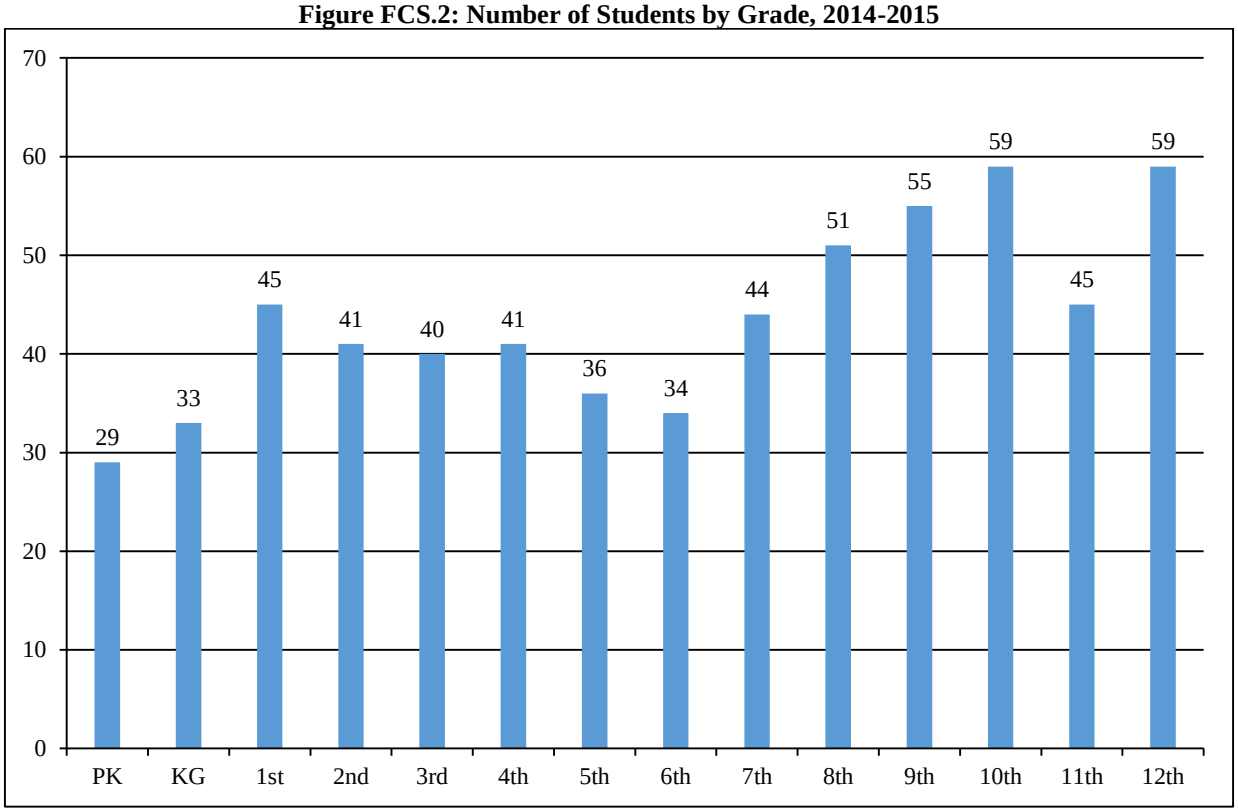
The following figure displays the historical student population trend starting with the 2000-2001 school year and ending with the 2014-2015 year. It indicates that the student population has fluctuated between 577 and 597 students until 2013 and has since been above 600 students. As of the 2014-2015 school year, there were 612 students enrolled in the school district. Presently, the school district employs 115 staff and personnel.

Figure FCS.1: Student Population 2000-2015



Source: Nebraska Department of Education

Figure FCS.2: Number of Students by Grade, 2014-2015



Source: Nebraska Department of Education

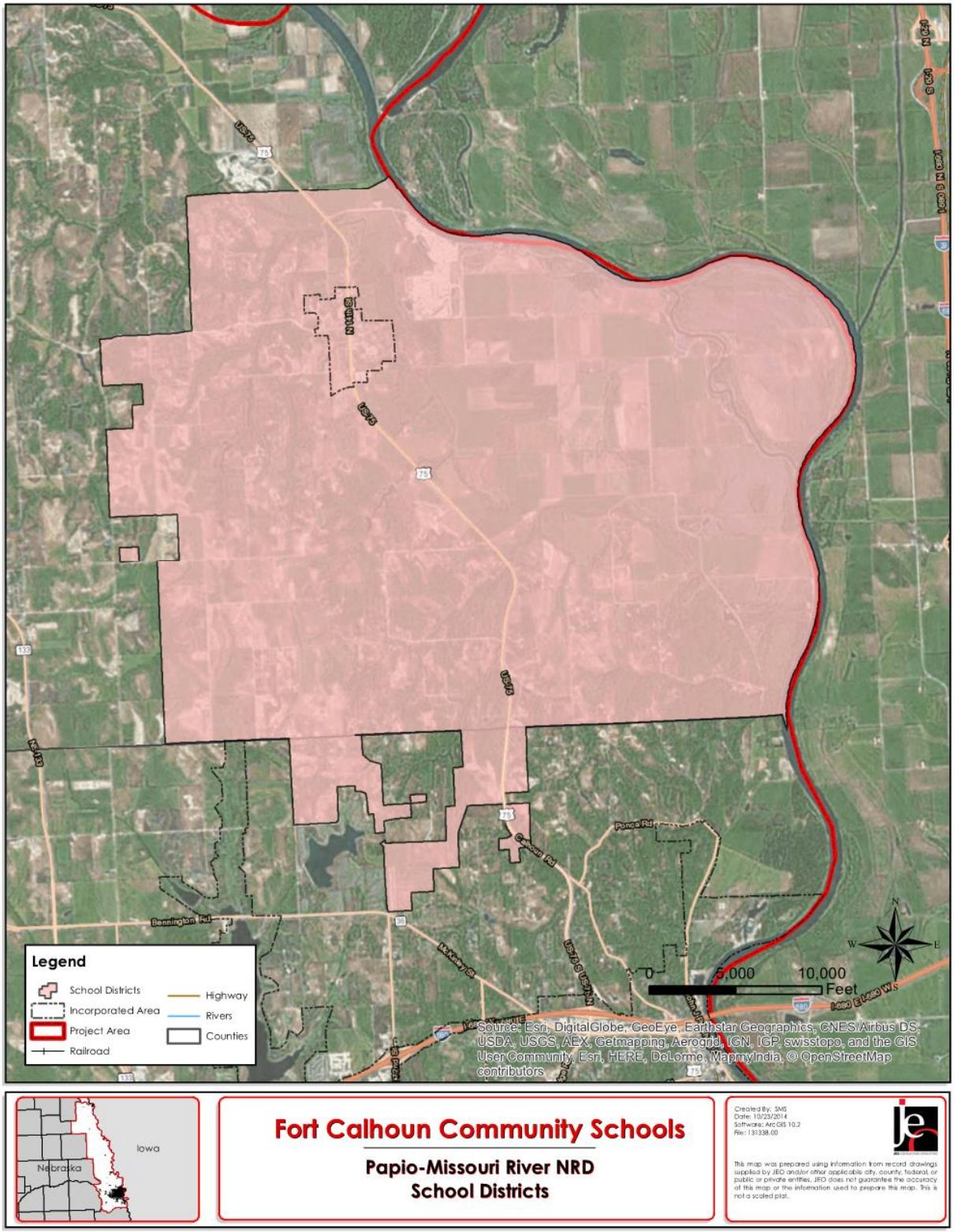
The figure above indicates that the largest number of students are in the 9th, 10th, and 12th grades. The lowest population of students are pre-kindergarten, kindergarten, and 6th grade. According to the Nebraska Department of Education, about 20 percent of students receive either free or reduced priced meals at school. This is significantly lower than the state average at nearly 45%. Additionally, over 16% of students are in the Special Education Program. These particular students may be more vulnerable during a hazardous event than the rest of the student population.

Table FCS.3: Student Statistics, 2013-2014

	Fort Calhoun School District	State of Nebraska
Free/Reduced Priced Meals	20.10%	44.93%
School Mobility Rate	4.14%	12.10%
English Language Learners	*	6.04%
Special Education Students	16.72%	15.74%

Source: Nebraska Department of Education
**Information not available*

Figure FCS.3: School District Map



FUTURE DEVELOPMENT TRENDS

Since 2010, the school district completed a major renovation and addition to the Elementary School building. A fire suppression sprinkler system was added to the entire building, and all of the restroom facilities were updated. The 1977 addition was redesigned into functional modern space eliminating the open classroom concept, which was popular at the time of construction. The new addition was designed to allow natural light into all of the classrooms and provided the opportunity to reallocate space for special programs need to support the current teaching process. The main entrance was redesigned to address security issues and needed office space. Plus, the entire building was painted, installed new carpet, and new interior doors. To address safety issues, the Elementary School parking lot was also redesigned by separating the student drop off from the bus drop off. In 2012, the Pioneer Learning Center took over an old medical building, which was completely remodeled.

There are no additional plans for new construction or renovations for the school district over the next five years. However, if new construction does occur, it is encouraged that the school district consider hazard mitigation projects into its design such as a safe room and back-up power generator.

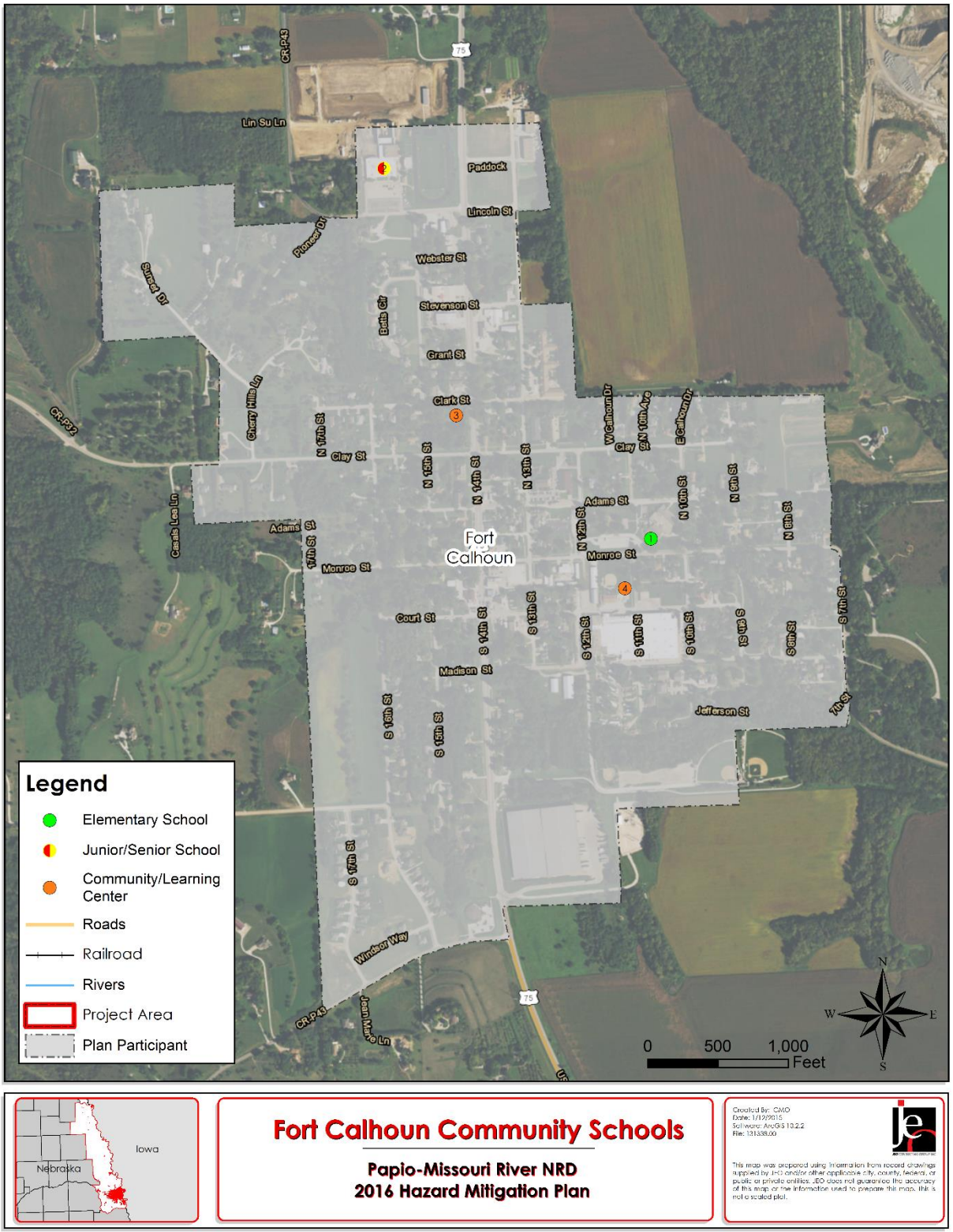
CRITICAL FACILITIES

The school district operates four facilities. These facilities are listed below, along with information indicating the school's address, number of students and staff, if the facility is used as a shelter during an emergency (i.e. Red Cross Shelter), the presence of a tornado safe room, available back-up power, and if the facility is located in the floodplain. Presently, there are no FEMA approved safe rooms in any of the facilities.

Table FCS.1: Critical Facilities

CF #	Name	Address	Number of Students	Number of Staff	Red Cross Shelter (Y/N)	Safe Room (Y/N)	Back-up Power Generator (Y/N)	Located in Floodplain (Y/N)
1	Fort Calhoun Elementary School	1120 Monroe St.	267	43	Y	N	N	N
2	Fort Calhoun Junior/Senior School and District Offices	5876 County Road P43	326	54, 18	Y	N	Y	N
3	Pioneer Learning Center	1420 Clark St.	17	3	N	N	N	N
4	Community Building	124 S. 11th St.	N/A	N/A	N	N	Y	N

Figure FCS.4: Critical Facilities



SCHOOL DRILLS AND STAFF TRAINING

The school district by law is required to conduct a number of drills throughout the year. Students participate in monthly fire drills, tornado drills twice per year, bus evacuations twice per year, and also an active shooter drill and school evacuation every other year. The school staff are trained throughout the year on how to conduct drills and other responses to emergencies.

HISTORICAL OCCURRENCES

For a table of historical weather hazard occurrences according to the National Climatic Data Center, please see the Participant Section for the City of Fort Calhoun.

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for the district. 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 FCS.5: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	N/A	N/A
Agricultural Plant Disease	N/A	N/A
Chemical Spills (Fixed Site)	No	None
Chemical Spills (Transportation)	No	None
Civil Disorder	No	None
Dam Failure	No	None
Drought	Yes	None
Earthquakes	No	None
Extreme Heat	Yes	Power outages
Flooding*	Yes	None
Grass/Wildfires	No	None
Hail*	Yes	Property damages; tree damages
High Wind*	Yes	Property damages; power outages; tree damages
Landslides	No	None
Levee Failure	No	None
Radiological Incident (Fixed Site)	No	Student and staff safety; possible evacuation
Radiological Incident (Transportation)	No	None
Severe Thunderstorms	Yes	Power outages; property damages; student and staff safety
Severe Winter Storms*	Yes	Power outages; transportation safety; student and staff safety
Terrorism	No	None
Tornados*	No	Student and staff safety; property damages; power outages

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	SPECIFIC CONCERNS IDENTIFIED
Urban Fire	Yes	None

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

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

Flooding
Due to the proximity to the Missouri River, flooding is a concern for the school district. In 2011, the Missouri River flooded for most of the summer. Over 60 homes were flooded in the city and an additional 200 homes in the county. Over 500 people were displaced in the county, which lead to the City of Fort Calhoun opening up the high school for flood victims. There are no reports of damages to school facilities from flooding.

Implemented mitigation projects:
- Weather radios available in facilities

Identified mitigation projects:
- Improve emergency communications

Hail
Damaging hail is a real threat to the school district. Hail can range in size from under an inch to over four inches in diameter, and when combined with gusting winds, can do significant damage to buildings, roofs, windows, lighting, HVAC systems, and vehicles. Roofs have been replaced in the past.

Implemented mitigation projects:
- Weather radios available in a few buildings

Identified mitigation projects:
- Provide weather radios in all facilities
- Hazardous tree removal program

Severe Winter Storms
Severe winter storms occur on an annual basis in the region, and can impact school facilities. The winter of 2009-2010 was especially harsh for the region with snowfall totals for the season between 40 and 50 inches. The Christmas Winter Storm of 2009 brought up to a foot of snow or more in many places across the district as well as high winds gusting well over 40 mph. These winds in combination with the heavy snow produced widespread visibilities below a quarter mile and dangerous low wind chills. The school district was closed for several days as a result.

Implemented mitigation projects:
- Sufficient snow removal equipment for most events.

Identified mitigation projects:
- Obtain back-up power generators for all facilities

Tornados and High Winds
Although there has not been a report of a tornado in the Fort Calhoun area according to the NCDC, there is the potential for injury, loss of life, and significant property damages. The school district conducts tornado drills twice per year for students and staff. The district has not reported any damages to facilities as a result of high winds.

Implemented mitigation projects:
- Tornado drills are performed twice a year
- Back-up power generator available for some facilities

Identified mitigation projects:
- Obtain back-up power generators for all facilities
- Construct safe rooms for schools

ADMINISTRATION/CAPABILITY ASSESSMENT
The school district has a superintendent, two principals, one assistant principal, and several supportive staff. The school board is made up of a six member panel. The district also has additional departments and staff that may be available to implement hazard mitigation initiatives. They include:

- Maintenance
- Food Services
- Technology Coordinator
- Business Manager
- School Counselor
- School Psychologist
- School Nurse

Mostly likely the Business Manager, Maintenance, and Superintendent's Office would be involved in implementing any hazard mitigation projects. Fort Calhoun Community Schools has the authority to levy taxes for specific purposes.

PLAN INTEGRATION
The emergency operations plan for the school district is called the Safety and Crisis Plan, and it is revised or updated annually. The district's Safety and Security Plan is reviewed with all staff members annually. As noted earlier, each year a number of mock drills are conducted with staff and students. The Nebraska Department of Education requires a safety audit annually. These are completed in the spring of each year.

MITIGATION STRATEGY
New Mitigation Actions

Description	Safe Rooms
Analysis	Install or retrofit facilities to add safe rooms in needed schools for safety of students and staff
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornados, Severe Thunderstorms, High Winds
Estimated Cost	$200-$300/sf stand alone; $150-200/sf addition/retrofit
Funding	Bonds, HMGP, PDM
Timeline	5+ years

Description	**Safe Rooms**
Priority	Medium
Lead Agency	Business Manager
Status	Not yet started

Description	**Backup Generators**
Analysis	Provide a portable or stationary source of backup power to schools, administration centers, supply centers, safe rooms, etc.
Goal/Objective	Goal 2/Objective 2.2
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+/generator
Funding	General funds, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Maintenance
Status	Two generators available. Needing two more.

Description	**Emergency Communication Devices**
Analysis	Purchase, replace, or upgrade emergency communication devices such as portable radios for use during and after a hazardous event.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	Varies
Funding	General funds, HMGP, Homeland Security
Timeline	Ongoing
Priority	Medium
Lead Agency	Business Manager
Status	Ongoing