FEBRUARY 2016

DOUGLAS 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 Douglas 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

DOUGLAS 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 and Douglas County 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 Douglas County, including the following elements:

- Participation
- Location /Geography
- Climate
- Demographics
- Transportation
- 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 DOC.1 provides the list of participating community members that comprised the Douglas 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, structural inventory, future development trends, 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 DOC.1: Douglas County Local Planning Team

Name	Title	Department / Jurisdictions
Paul W. Johnson	Director	Douglas County Emergency Management
Doug Cook	Planning and Zoning Coordinator	Douglas County
Michael Schonlau	GIS Coordinator	Douglas 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 DOC.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
April 8, 2015	Link to Project Website	http://www.dceservices.org/
May 12, 2015	Passed Resolution of Participation	Douglas County Courthouse
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

Douglas County is located in far eastern Nebraska and is bordered by Washington, Dodge, Saunders, and Sarpy Counties in Nebraska and Pottawattamie County in Iowa. The total area of Douglas County is 339 square miles. Major waterways within the county include the Missouri River, which forms the eastern boundary, the Platte River, forming the western boundary, Elkhorn River, and Big Papillion Creek.

Figure DOC.1: Douglas County Map

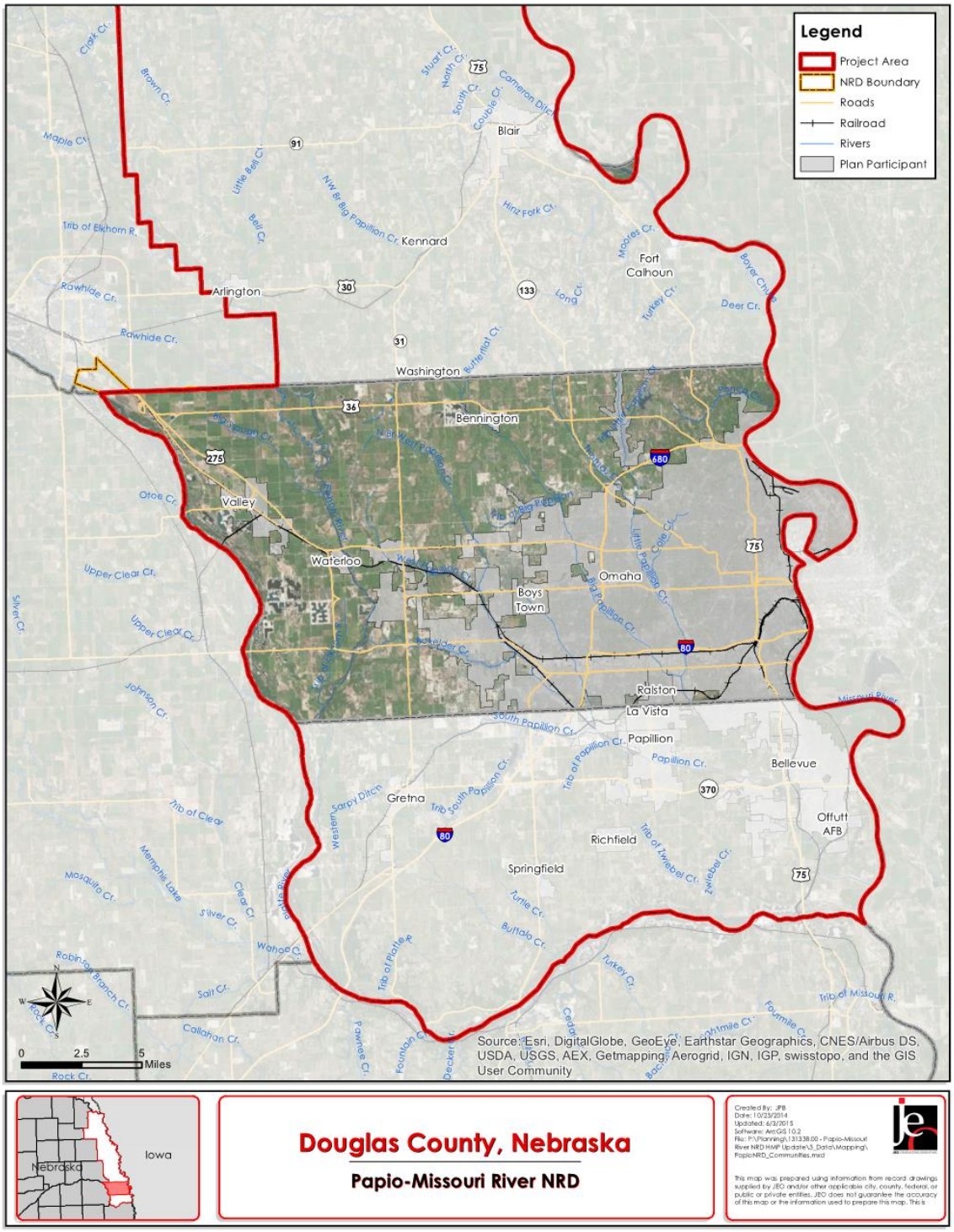


Figure DOC.2: Douglas County ETJ Map

Figure DOC.2 shows the extent of the extraterritorial jurisdictional (ETJ) boundaries within the county. It indicates that there is not much left to unincorporated Douglas County outside of the ETJs.

CLIMATE

For Douglas County, the normal high temperature for the month of July is 84.8 degrees and the normal low temperature for the month of January is 12.7 degrees. On average, Douglas County gets 31.21 inches of rain and 26.5 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table DOC.3: Climate Data for Douglas County

Age	Douglas County	Planning Area	State of Nebraska
July Normal High Temp	84.8°F	85.6°F	88.0°F
January Normal Low Temp	12.7°F	11.8°F	12.0°F
Annual Normal Rainfall	31.21 inches	30.64 inches	30.3 inches
Annual Normal Snowfall	26.5 inches	31.2 inches	25.9 inches

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

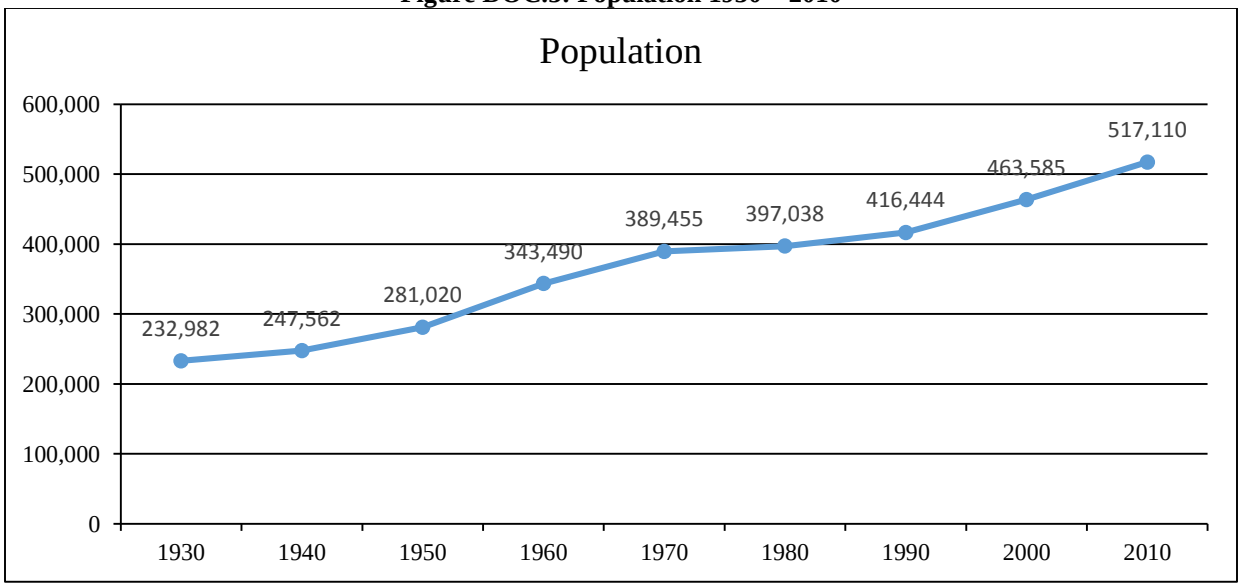
TRANSPORTATION

Douglas County's major transportation corridors include Interstates 80, 480, and 680; U.S. Highways 275, 75, and 6; and Nebraska Highways 31, 64, and 133. Interstate 80 is the busiest highway in the county with over 170,000 vehicles on average per day with 11,200 of those as heavy commercial vehicles. Union Pacific Railroad, Burlington Northern Santa Fe Railroad, and Amtrak all have rail lines that go through the county. The county also has Eppley Airfield and Millard Airport within the county as well. This information is important to hazard mitigation plans insofar as it suggests 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 Douglas County has been increasing since 1930. 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 DOC.3: Population 1930 – 2010



Source: U.S. Census Bureau

The following table indicates that Douglas County has a slightly higher percentage of people under the age of 5 than the rest of the State of Nebraska. 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 DOC.4: Population by Age

Age	Douglas County	State of Nebraska
<5	7.7%	7.2%
5-64	81.5%	79.2%
>64	10.8%	13.6%
Median	33.7	36.2

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

The following table indicates that the median household income is higher than the State of Nebraska as well as the median home values. 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 county's level of resiliency during hazardous events.

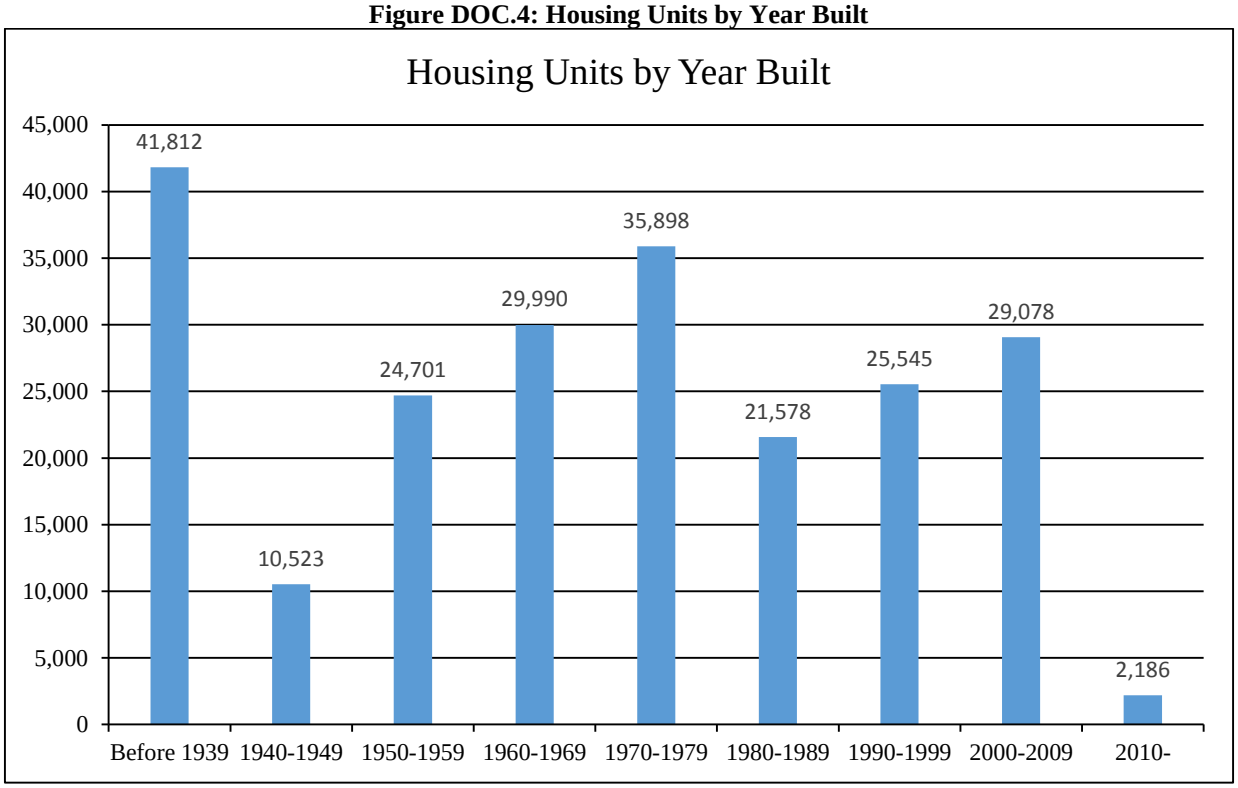
Table DOC.5: Housing and Income

	Douglas County	State of Nebraska
Median Household Income	$53,325	$51,672
Per Capita Income	$29,180	$26,899
Median Home Value	$143,000	$128,000
Median Rent	$790	$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 Douglas County was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the county has 221,311 housing units with 92.3 percent of those units occupied. There are approximately 3,032 mobile homes in the county and 52.4 percent of the county's housing was built before 1980. The initial Flood Insurance Rate Map (FIRM) was developed in January 1981. Housing built prior to 1981 may not be constructed to include the base-flood elevation requirements and may be 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, and unoccupied housing may suggest that future development may be less likely to occur. Finally, residents that live in mobile homes may be more vulnerable to the impacts of high winds, tornados, and severe winter storms.

Figure DOC.4: Housing Units by Year Built



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

Table DOC.4: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Douglas County	204,226	92.3%	17,085	7.7%		128,058	62.7%	76,168	37.3%
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, Douglas County had 14,875 business establishments. The following table presents the number of establishments, number of paid employees, and the annual payroll 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 DOC.5: Business in Douglas County

	Total Businesses	Number of Paid Employees	Annual Payroll (in thousands)
Total for all Sectors	14,875	304,368	$13,963,532

Source: U.S Census 2012, Table CB1200A11

Agriculture is also important to the economic fabric of Douglas County, and the state of Nebraska as a whole. Douglas County's 396 farms cover 86,123 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 DOC.6: Douglas County Agricultural Inventory

Douglas County Agricultural Inventory	
Number of Farms	396
Land in Farms	86,123 acres

Source: USDA 2012 Census of Agriculture

FUTURE DEVELOPMENT TRENDS

Over the past five years there has been a significant amount of development in Douglas County. An approximate 150 home development west of Valley was recently built. The Bennington area is a popular spot for new homes according to the local planning team. Although there is no new specific housing or business development planned today, future development would likely occur in the southwestern portion of the county, and in the Bennington area as infrastructure becomes more accessible.

PARCEL IMPROVEMENTS AND VALUATION

GIS parcel data was requested from the County Assessor. 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 DOC.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
193,360	$38,686,786,095	200,076	8,057	$3,265,190,760

Source: Douglas 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 hundreds of chemical storage sites located throughout Douglas County, particularly in incorporated areas. To see a list of storage sites housing materials that are categorized as hazardous, please refer to each jurisdiction's participant section.

Figure DOC.5: Developed Areas

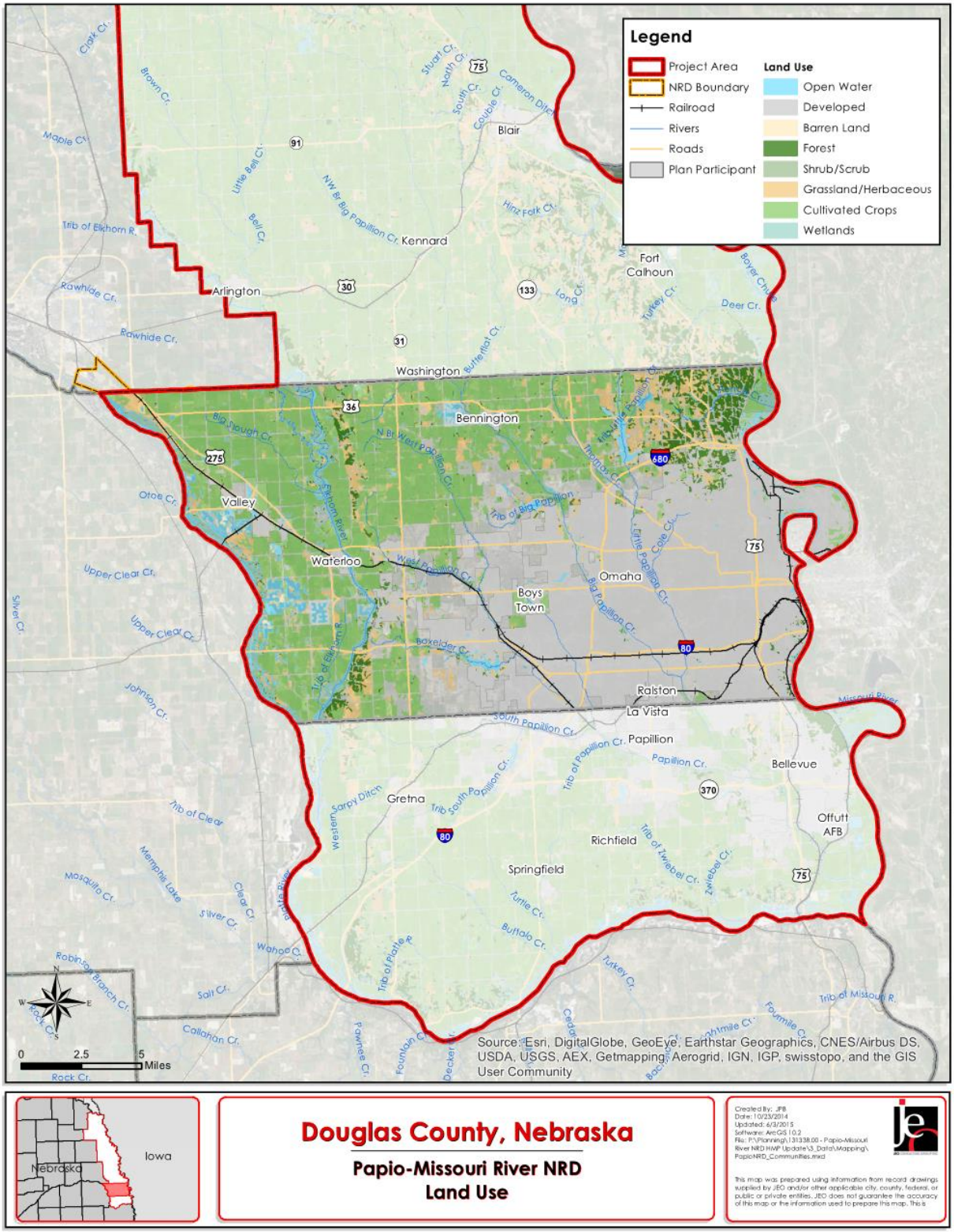
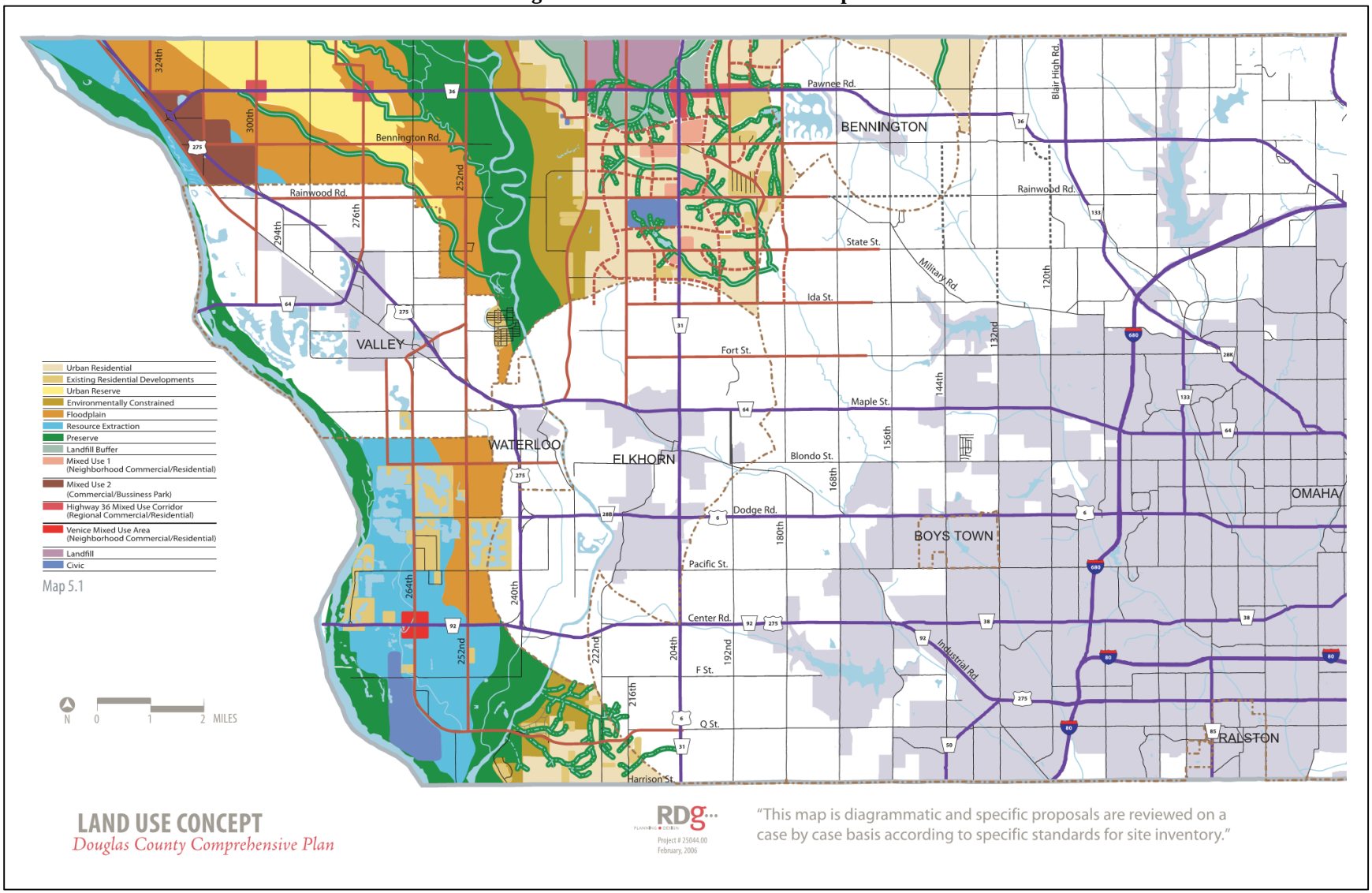


Figure DOC.6: Future Land Use Map



Source: Douglas County Comprehensive Plan

HISTORIC SITES

According to the National Register of Historic Places for Nebraska, there are four historic sites located in rural Douglas County or are noted as a county structure (i.e. Douglas County Courthouse). Urban sites for Douglas County can be found in their respective community participant sections.

Table DOC.8: National Historic Registry

Site Name	Date Listed	In Floodplain?
Champe-Fremont 1 Archeological Site	10/21/1975	Unknown
Cabanne Archeological Site	5/5/1972	Unknown
Frank Parker Archeological Site	3/4/2009	Unknown
Douglas County Courthouse	10/11/1979	No

Source: Nebraska State Historical Society

CRITICAL FACILITIES

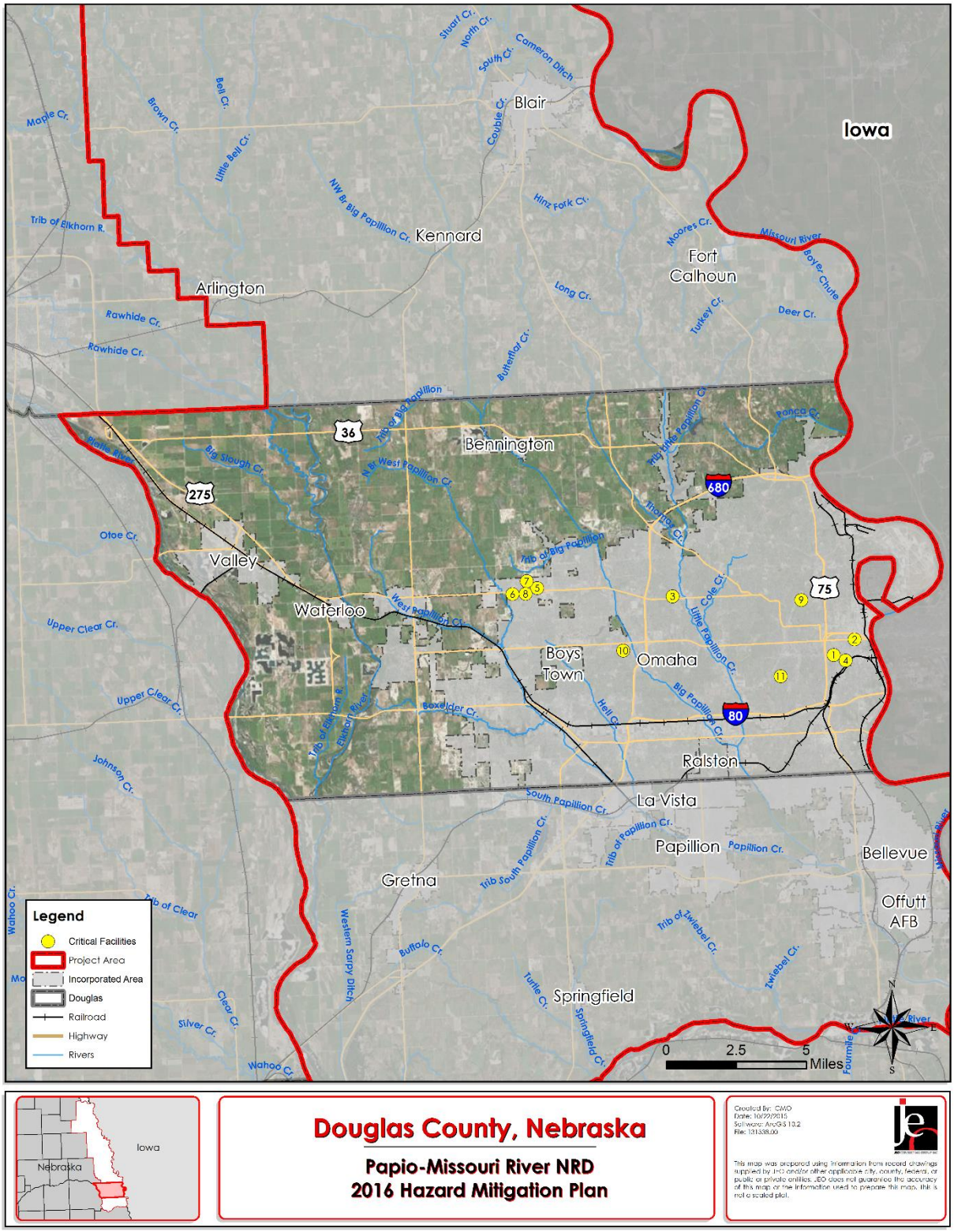
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction's functions to normal during and after a disaster. Critical facilities were identified during the original 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 Douglas County are located primarily in the county's incorporated communities.

Table DOC.9: List of Critical Facilities in Douglas County

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	County Facility	Civic Center	1819 Farnam St	N	Y	N
2	County Facility	Douglas County Courthouse	1701 Farnam St	N	Y	N
3*	County Facility	Environmental Services	3015 Menke Cir	N	N	N
4	Law Enforcement	Douglas County Corrections	710 S 17th St	N	Y	N
5	Maintenance	Douglas County Garage	15445 West Maple Rd	N	N	N
6	County Facility	Douglas County Engineer's Office	15505 West Maple Rd	N	N	N
7	Law Enforcement	Douglas County Sheriff Task Force	15430 West Maple Rd	N	N	N
8	Law Enforcement	Douglas County 911/Sheriff	3601 N 156th St	N	Y	N
9	County Facility	Douglas County Social Services	3737 Lake St	N	N	N
10	County Facility	Election Commission	225 N 115th St	N	N	N
11	Health Care	Douglas County Health Center	1225 S 40th St	N	N	N

**Critical facility has a storm shelter*

Figure DOC.7: 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 115 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 DOC.10: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
4/25/1996	High Wind	44 kts.	1	0	$0
10/29/1996	High Wind	58 kts.	0	0	$34,000
12/30/1997	High Wind	48 kts.	0	0	$40,000
10/25/1997	Heavy Snow	6-14 in.	0	0	$14,000,000
3/16/1998	Flood	Ice Jam	0	0	$5,000
3/7/1998	Winter Storm	11-16 in.	0	0	$15,000
7/22/2005	Heat	H.I. 105F-115F	0	0	$3,000,000
12/7/2009	Winter Storm	8-12 in.	3	0	$0
1/6/2010	Winter Weather		1	0	$0
5/22/2010	Strong Wind	35 kts. MG	1	0	$0
7/17/2010	Heat	H.I. 105F-110F	0	10	$0
6/27/2012	Heat	H.I. 105F-115F	1	45	$0
3/10/2013	Blizzard	6-11 in.	1	0	$0
		Total	**8**	**55**	**$17,094,000**

Source: January 1996-July 2015 NCDC
in. = inches; kts = knots; H.I. = Heat Index; W.C. = Wind Chill; MG = Measured 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 DOC.11: USDA RMA Severe Weather Events

Hazard	Number of Claims	Total Crop Damage	Average Annual Damage	Average Damage Per Event
Plant Disease	19	$60,471.82	$4,031.45	$3,182.73
Drought	42	$5,287,938.40	$352,529.23	$125,903.30
Extreme Heat	18	$1,065,148.63	$71,009.91	$59,174.92
Flood	7	$359,377.00	$23,958.47	$51,339.57
Hail	37	$5,841,524.68	$389,434.98	$157,879.05
High Wind	6	$21,737.50	$1,449.17	$3,622.92
Severe Thunderstorms	57	$1,152,720.00	$76,848.00	$20,223.16
Severe Winter Storms	9	$16,779.00	$1,118.60	$1,864.33
Tornado	1	$115,547.00	$7,703.13	$115,547.00
Totals	**196**	**$13,921,244.03**	**$103,120.33**	**$59,859.66**

Source: 2000-2014 USDA RMA

RISK ASSESSMENT

HAZARD IDENTIFICATION

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

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	Yes	-	None
Agricultural Plant Disease	Yes	$60,471.82	None
Chemical Spills (Fixed Site)	No	-	Public safety; possible evacuations
Chemical Spills (Transportation)	Yes	-	Public safety; possible evacuations
Civil Disorder	Yes	-	None
Dam Failure	No	-	None
Drought	Yes	$5,287,938.40	Water supply
Earthquakes	No	-	None
Extreme Heat	Yes	$4,065,148.63	Vulnerable populations
Flooding*	Yes	$364,377.00	Property damages; road closures; public safety
Grass/Wildfires	Yes	-	Property damage
Hail*	Yes	$5,841,524.68	Property damage; critical facility damage; tree damage
High Winds	Yes	$95,737.50	Power outages; property damage
Landslides	Yes	-	None

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Levee Failure*	Yes	-	Public safety; property and critical facility damage; road closures
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms	Yes	$1,132,720.00	Power outages; critical facilities damaged; property damages
Severe Winter Storms	Yes	$14,031,779.00	Road closures; power outages
Terrorism	Yes	-	None
Tornados*	Yes	$115,547.00	Loss of life and injury; property damage; critical facility damage; power outages; economic impacts
Urban Fire	Yes	-	Property damage; public safety

**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 five hazards of most concern to Douglas County as identified by the local planning team are: agricultural plant disease, flooding, grass/wildfires, hail, and severe winter storms. The following provides county specific information, reported in Douglas County's Risk Assessment Summary that is relevant to each hazard.

Dam Failure

While dam failure was not among the top concerns of the county, there is some risk and vulnerability for the county in this regard. There are 34 dams in Douglas County. Of these, 17 dams have been identified as a high hazard dam. A dam is classified as high hazard due to the probable loss of life in the event of a failure. There have been no reported dam failures in Douglas County. Figure DOC.8 shows the locations of dams in the county, and for a list of the high hazard dams located throughout incorporated areas of Omaha and Bennington, please see their participant sections.

Table DOC.13: Dams in Douglas County

	Number of Dams	Low	Significant	High
Douglas County	34	15	2	17*
Planning Area	150	102	13	35

Source: NDNR
**Two are approved for construction*

Implemented mitigation projects:

- The county emergency operations plan is in place with evacuation plan
- Dams are well maintained and inspected regularly

Identified mitigation projects:

- Pursue educational outreach opportunities

Levee Failure

Levee failure was identified as a top concern for the county. Levee failure would impact road and railroad infrastructure in unincorporated areas of the county. The City of Fremont's water wells may also be affected. There is no major development in rural Douglas County that would likely be affected in the event

of levee failure. However, if the northwest corner of the county continues to develop it may be a concern in the future. For a discussion on the levees located within incorporated areas, please refer to the individual community sections.

Implemented mitigation projects:

- The county emergency operations plan is in place with evacuation plan
- Levees are regularly maintained and inspected

Identified mitigation projects:

- Pursue educational outreach opportunities

Flooding

The local planning team identified flooding as a top concern for the county as flooding has produced damages in the past. In June 2014, flash flooding caused significant damages and impacts to the county. RMA data also indicates that 7 flood events since 2000 have caused over $359,000 in crop damages. The unincorporated area of Douglas County has 318 NFIP policies in-force for $53,752,100. There are 16 single family homes, 1 assumed condo, and 1 non-residential property that are repetitive flood loss properties in the unincorporated area of Douglas County.

The following table is parcel improvement information as provided by the Douglas County Assessor for the entire county area. It indicates 4.2% of all parcel improvements in the county are located in the floodplain.

Table DOC.15: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in County	Percentage of Affected Improvements
$3,265,190,760	8,057	193,360	4.2%

Source: Douglas County Assessor

Implemented mitigation projects:

- County emergency operations plan is in place
- County is a member of the NFIP

Identified mitigation projects:

- Property acquisition of repetitive flood loss properties
- Parcel evaluation of flood prone properties
- Facility flood proofing

Figure DOC.8: Dam Locations in Douglas County

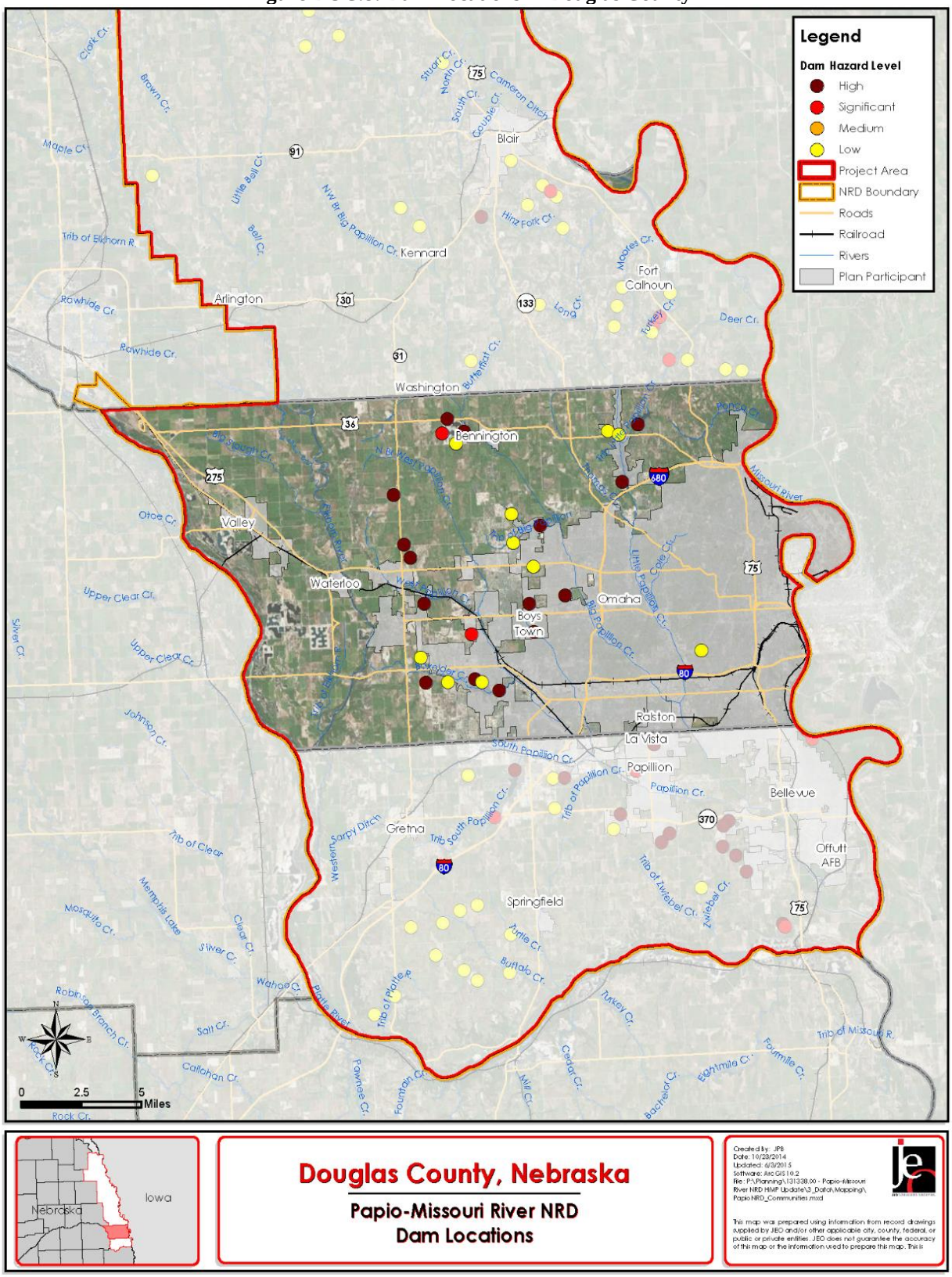


Figure DOC.9: Levee Protected Areas in Douglas County

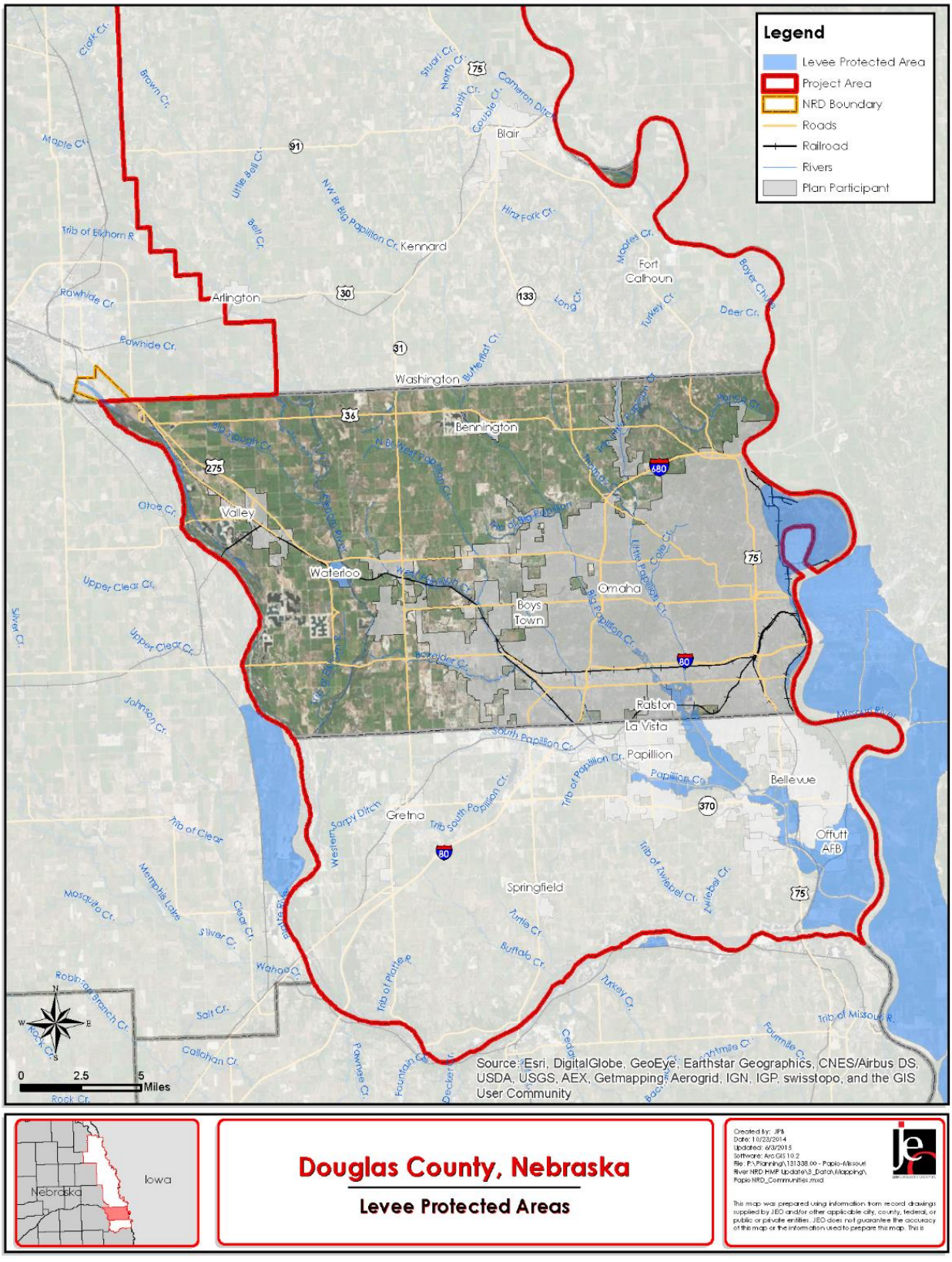
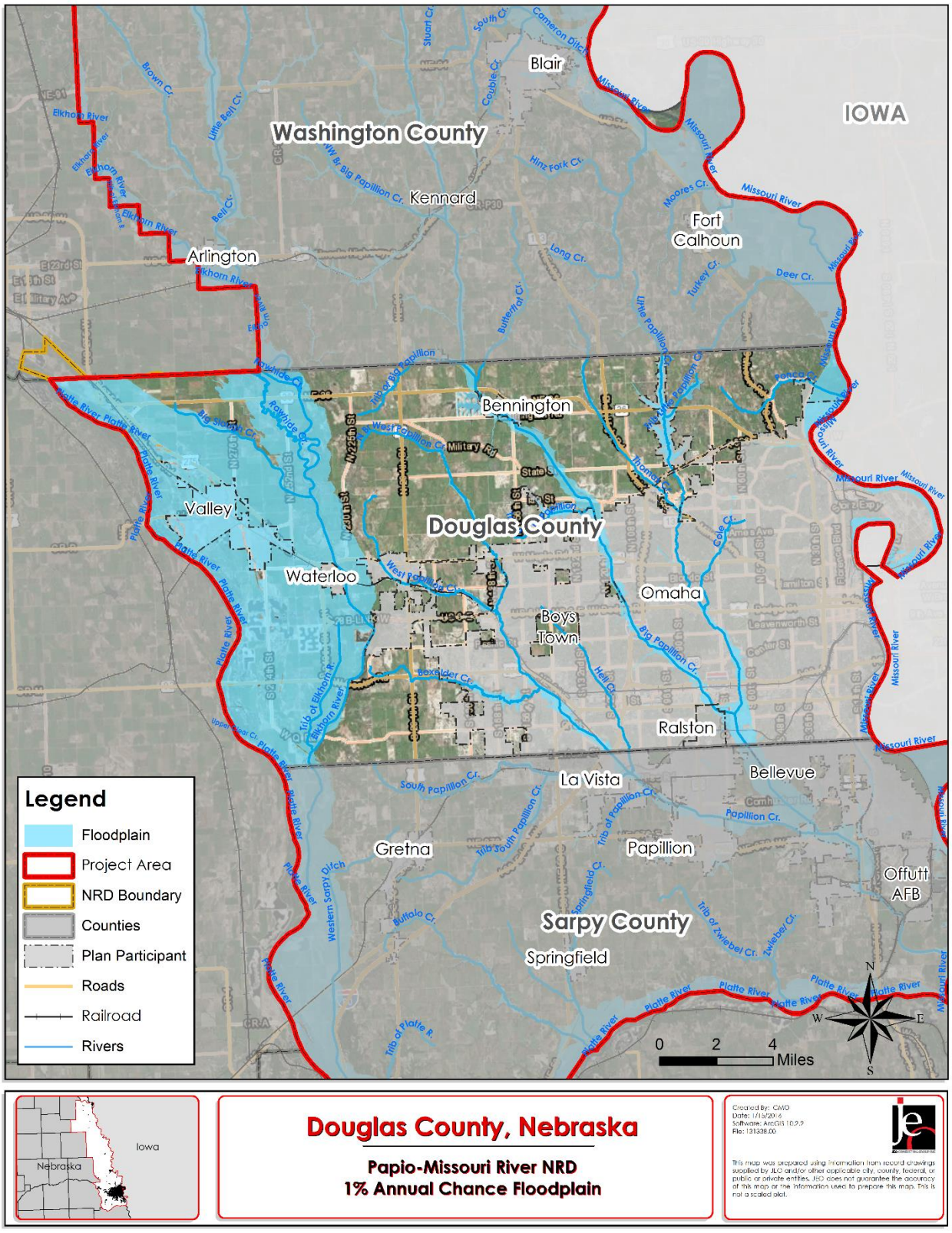


Figure DOC.10: Douglas County 1% Annual Chance Floodplain



Hail
Hail was identified as a significant concern by the local planning team due to the amount of damages hail events have caused. According to the RMA, hail has caused over 5.8 million dollars in damages throughout Douglas County from 2000 to 2014. Although there were no specific events identified, the local planning team identified that public buildings have been damaged from previous hail events.

Implemented mitigation projects:
- Weather radios are available in critical facilities

Identified mitigation projects:
- Provide educational outreach opportunities
- Replace or provide new weather radios

Severe Winter Storms
The local planning team is concerned about power outages and stranded motorists related to severe winter storms. These conditions can be deadly, as severe winter weather can be attributed to eight deaths in Douglas County from 1996 to 2015.

Implemented mitigation projects
- Educational materials are provided to residents

Identified mitigation projects:
- High-resolution photography and LiDAR in GIS
- Continue educational outreach opportunities

Tornados
Tornados have the potential to cause significant damages, economic impacts, and loss of life. There have been four tornados in Douglas County since 1996. The worst of the three was the Millard tornado on June 8, 2008, which was rated an EF-2. The tornado crossed over from Sarpy County and impacted the western portions of the metro area. Many roofs were damaged or blown off as well as siding torn off and several trees damaged. The tornado also damaged a business district on L Street. Omaha Public Power District reported nearly 14,000 customers lost power from the storm. Three people were injured and seven homes were destroyed and 21 others sustained major damage.

One of the critical facilities, the Environmental Services building, has a concrete shelter located just outside the facility (see Figures DOC.11 and DOC12). It has two doors, two vents, and small light, which is powered by solar power. The local planning team noted that it is quite tight to fit all staff within the shelter, and it is unknown if this shelter is FEMA certified.

Implemented mitigation projects:
- Educational materials are provided to residents
- Weather radios are available in critical facilities

Identified mitigation projects:
- Bury power lines to warning sirens
- Construct storm shelters in vulnerable areas
- Identify storm shelter areas

Figure DOC.11: Environmental Services Storm Shelter – View 1

Figure DOC.12: Environmental Services Storm Shelter – View 2

Source: Doug Cook - personal photos (Used with permission)

GOVERNANCE

A community's governance structure impacts its capability to implement mitigation actions. Douglas County is governed by a 7 member board of commissioners. The county also has the following offices and departments that could help implement mitigation projects:

- County Clerk
- County Treasurer
- County Assessor
- Emergency Management
- GIS
- Environmental Services
- Human Resources
- Sheriff's Department
- Cooperative Extension

According to the 2012 Census of Governments, there are 204 total general or special purpose governments located in Douglas 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 DOC.16: Governments in Douglas County

Level	Number
County	1
Municipal	6
Town or Township	0
Special District	187
Independent School District	10

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 DOC.17: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes (2006)
	Capital Improvements Plan	No
	Hazard Mitigation Plan	Yes
	Economic Development Plan	No
	Emergency Operational Plan	Yes
	Natural Resources Protection Plan	Yes
	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

Survey Components/Subcomponents		Existing (Yes/No)
	National Flood Insurance Program	Yes
	Community Rating System	No
	Other (if any)	
Administrative and Technical Capability	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Yes
	Emergency Manager	Yes
	GIS Coordinator	Yes
	Chief Building Official	Yes
	Civil Engineering	No
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	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	Yes
	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
	StormReady Certification	Yes
	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 Douglas County's participant section.

Table DOC.18: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2015
Comprehensive Plan	2006

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.

Douglas 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 Local Emergency Operations Plan (LEOP), which was last updated in 2015, 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 Bennington, Omaha, Ralston, Valley, and Waterloo, and the Village of Boys Town.

The Douglas County Emergency Management Agency emphasizes an 'all hazards' approach to planning and preparedness for the area. They organize planning efforts for identified hazard scenarios including the following:

- Chemical Release / Hazardous Material Transportation Incident
- Flood / Ice Jam / Flash Flood
- Snow / Ice Storm
- Tornado / Severe Wind
- Explosion / Large Fire
- Structural Collapse / Building Evacuation
- Interruption of Utilities, Energy Supplies or Essential Commodities
- Ground Transportation Incident
- Airplane Crash
- Active Shooter
- Mass Illness
- Nuclear Release
- Biological Agent Release
- Earth Movement / Dam Failure / Land Slide / Earthquake
- Civil Unrest
- Reception of Evacuees
- Agricultural or Food Chain Contamination / Disease / Infestation
- Cyber Disruption

More information is available on their website at http://readyomaha.org .

MITIGATION STRATEGY
Completed Mitigation Actions

Description	Remote Monitoring and Warning Unit
Analysis	Purchase a remote monitoring and warning unit (Ping 4)
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	$20,000
Funding	County Budget
Completed	2014

Description	Floodplain Map Updates
Analysis	Update County floodplain map
Goal/Objective	Goal 1/ Objective 1.1
Hazard(s) Addressed	Flood
Estimated Cost	Unknown
Funding	FEMA
Completed	2012

Ongoing and New Mitigation Actions

Description	Information and Training Modules for Public and First Responders
Analysis	Develop online information, educational, and training modules for the public as well as first responders. Online modules were be specific to the Douglas County and Omaha metro areas. The project would require the addition of hiring a new staff member or consultant.
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	All hazards
Estimated Cost	$100,000
Funding	County general funds, HMGP, PDM
Timeline	2-5 years
Priority	High
Lead Agency	Emergency Management
Status	Not started

Description	Burial of power supply to outdoor warning sirens
Analysis	Bury power supply to warning sirens
Goal/Objective	Goal 1/ Objective 1.3
Hazard(s) Addressed	Tornado
Estimated Cost	$100,000
Funding	Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Grant (PDM)
Timeline	5+ years
Priority	Low
Lead Agency	Emergency Management
Status	Some power supplies have been buried. Ongoing as funds become available

Description	High-Resolution Aerial Photography
Analysis	Acquire high-resolution aerial photograph for use in GIS applications supporting hazard mitigation projects
Goal/Objective	Goal 2/ Objective 2.3
Hazard(s) Addressed	All hazards
Estimated Cost	Varies

Description	**High-Resolution Aerial Photography**
Funding	County general funds
Timeline	2-5 years
Priority	High
Lead Agency	GIS
Status	Not yet started

Description	**High-Resolution LiDAR**
Analysis	Acquire high-resolution LiDAR for use in GIS applications supporting hazard mitigation projects
Goal/Objective	Goal 2/ Objective 2.3
Hazard(s) Addressed	All hazards
Estimated Cost	Varies
Funding	County general funds
Timeline	2-5 years
Priority	High
Lead Agency	GIS
Status	Not yet started

Description	**Parcel Level Evaluation of Flood Prone Properties**
Analysis	Conduct a study examining parcels located in flood prone areas and identify mitigation measures that can reduce future impacts.
Goal/Objective	Goal 3/Objective 3.3
Hazard(s) Addressed	Flooding
Estimated Cost	$75,000+
Funding	County funds, PDM, Flood Mitigation Assistance Grant (FMA)
Timeline	2-5 years
Priority	Low
Lead Agency	GIS, Environmental Services, Emergency Management
Status	Not started

Description	**Drainage Study/Stormwater Master Plan**
Analysis	Preliminary drainage studies and assessments can be conducted to identify and prioritize design improvements to address site specific localized flooding/drainage issues. Stormwater master plan can be developed to help identify stormwater problem areas and potential drainage improvements.
Goal/Objective	Goal 3/ Objective 3.3
Hazard(s) Addressed	Flooding
Estimated Cost	$50,000
Funding	County funds, FMA, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Environmental Services
Status	Not yet started

Description	**Flood Prone Property Acquisition**
Analysis	Voluntary acquisition and demolition of properties prone to flooding will reduce the general threat of flooding. Repetitive flood loss properties are typically highest priority.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	Flooding
Estimated Cost	Varies
Funding	County funds, P-MRNRD, FMA
Timeline	Ongoing

Description	Flood Prone Property Acquisition
Priority	High
Lead Agency	P-MRNRD, Floodplain Administrator
Status	Ongoing

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

Removed Mitigation Actions

None

PARTICIPANT SECTION
FOR THE

CITY OF BENNINGTON

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

Name	Title	Department / Jurisdiction
Mindi Laaker	City Clerk	City of Bennington

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 BNT.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
July 13, 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 Bennington is located in the far north-central portion of Douglas County and covers an area of 0.84 square miles. Major waterways in the area include the Big Papillion Creek and Bennington Lake west of the city.

Figure BNT.1: Map of the City of Bennington

CLIMATE

For Bennington, the normal high temperature for the month of July is 84.8 degrees Fahrenheit and the normal low temperature for the month of January is 12.7 degrees Fahrenheit. On average, Bennington gets 31.21 inches of rain and 26.5 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table BNT.3: Climate Data for the City of Bennington

Age	Bennington	Planning Area	State of Nebraska
July High Temp	84.8°F	85.6°F	88.0°F
January Low Temp	12.7°F	11.8°F	12.0°F
Annual Rainfall	31.21 inches	30.64 inches	30.3 inches
Annual Snowfall	26.5 inches	31.2 inches	25.9 inches

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

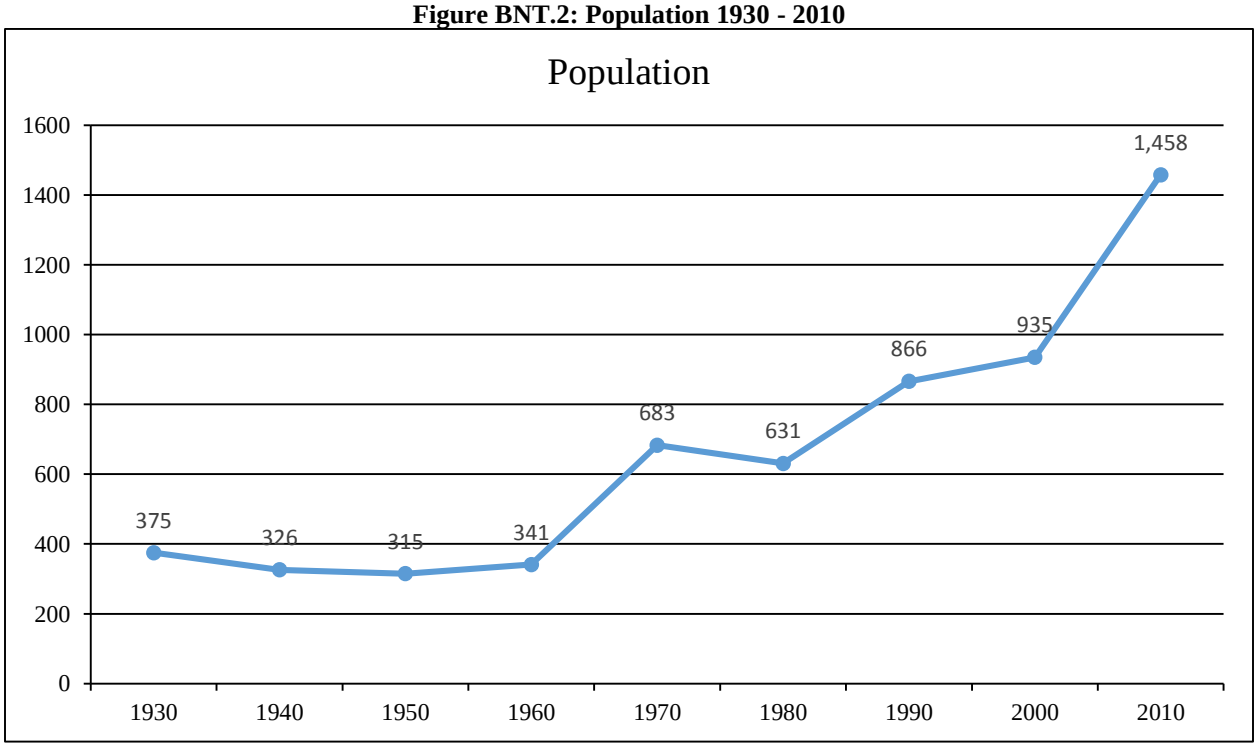
TRANSPORTATION

Bennington's major transportation corridors include Nebraska Highway 36 and County Route 60. Nebraska Highway 36 has 7,085 vehicles on average per day with 1,030 of those being heavy commercial vehicles. There are no rail lines in the City of Bennington. 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.

DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Bennington has been increasing since 1980. 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 BNT.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates that Bennington has a higher percentage of residents under the age of 5 and over the age of 64 when compared to the rest of the county. 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 BNT.4: Population by Age

Age	Bennington	Douglas County	State of Nebraska
<5	9.3%	7.7%	7.2%
5-64	76.8%	81.5%	79.2%
>64	13.9%	10.8%	13.6%
Median	35.9	33.7	36.2

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

The following table indicates that Bennington's median household income is higher than the rest of the county as well as the median home values being higher than the county. However, rent is slightly lower. 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.

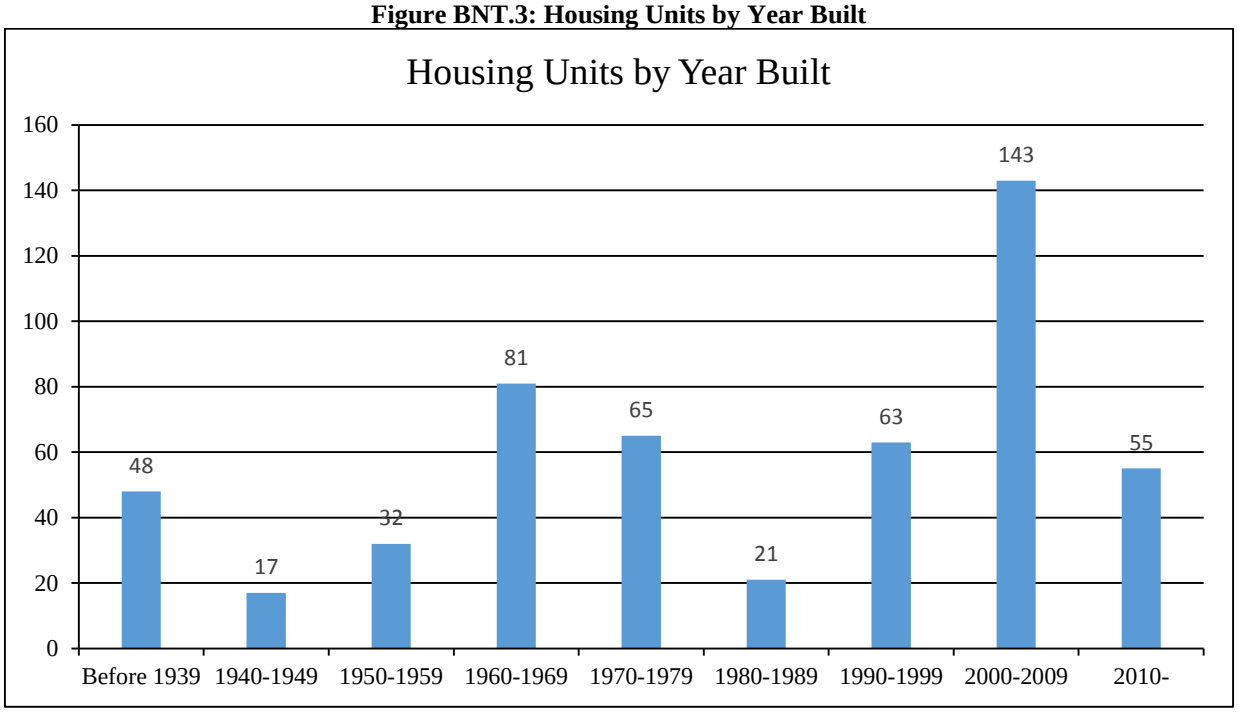
Table BNT.5: Housing and Income

	Bennington	Douglas County	State of Nebraska
Median Household Income	$70,703	$53,325	$51,672
Per Capita Income	$29,080	$29,180	$26,899
Median Home Value	$166,200	$143,000	$128,000
Median Rent	$654	$790	$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 Bennington was built after 1980. According to 2009-2013 ACS 5-year estimates, the community has 525 housing units with 95.0 percent of those units occupied. There are no mobile homes in the community and 53.7 percent of the community's housing was built after 1980. In fact, there have been approximately 55 new homes built since 2010. This housing information is relevant to hazard mitigation because 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.

Figure BNT.3: Housing Units by Year Built



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

Table BNT.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Bennington	499	95.0%	26	5.0%		362	72.5%	137	27.5%
Douglas County	204,226	92.3%	17,085	7.7%		128,058	62.7%	76,168	37.3%

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

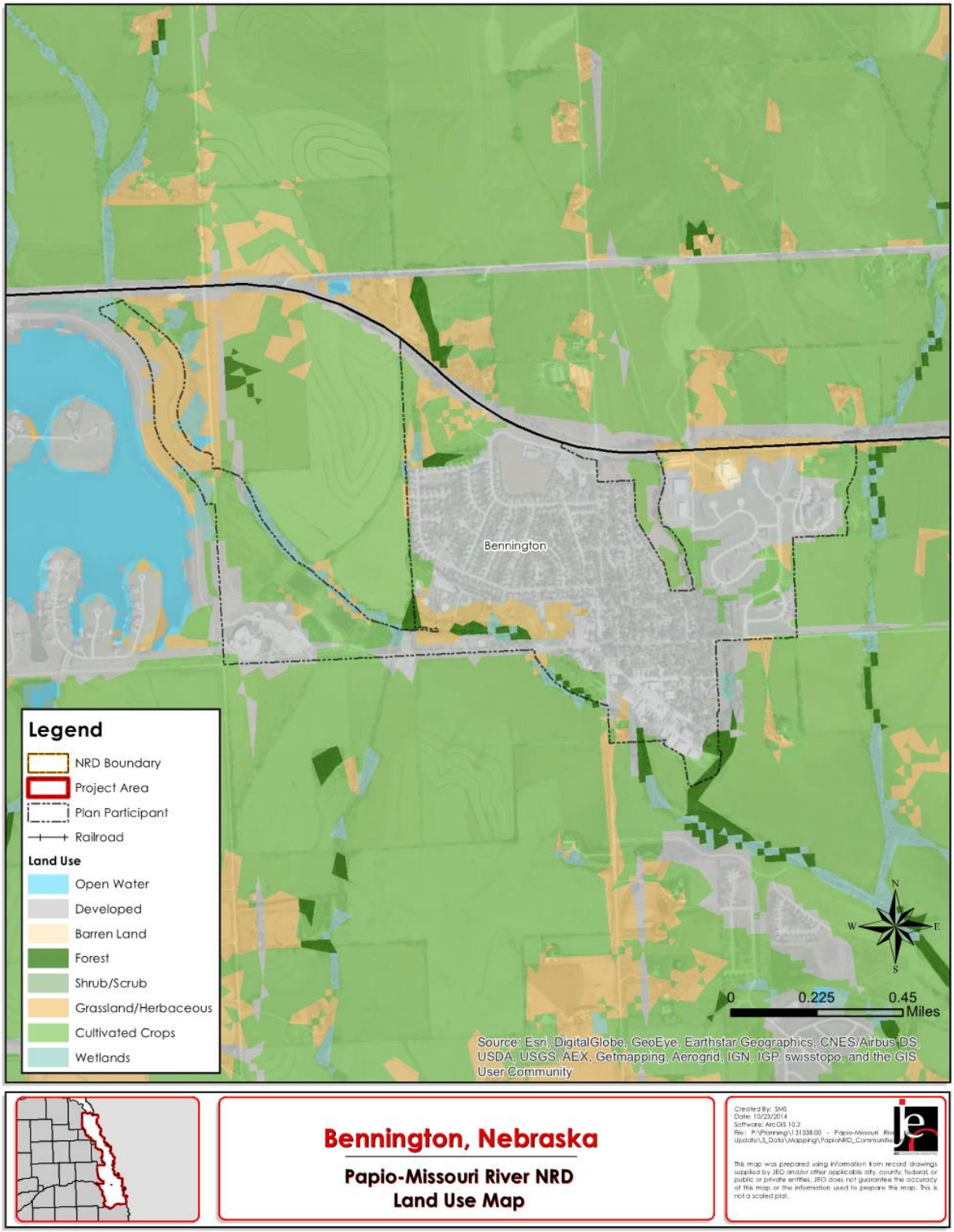
MAJOR EMPLOYERS

The major employer in Bennington is Bennington Public Schools, along with several smaller, locally owned businesses. A large percentage of residents also commute to Omaha.

FUTURE DEVELOPMENT TRENDS

In 2016, an apartment complex may be built in the city. Otherwise, there are no plans at this time for future development in housing or businesses for the City of Bennington. And there are no plans for further annexations at this time.

Figure BNT.4: Developed Areas



PARCEL IMPROVEMENTS AND VALUATION

The planning team requested GIS parcel data from the County Assessor. 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 BNT.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
596	$94,114,900	$157,910	26	$3,775,500

Source: Douglas 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 3 chemical storage sites in Bennington, and 2 of these house materials that are categorized as hazardous. The following table lists facilities that house hazardous materials only.

Table BNT.8: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
CenturyLink	15600 Warehouse St, Bennington	Sulfuric Acid
Monke Bros Fertilizer Co	16311 Bennington Rd, Bennington	Liquefied Anhydrous Ammonia

Source: Nebraska Department of Environmental Quality

HISTORIC SITES

According to the National Register of Historic Places for Nebraska, there are 3 historic sites located in Bennington.

Table BNT.9: National Historic Registry

Site Name	Date Listed	In Floodplain?
Ackerhurst-Eipperhurst Dairy Barn	3/28/2002	N
Bennington State Bank	11/8/2006	N
Carl Penke Farm	3/21/2007	N

Source: Nebraska State Historical Society

CRITICAL FACILITIES

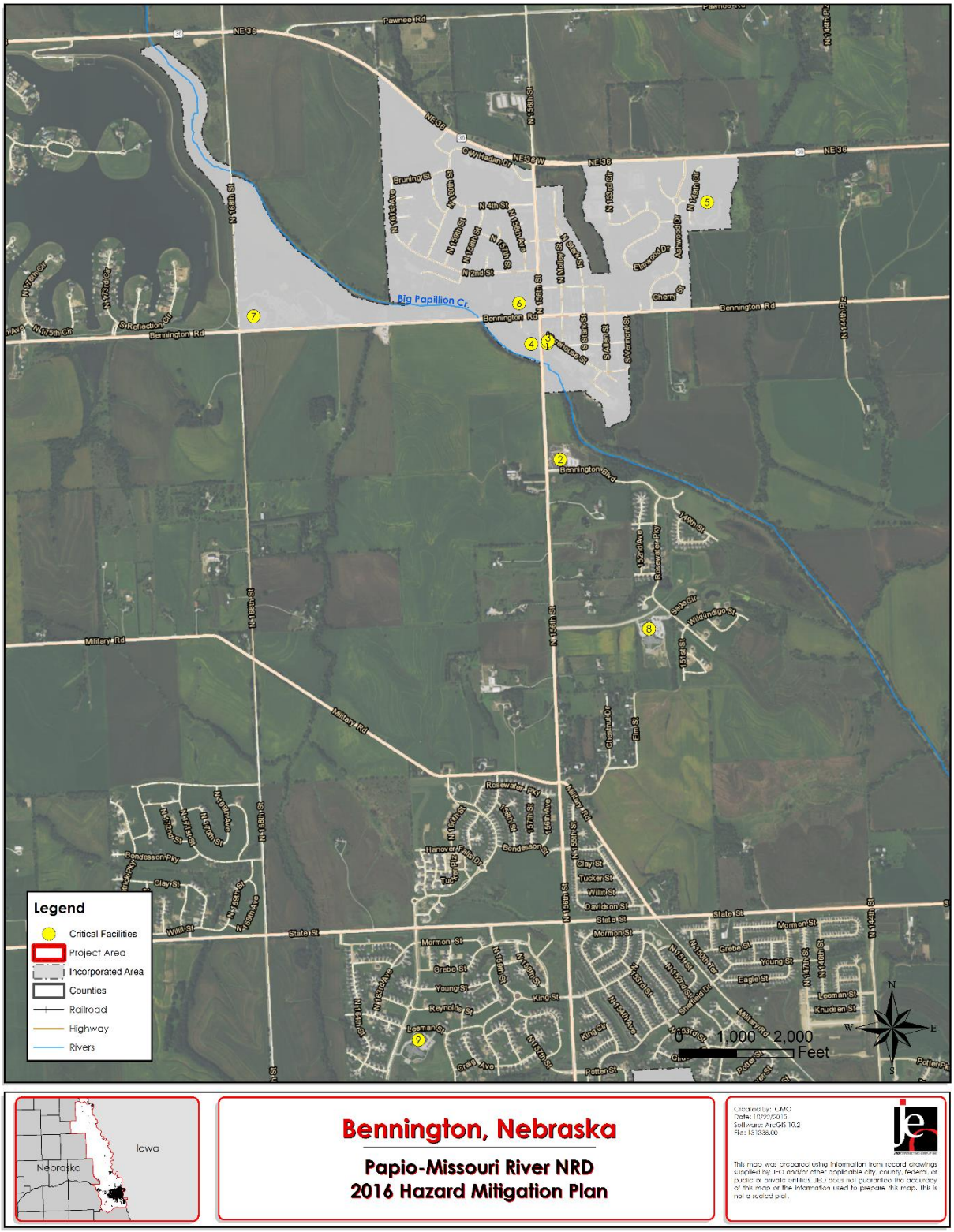
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction's functions to normal during and after a disaster. Critical facilities were identified during the original 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 BNT.10: List of Critical Facilities in Bennington

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Fire Station	Bennington Fire Station 1	15509 Warehouse St, Bennington	N	Y	Y

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
2	Fire Station	Bennington Fire Station 2	10801 N 156th Street	N	N	Y
3	Municipal Building	City Offices	15512 Warehouse St, Bennington	N	N	Y
4	Police Station	Bennington Police Department	11402 N. 156th St, Bennington	N	Y	Y
5	Nursing Home	Ridgewood	12301 N. 149th St., Bennington	N	N	N
6	School	Bennington Elementary School	11620 N. 156th St., Bennington	N	N	N
7	School	Bennington Secondary School	16610 Bennington Rd, Bennington	N	N	N
8	School	Heritage Elementary	9950 Rosewater Parkway, Bennington	N	N	N
9	School	Pine Creek Elementary	7801 N. Hws Cleveland Blvd, Bennington	N	N	N

Figure BNT.6: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 24 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 Douglas County's participant section.

Table BNT.11: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
4/14/1998	Thunderstorm Wind		0	0	$100,000
8/20/1998	Thunderstorm Wind	56 kts.	0	0	$0
7/21/1998	Hail	0.75 in.	0	0	$0
4/14/1998	Thunderstorm Wind		0	0	$10,000
10/4/1998	Hail	1.00 in.	0	0	$0
5/9/2001	Hail	0.88 in.	0	0	$0
5/13/2001	Hail	1.75 in.	0	0	$0
10/1/2002	Hail	1.75 in.	0	0	$0
9/25/2002	Hail	1.50 in.	0	0	$0
5/14/2003	Hail	1.75 in.	0	0	$0
5/8/2005	Hail	0.75 in.	0	0	$0
9/16/2006	Thunderstorm Wind	53 kts. MG	0	0	$0
9/16/2006	Hail	0.75 in.	0	0	$0
6/27/2008	Hail	0.75 in.	0	0	$0
6/11/2008	Thunderstorm Wind	52 kts. EG	0	0	$0
6/5/2010	Heavy Rain		0	0	$0
6/1/2010	Hail	0.75 in.	0	0	$0
6/18/2010	Thunderstorm Wind	55 kts. EG	0	0	$0
7/20/2010	Hail	0.88 in.	0	0	$0
6/1/2010	Hail	1.50 in.	0	0	$0
3/22/2011	Hail	2.50 in.	0	0	$0
8/6/2011	Thunderstorm Wind	56 kts. EG	0	0	$0
8/15/2012	Hail	0.75 in.	0	0	$0
7/22/2013	Hail	2.50 in.	0	0	$0
		Total	**0**	**0**	**$110,000**

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

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Bennington. 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 BNT.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	-	None
Chemical Spills (Transportation)	Yes	-	Public safety; road closures
Civil Disorder	No	-	None
Dam Failure	No	-	Public safety; possible evacuations; building damage
Drought	Yes	-	Water supply
Earthquakes	No	-	None
Extreme Heat	Yes	-	None
Flooding*	Yes	-	Big Papio Creek floods; public safety; building damages
Grass/Wildfires	Yes	-	None
Hail*	Yes	-	Building, vehicle, and tree damage
High Winds	Yes	-	Tree damages; power outages
Landslides	Yes	-	None
Levee Failure	No	-	None
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$110,000	Building and tree damages; power outages; cost of cleanup
Severe Winter Storms*	Yes	-	Power outages; road closures; public safety
Terrorism	No	-	None
Tornados*	No	-	Public safety and loss of life; economic impacts; power outages; critical facilities damaged
Urban Fire	Yes	-	Building damages; public safety

**County level data*

For more information regarding these area wide hazards, please see *Section Four: Risk Assessment*. The following provides community specific information, reported in Bennington's Risk Assessment Summary, that is relevant to each hazard. The top concerns for Bennington are: flooding, hail, high winds, severe thunderstorms, severe winter storms, and tornados.

Dam Failure

Although dam failure was not identified as a top concern for the community, there are two high hazard dams located just west of the community. The following table provides a list of high hazard dams for Bennington. If either of these dams was to fail, people located in the inundation zones would be affected and the significant damages to businesses and homes are possible.

Table BNT.13: High Hazard Dams

NIDID	Dam Name	Location	Stream Name	Owner
NE02631	Bennington Lake Basin No 2	Bennington	Trib. Big Papio Creek	Newport Landing Homeowners Association
NE02585	Newport Landing Dam	Bennington	Big Papio Creek	P-MRNRD

Implemented mitigation projects:

- The local emergency operations plan is in place with evacuation plan
- Dams are regularly inspected and maintained

Identified mitigation projects:

- Continue inspections and maintenance

Flooding

Although the local planning team did not report damages to critical facilities within the City of Bennington, it was noted that when the Big Papillion Creek floods, the Johns-Bohn Park on the south side of the creek on Bennington Road will be flooded. Areas along and south of the creek tend to flood during flooding events. Bennington has 6 NFIP policies in-force for $875,000. There are no repetitive flood loss properties in the City of Bennington.

Table BNT.14: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$3,775,500	26	596	4.4%

Source: Douglas County Assessor

Implemented mitigation projects:

- Member of the NFIP

Identified mitigation projects:

- Public awareness and educational outreach
- Enforcement of floodplain regulations

Figure BNT.7: Dam Locations

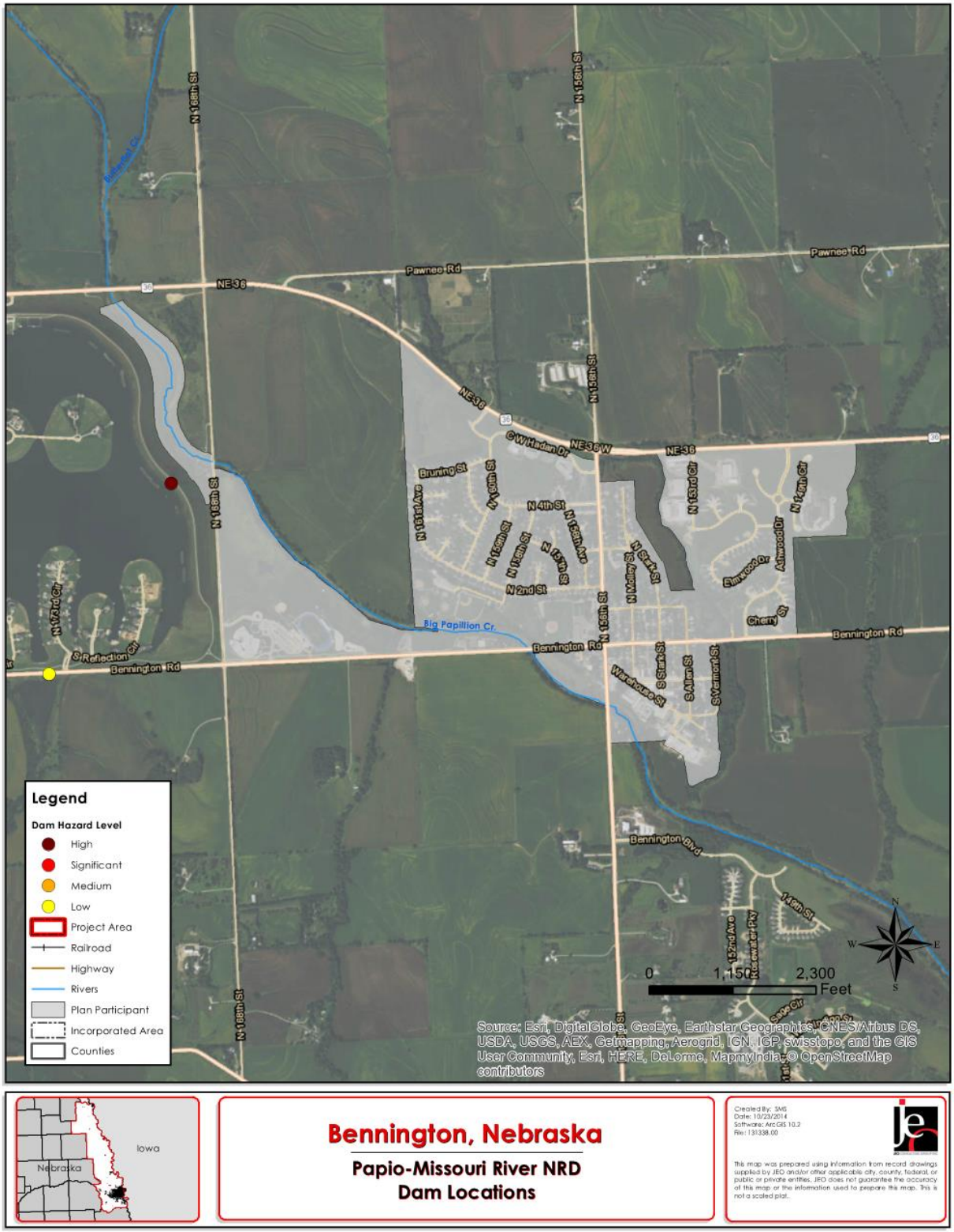
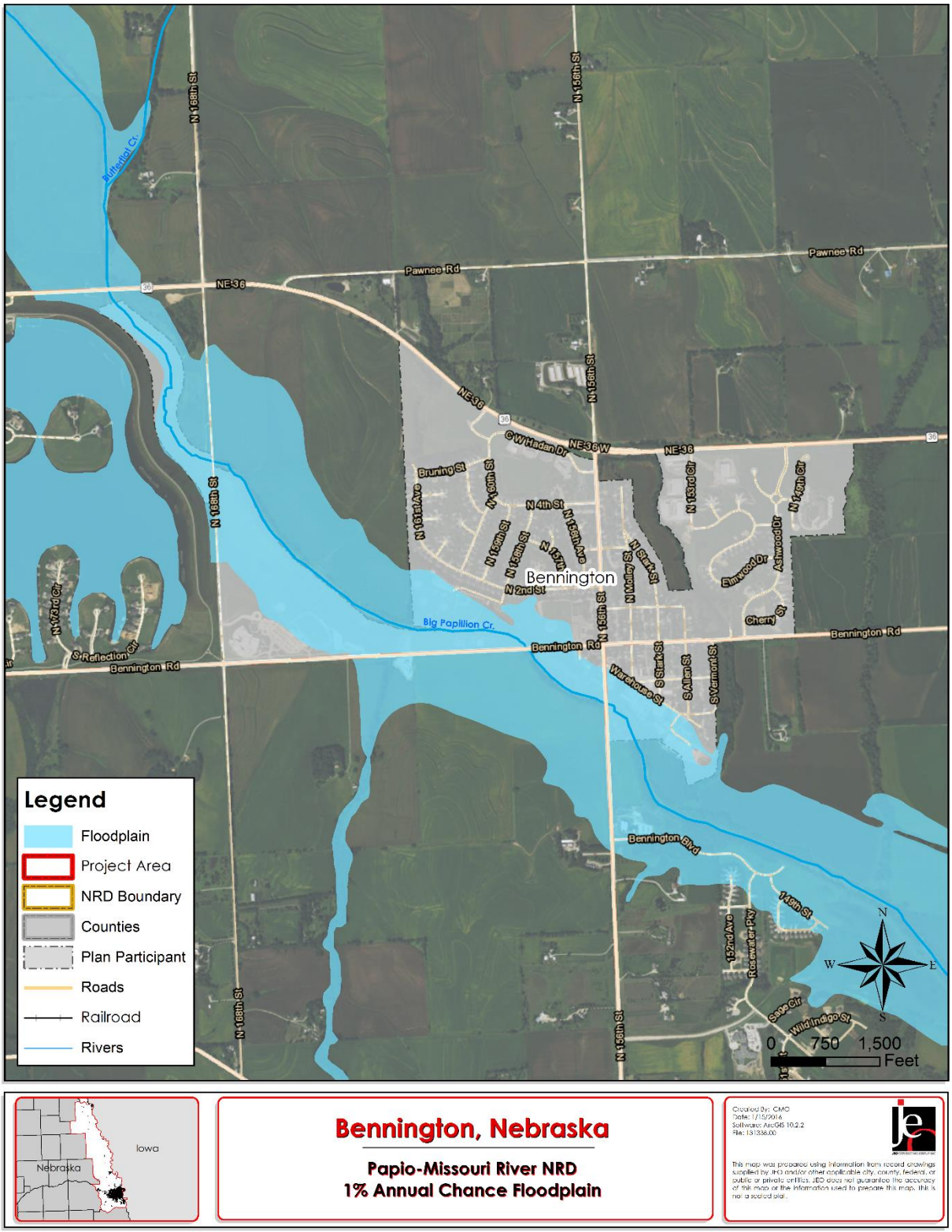


Figure BNT.8: Bennington 1% Annual Chance Floodplain



Hail

Hail was identified as a top concern for the city. As indicated in Table BNT.9, there have been 16 reports of hail since 1998, but none of these hail storms caused reported damage in the community. Hail size ranged from under an inch to 2.50 inches. Hail of this magnitude can cause significant damage to vehicles, buildings, siding, windows, roofs, trees, and much more.

Implemented mitigation projects:

- City has a local tree board for identifying hazardous trees
- Bennington is a member of Tree City USA for 26 years

Identified mitigation projects:

- Consider installing impact resistant roof material

Severe Thunderstorms

Severe thunderstorms are a common occurrence for the area. They can bring a combination of high winds, heavy rain and flooding, hail, and lightning, which any one of these can cause significant damage. In 1998, high winds from a severe thunderstorm did $100,000 in damages when several sheds were damaged or destroyed as well as several trees damaged. A pontoon boat that was in storage inside a barn west of the community was also damaged. A few years ago another severe thunderstorm produced high winds that damaged a large number of trees in the community. The community cleaned up the fallen branches and damaged trees, which left large wood pile that took a long time to get rid of according to the local planning team. There is a concern for the community when a large amount of branches are downed and the cost for tree removal and debris.

Implemented mitigation projects:

- City has a local tree board for identifying hazardous trees
- Bennington is a member of Tree City USA for 26 years
- Some of the municipal records are on surge protectors

Identified mitigation projects:

- Obtain back-up power generators for critical facilities
- Continue to identify and remove hazardous trees and branches

Severe Winter Storms

The local planning team identified severe winter storms as a top concern for the community. The Christmas blizzard of 2009 caused significant disruptions to the community and region. Heavy snow and high winds gusting to over 40 mph created dangerous driving conditions. The storm was prolonged, which made it difficult for snow plows to keep up with the snow removal and blowing snow would continue to cover the roadways. Several people had to be rescued when they became stuck their vehicles. The City of Bennington hires out for snow removal and their services seem to be sufficient at this time for most snow events. The local planning team did not report any damages to critical facilities. The city does use designated snow routes on 156th Street, Bennington Road, and South Second Street.

Implemented mitigation projects:

- Designated snow routes identified
- Snow removal is sufficient at this time

Identified mitigation projects:

- Obtain back-up power generators for critical facilities

Tornados

Although there have not been any tornados reported in or near Bennington, it is a concern for the community. Tornados are possible, especially during the spring and summer months, and the impacts can be long lasting. Roadways can be blocked with debris, prolonged power outages, damage to critical facilities, businesses and homes, and the safety of citizens. The community does have a safe room located near the police station. The community has a mutual aid agreement with Valley, Waterloo, and Douglas County.

Implemented mitigation projects:

- City has a local tree board for identifying hazardous trees
- Safe room near the police station
- Municipal records are backed-up regularly

Identified mitigation projects:

- 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. The City of Bennington is governed by a Mayor and City Council. Bennington has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Fire Department
- Police Department
- City Maintenance
- Street & Parks
- Health & Safety
- Planning Commission
- Tree Board

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 BNT.15: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes (2000)
	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	Yes
	Floodplain Management Plan	No
	Storm Water Management Plan	No

Survey Components/Subcomponents		Existing (Yes/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	No
	Staff Who Can Assess Community's Vulnerability to Hazards	No
	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	No
	Development Impact Fees	No
	General Obligation Revenue or Special Tax Bonds	No
	Other (if any)	
Education and Outreach Capability	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	No
	StormReady Certification	No
	Firewise Communities Certification	No
	Public-private partnership initiatives addressing disaster-related issues	No
	Other (if any)	

PLANS, DOCUMENTS, AND INFORMATION USED

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

Table BNT.16: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Local Emergency Operations Plan (LEOP)	2015

Source/Report/Regulation	Date Completed
Comprehensive Plan	2000

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 Bennington, which was last updated in 2015, is an annex of Douglas 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, updated in 2000, includes a section on the Flood Hazard Area for Bennington. The plan does discourage development in the floodplain, and encourages flood hazard areas be utilized for open space and recreation. It is recommended that in future updates that the plan include a brief section on the Hazard Mitigation Plan, the hazards addressed, and the mitigation actions identified for implementation.

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.
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	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	Existing Staff
Funding	N/A
Timeline	1-3 years
Priority	Medium
Lead Agency	Planning Commission
Status	Not yet started

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.

Description	**Back-up Power Generators**
Goal/Objective	Goal 2/Objective 2.2
Hazard(s) Addressed	Tornados, High Winds, Severe Winter Storms, Flooding, Severe Thunderstorms
Estimated Cost	$50,000+
Funding	City funds, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	City Maintenance
Status	Not yet started

PARTICIPANT SECTION
FOR THE

CITY OF OMAHA

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 and the City of Omaha 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 City of Omaha, including the following elements:

- Participation
- Location /Geography
- Climate
- Demographics
- Transportation
- 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 OMA.1 provides the list of participating community members that comprised the Omaha 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 at risk to the community.

Table OMA.1: The City of Omaha Local Planning Team

Name	Title	Department / Jurisdiction
Travis Gibbons	Floodplain Administrator/City Planner	Omaha Planning Department
Gordon Anderson	Director	Omaha Public Works
Tracy Stratman	Recreation Manager	Omaha Parks and Recreation
Jake Lindner	Park Supervisor	Omaha Parks and Recreation
Dennis E. Bryers	Park Planner II	Omaha Parks and Recreation
Pat Simen	Park Planner II	Omaha Parks and Recreation
Scott McIntyre	Street Maintenance Engineer	City of Omaha
Paul Johnson	Emergency Management	Douglas County/City of Omaha
Mitch Paine	Flood Mitigation Planning Coordinator	NDNR
Lori Laster	Stormwater Engineer	P-MRNRD
Jeff Henson	Department Manager	JEO Consulting Group, Inc.
Rebecca Appleford	Project Coordinator	JEO Consulting Group, Inc.

Members of the local planning team attended the following meetings, which were open to the public.

Table OMA.2: Meeting Dates and Times

Meeting Type	Date and Time
HMP Kick-off (Regional Planning Team)	February 19, 2015 2:00 PM
CRS/HMP Strategy	March 31, 2015 2:00 PM
Round 1 Meeting	May 7, 2015 2:00 PM
Second Regional Planning Team Meeting	June 24, 2015 2:00 PM
Round 2/Flood Mitigation Strategy	September 8, 2015 2:00 PM

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 OMA.3: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
April 1, 2015 – October 1, 2015	MindMixer Survey Website	http://papiohmp.mindmixer.com/
April 15, 2015	Link to Project Website	http://www.cityofomaha.org/planning/
April 15, 2015	Post Project Flyer	http://www.cityofomaha.org/planning/
April 28, 2015	Passed Resolution of Participation	City Hall Council Chambers
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

COORDINATION WITH AGENCIES

The following agencies were contacted for hazard information, particularly flooding, as it pertains to the City of Omaha. The representatives from these agencies also attended at least one public meeting during the course of the planning effort.

Name	Title	Agency
Lori Laster	Stormwater Engineer	P-MRNRD
Mary Baker	State Hazard Mitigation Officer	NEMA
Mitch Paine	Flood Mitigation Planning Coordinator	NDNR

For additional stakeholders and neighboring communities that were contacted to participate or provide information but were not involved in the planning process, please see *Section Two: Planning Process*.

LOCATION AND GEOGRAPHY

The City of Omaha is located in the eastern portion of Douglas County and covers an area of 130.58 square miles. Major waterways in the area include the Missouri River, which forms the eastern boundary of the city, Papillion Creek, and Carter Lake.

CLIMATE

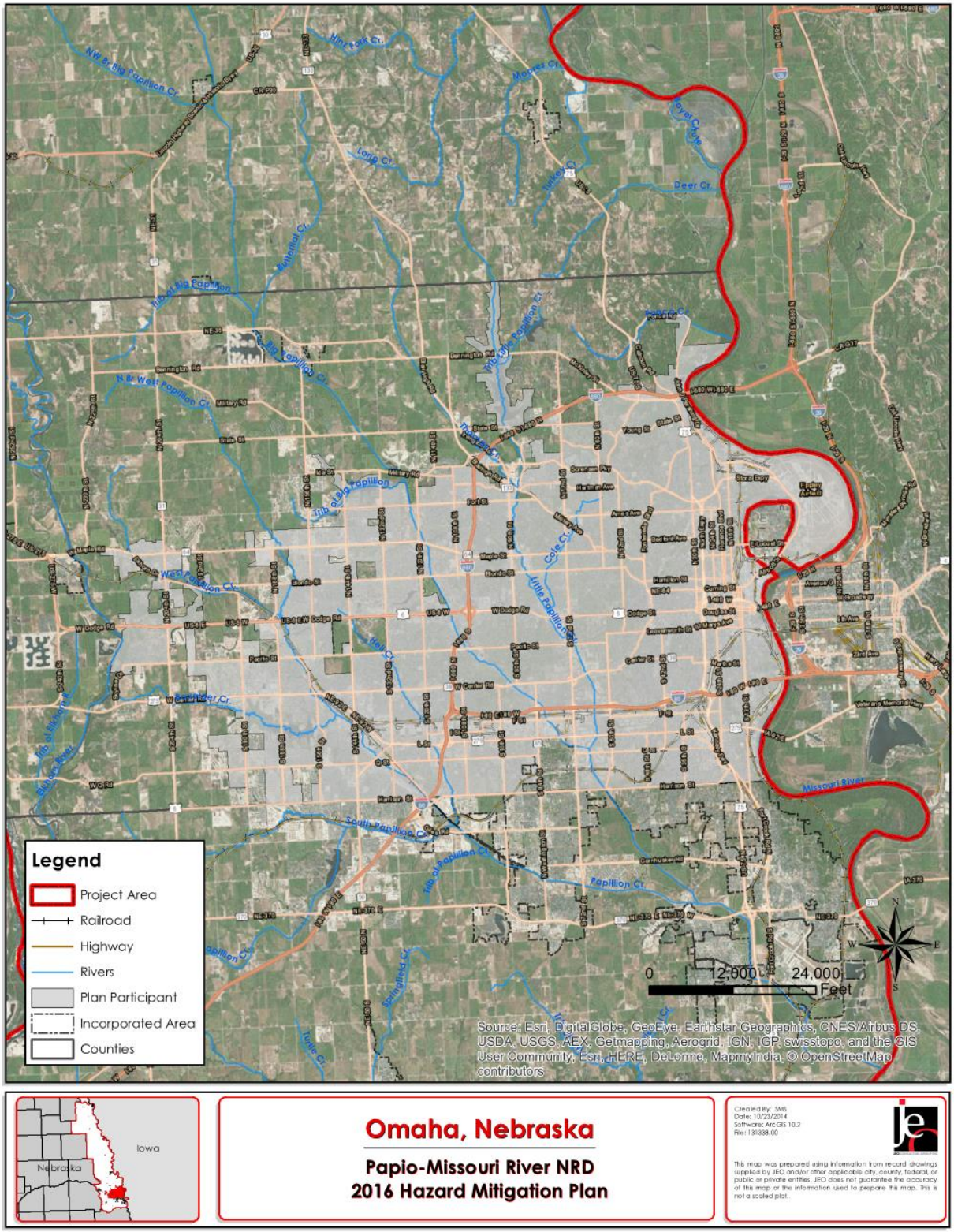
For Omaha, the normal high temperature for the month of July is 84.8 degrees Fahrenheit and the normal low temperature for the month of January is 12.7 degrees Fahrenheit. On average, Omaha gets 31.21 inches of rain and 26.5 inches of snowfall per year. The following table compares these climate indicators with those of the entire state. Climate data are helpful in determining if certain events are higher or lower than normal. For example, if the high temperatures in the month of July are running well into the 90s, then this indicates extreme heat events, which could impact vulnerable populations such as the very young and the elderly if cooling areas are not provided.

Table OMA.4: Climate Data for the City of Omaha

Age	Omaha	Planning Area	State of Nebraska
July High Temp	84.8°F	85.6°F	88.0°F
January Low Temp	12.7°F	11.8°F	12.0°F
Annual Rainfall	31.21 inches	30.64 inches	30.3 inches
Annual Snowfall	26.5 inches	31.2 inches	25.9 inches

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

Figure OMA.1: Map of the City of Omaha



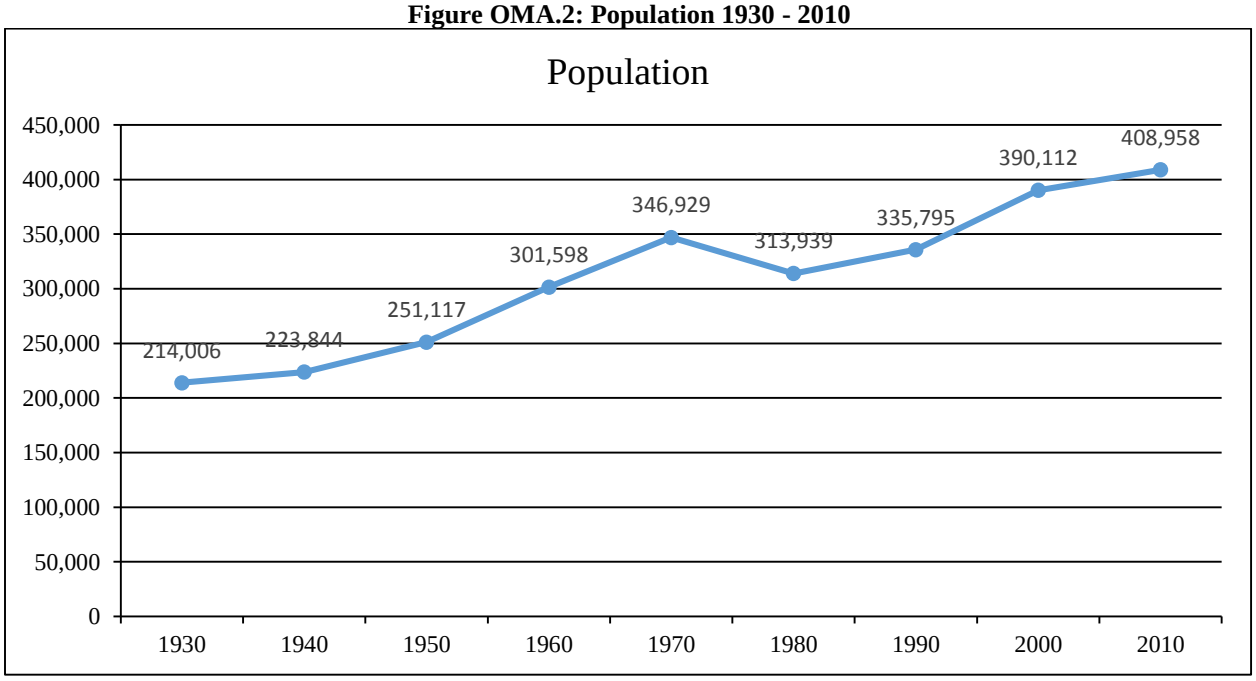
TRANSPORTATION

Omaha's major transportation corridors include Interstates 80, 480, and 680; U.S. Highways 275, 75, and 6; and Nebraska Highways 31, 64, and 133. Interstate 80 is the busiest highway in the city with over 170,000 vehicles on average per day with 11,200 of those as heavy commercial vehicles. Union Pacific Railroad, Burlington Northern Santa Fe Railroad, and Amtrak all have rail lines that go through the City of Omaha. Eppley Airfield and Millard Airport are both located within the city. 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.

DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Omaha has been increasing since 1980. The City of Omaha is the largest city in the State of Nebraska. 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 OMA.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates the City of Omaha has a slightly higher percentage of residents over the age of 64 when compared to Douglas County 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 OMA.5: Population by Age

Age	Omaha	Douglas County	State of Nebraska
<5	7.4%	7.7%	7.2%
5-64	81.2%	81.5%	79.2%
>64	11.4%	10.8%	13.6%
Median	33.9	33.7	36.2

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

The following table indicates that Omaha's median household income is about $5,000 less than the median for the county, but median home values are also lower. 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.

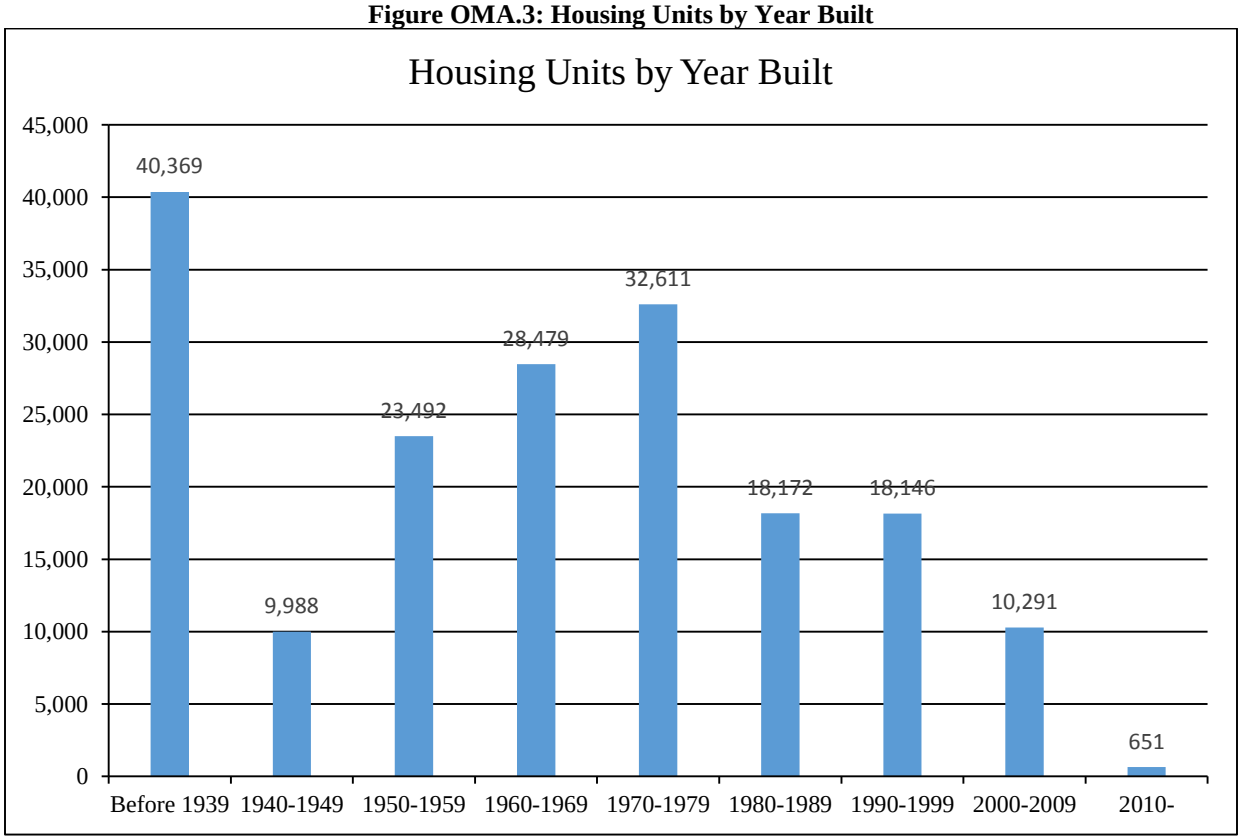
Table OMA.6: Housing and Income

	Omaha	Douglas County	State of Nebraska
Median Household Income	$48,052	$53,325	$51,672
Per Capita Income	$27,165	$29,180	$26,899
Median Home Value	$133,500	$143,000	$128,000
Median Rent	$776	$790	$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 Omaha was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the community has 182,199 housing units with 91.7 percent of those units occupied. There are approximately 2,097 mobile homes in the community and 74.1 percent of the community's housing was built before 1980. The initial Flood Insurance Rate Map (FIRM) was developed in October 1980. Housing built prior to 1980 may not be constructed to include the base-flood elevation requirements and may be 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, and 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 OMA.3: Housing Units by Year Built



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

Table OMA.7: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Omaha	167,120	91.7%	15,079	8.3%		97,747	58.5%	69,373	41.5%
Douglas County	204,226	92.3%	17,085	7.7%		128,058	62.7%	76,168	37.3%

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

MAJOR EMPLOYERS

There are a number of public and private businesses that employ the majority population in the City of Omaha. According to the Nebraska Department of Economic Development, among the largest employers in the private sector are Union Pacific Corp., CHI Health, First Data Corp., Mutual of Omaha, Hy-Vee Food Stores, First National of Nebraska, Nebraska Methodist Health System, Burlington Northern and ConAgra Inc. Among public companies are University of Nebraska Medical Center and Omaha Public Power District. A number of residents also commute to nearby communities for work. A hazard event would have a detrimental effect on the economy and people.

FUTURE DEVELOPMENT TRENDS

According to census data, the Omaha City population has been steadily growing since 1980. The city's comprehensive plan identifies a number of development, redevelopment and improvement strategies to accommodate this growth in the future and provide a high quality of life to the people including transportation improvement, public safety and environmental projects. According to Omaha's comprehensive plan, due to declining property values and tax base, quality maintenance projects and upkeep of existing infrastructure will prioritize over the addition to infrastructure capacity.

PARCEL IMPROVEMENTS AND VALUATION

GIS parcel data was requested from the County Assessor. This data allowed for the analysis of 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 OMA.8: Parcel Improvements

Number of Improvements	Total Improvement Value	Mean Value of Improvements Per Parcel	Number of Improvements in Floodplain	Value of Improvements in Floodplain
131,618	$23,739,271,700	$180,365	2,374	$1,633,332,200

Source: Douglas County Assessor

Figure OMA.4: Developed Areas

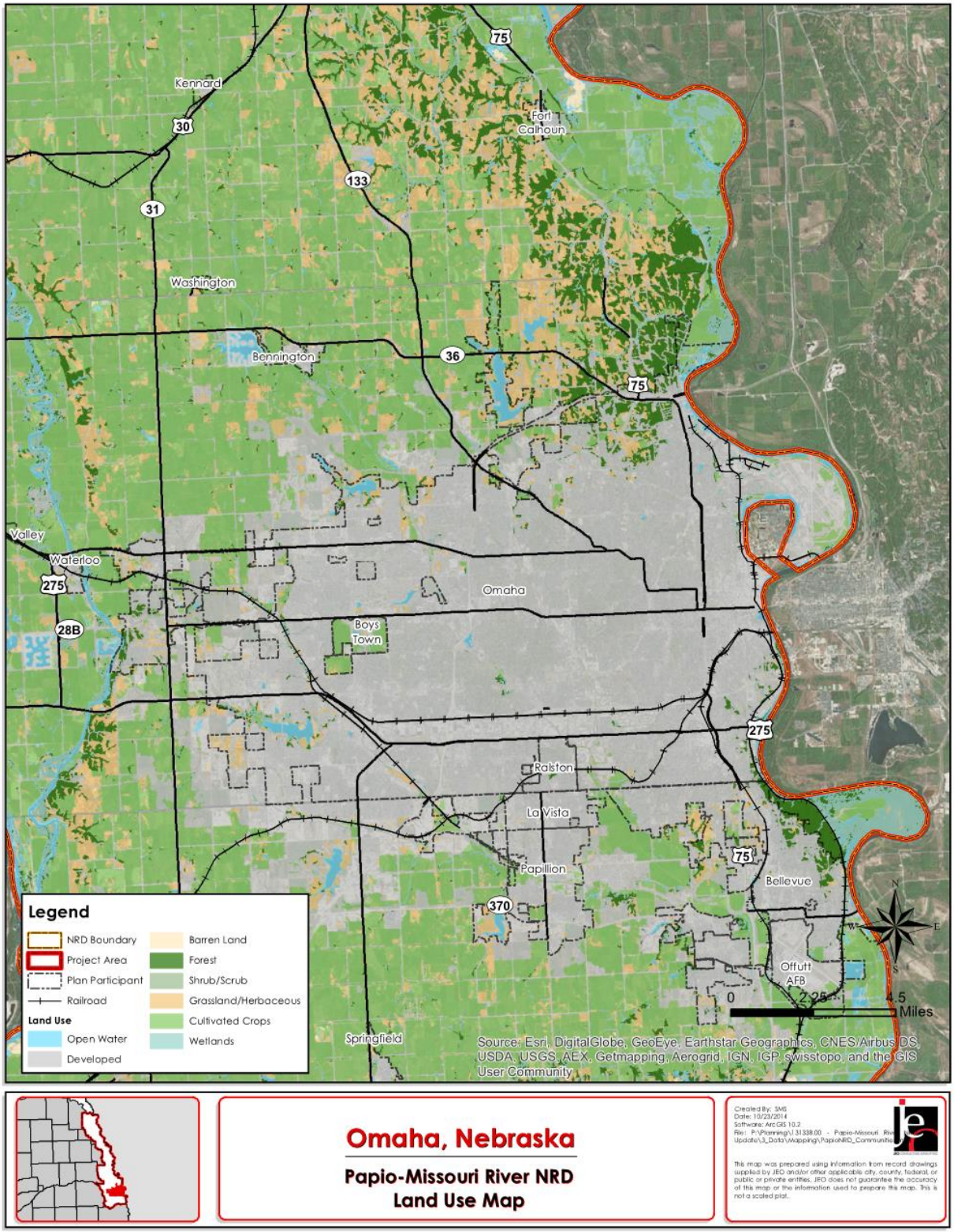
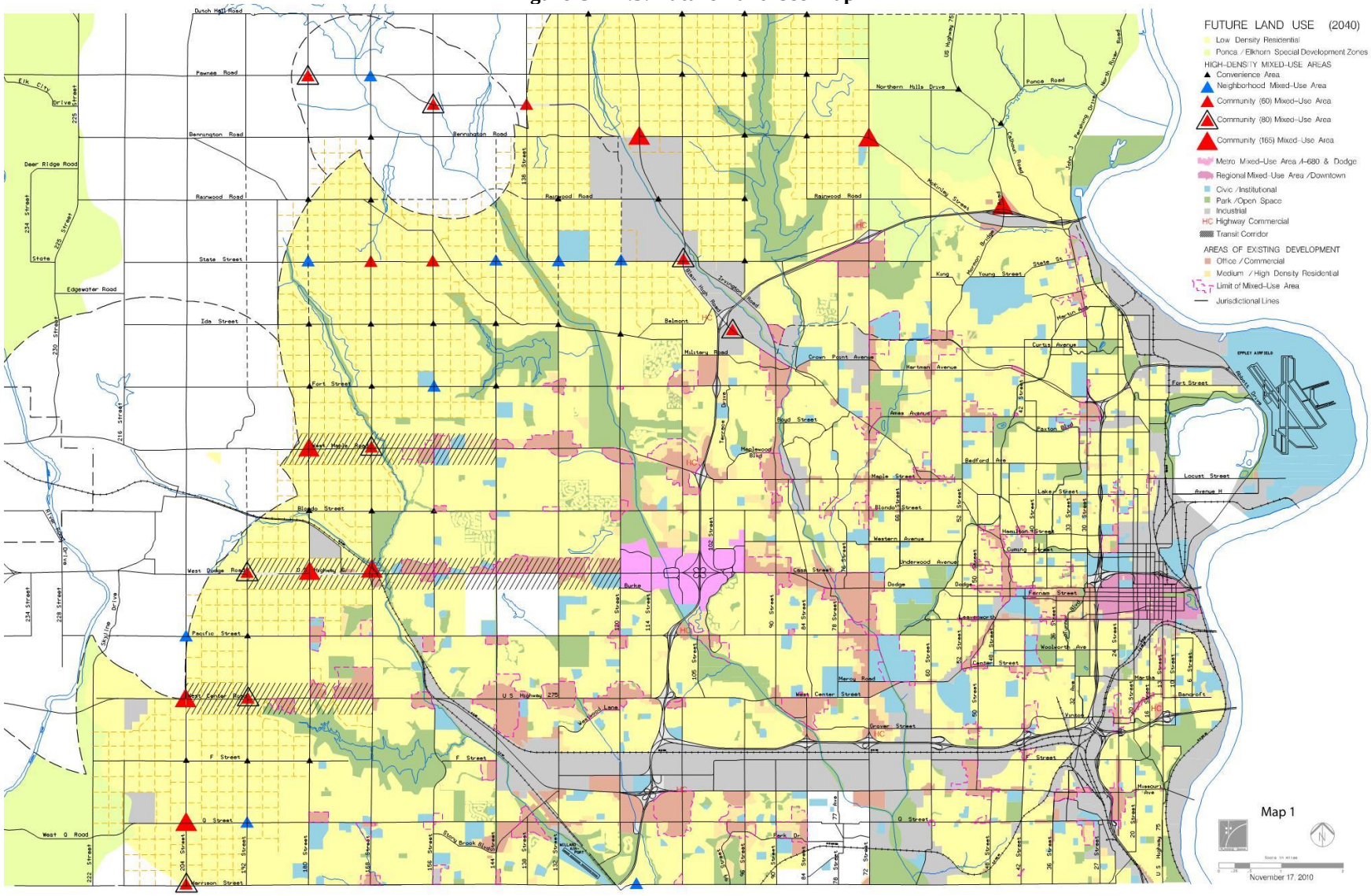


Figure OMA.5: Future Land Use Map



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 hundreds of chemical storage sites in Omaha. The following table lists facilities that house hazardous materials only.

Table OMA.9: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
Action Batteries Unlimited Inc	7911 J St	Sulfuric Acid
Airgas USA LLC	10433 J St	Anhydrous Ammonia
Airlite Plastics CO	6110 Abbott Dr	Batteries
Alter Trading Corporation	2828 N 11th St	Lead Acid Batteries
American Laboratories	5020 S. 33rd St	Ammonia
AmSan Omaha	6260 Abbott Dr	Sulfuric Acid
Arctic Glacier Nebraska Inc	8211 F St	Sulfuric Acid, Ammonia
Ardent Mills LLC	2900 C St	Phosphine Pellets
Armour Eckrich Meats LLC	5015 S. 33rd St	Sulfuric Acid, Ammonia
Birko Corp	4624 S. 88th St	Sulfuric Acid, Peracetic Acid
Bottling Group LLC	4603 S. 72nd St	Sulfuric Acid
Brenntag Great Lakes LLC	3720 D St	Formaldehyde 37%, w/ 11% Methanol
Bunzl Processor Distribution	6720 N. 16th St	Sulfuric Acid
BHJ USA	2516 Edward Babe Gomez Ave	Battery Acid, Ammonia
Cardinal Health	4225 S. 57th St	Sulfuric Acid
Coca-Cola Refreshments	5415 Dayton St	Sulfuric Acid
Costco Wholesale 1012	12300 W. Dodge Rd	Sulfuric Acid
D&D Foods	9425 N 48th St	Anhydrous Ammonia
Darling Ingredients Inc	4115 S. 33rd St	Sal CURB
Eaton Omaha Power Center	3900 Dahlman Ave	Sulfuric Acid
Elliott Equipment Company	4427 S. 76th Cir	Sulfuric Acid, Nitrogen Dioxide, Liquefied Gas
Exoxemis Inc	6029 N 16th St	Anhydrous Ammonia
G&G Manufacturing Company	4432 McKinley St	Sulfuric Acid
Genuine Parts Company	61600 Grover St	Sulfuric Acid
Gilsa Dairy Products	7122 J St	Nitric Acid, Sulfuric Acid, Peroxyacetic Acid, Anhydrous Ammonia
GTL Truck Lines Inc	4228 S. 72nd St	Sulfuric Acid, Anhydrous Ammonia
Harcros Chemicals Inc	9000 F St	Formaldehyde 37%, Nitric Acid 30%, Sulfuric Acid
Industrial Plating Inc	1149 Florence Blvd	Sodium Cyanide, Potassium Cyanide, Nitric Acid, Sulfuric Acid
JF O'Neill Packing Co	3120 G St	Anhydrous Ammonia
Kellogg USA Inc	9601 F St	Mandate Plus, Sulfuric Acid
Lindsay Transportation	505 Crown Point Ave	Sulfuric Acid
Lineage Logistics LLC	13039 Renfro Cir	Sulfuric Acid, Anhydrous Ammonia
Mission Foods Omaha	4433 S. 94th St	Electrolyte (Sulfuric Acid), NHS
Monarch Oil Inc	2200 Avenue HE	HF Asphalt
MUD Florence Potable Water	9100 John J Pershing Dr	Chlorine
Nash Finch Omaha Distr Center	7401 F St	Sulfuric Acid

Facility	Address	Hazardous Material
Nebraska Beef	4501 S. 36th St	Battery Electrolyte, Ammonia Solution
Needham Inc	1204 Jones St	Ammonia
Nox-Crete Manufacturing Inc	1444 S. 20th St	Toluene-2, 4-Diisocyanate
NRG Energy Center Omaha LLC	2152 Howard St	Sulfuric Acid, PHA-82
Omaha Steaks International	9203 F St	Anhydrous Ammonia
Omaha Steaks International	4400 S. 96th St	Anhydrous Ammonia
Quality Pork International Inc	10404 F Plz	Anhydrous Ammonia
Quality Refrigerated Service	3301 G St	Ammonia, Sulfuric Acid
Reinhart Food Service LLC	6720 N. 9th St	Sulfuric Acid
Republic National Distributing	4320 S. 94th St	Sulfuric Acid
Roberts Dairy Co	2901 Cuming St	Ammonia, AC-55-5 Red
Roeder Mortuaries	2727 N 108th St	Formaldehyde, x-tone
Skylark Meats LLC	4430 S. 110th St	Anhydrous Ammonia
Tyson Processing Services Inc	13076 Renfro Cir	Anhydrous Ammonia, Sulfuric Acid
United States Cold Storage Inc	4302 S 30th St	Ammonia, Sulfuric Acid
West Plains Co	1230 Ohio St	Phosfume
Westway Feed Products LLC	1201 M St	Sulfuric Acid
XL Four Star Beef Inc	3435 Edward Babe Gomez Ave	Industrial Batteries, Ammonia

Source: Nebraska Department of Environmental Quality

HISTORIC SITES

According to the National Register of Historic Places for Nebraska, there are 54 historic sites located in or near Omaha.

Table OMA.10: National Historic Registry

Site Name	Date Listed	In Floodplain?
The Anderson Building	11/20/2009	No
Anheuser-Busch Office Building	2/1/1979	No
Apartments at 2514 n. 16th Street	8/30/2010	No
Aquila Court Building	10/2/1973	No
Astro Theater	8/13/1974	No
Bank of Florence	10/15/1969	No
Barker Building	7/2/2008	No
Beebe and Runyan Furniture Showroom and Warehouse	7/23/1998	No
Bemis Omaha Bag Company Building	1/11/1985	No
The Berkeley Apartments	7/19/1996	No
Blackstone Hotel	1/11/1985	No
Bradford-Pettis House	7/21/1983	No
Brandeis-Millard House	11/28/1980	No
Broomfield Rowhouse	3/21/2007	No
Burlington Headquarters Building	12/4/1974	No
Burlington Station	8/7/1974	No
Capitol Garage	5/11/2012	No
Center School	8/23/1985	No

Site Name	Date Listed	In Floodplain?
Charles D. McLaughlin House	11/8/1982	No
Christian Specht Building	9/19/1977	No
City National Bank Building / Orpheum Theater	3/26/1973	No
Columbian School	11/28/1990	No
Country Club Historic District	12/30/2004	No
Dr. Samuel D. Mercer House	6/17/1976	No
Douglas County Courthouse	10/11/1979	No
Drake Court Apartments and Dartmore Apartments Historic District	11/10/1980	No
Drake Court Historic District Amendment	6/4/2014	No
Dundee/Happy Hollow Historic District	7/22/2005	No
Edgar Zabriskie House	11/28/1978	No
Eggerss-O'Flyng Building	12/13/1991	No
Farm Credit Building	3/29/2011	No
The Farnam Building	3/9/2000	No
Federal Office Building	3/17/2009	No
Field Club Historic District	11/15/2000	No
First National Building	6/25/1982	No
First Unitarian Church	3/27/1980	No
Ford Hospital	3/20/1986	No
Fort Omaha Historic District	3/27/1974	No
Gallagher Building	7/1/1994	No
Garneau-Kilpatrick House	10/7/1982	No
General George Crook House	4/16/1969	No
George A. Joslyn Mansion	8/25/1972	No
George H. Kelly House	7/21/1983	No
Georgia Row House	11/12/1982	No
Gold Coast Historic District	3/14/1997	No
Gottlieb Storz House	8/7/1974	No
Havens-Page House	10/7/1982	No
Henry B. Neef House	7/16/2010	No
Hill Hotel	4/20/1988	No
Holy Family Church	7/17/1986	No
Hospe Music Warehouse	7/23/1998	No
Howard Street Apartment District	11/22/1996	No
Hupmobile Building	11/12/2014	No
Jewell Building	7/21/1983	No
Lincoln Highway	3/13/2003	Yes

Source: Nebraska State Historical Society

CRITICAL FACILITIES

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, 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. Below is a summary of the critical facilities for Omaha. Due to the large number of critical facilities in Omaha, a list of all the facilities is not provided.

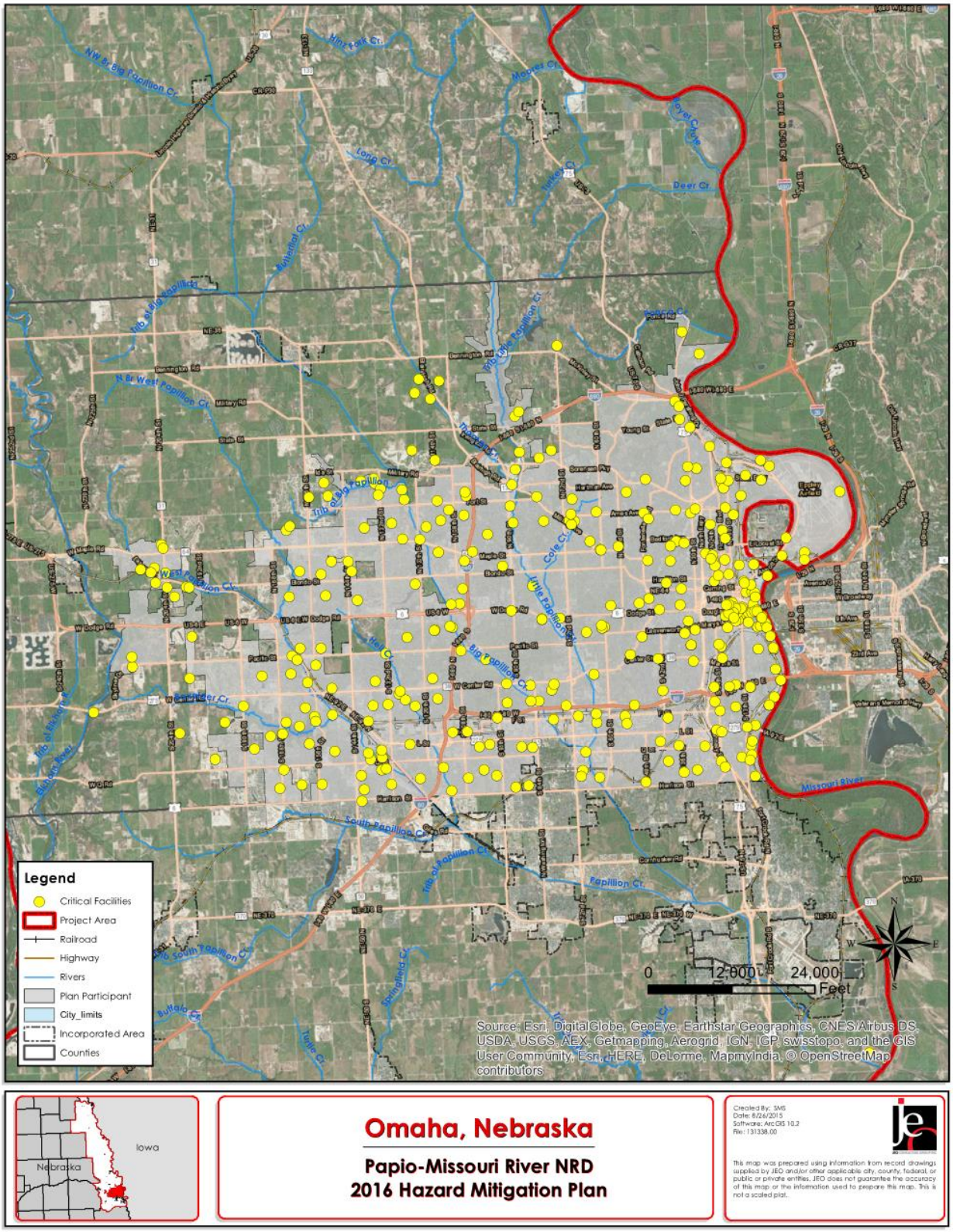
Table OMA.11: Critical Facilities

Critical Facility Type	Number
Fire Department	26
Law Enforcement/Police Station	12
Hospital Emergency Center	15
Lift Stations/Pump Stations	58
Community Center/Auditorium	16

Table OMA.12: Critical Facilities in 1 Percent Annual Chance Floodplain

Type	Name	Address
Fire Station	Fire Station #23	9090 N 30th St
Public Works	Public Works Sewer Maintenance Building	6880 Q St
Public Works	Public Works Elkhorn Wastewater Treatment Plant	19615 Old Lincoln Hwy
Public Works	64th & Dupont Grit Facility	2502 S. 64TH ST.
Lift Station	East Omaha Lift Station	2305 N. 15TH ST.
Infrastructure	North Omaha Div Structure	7th St & Grace St
Pump House	Standing Bear Lake Pump House Omahawks Field 5	5902 N 144th St
Public Works	Public Works Waste Water Treatment Plant 1	5404 S. 10th St

Figure OMA.6: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 265 severe weather events from January 1996 through July 2015, but due to the large number of records, only those that resulted in property damages, fatalities, or injuries are demonstrated in the following table.

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 Douglas County's participant section.

Table OMA.13: NCDC Severe Weather Events for the City of Omaha

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
5/17/1996	Hail	2.75	0	0	$200,000
6/20/1996	Hail	2.75	0	0	$2,000
9/3/1996	Lightning	-	0	0	$30,000
9/23/1996	Lightning	-	0	0	$10,000
6/11/1997	Lightning	-	0	1	$0
6/21/1997	Lightning	-	0	0	$20,000
5/15/1998	Thunderstorm Wind	75 kts	0	0	$40,000
9/19/1998	Lightning	-	0	0	$20,000
8/7/1999	Flash Flood	10-11 in.	1	0	$11,000,000
5/18/2000	Lightning	-	0	0	$25,000
6/25/2000	Lightning	-	0	0	$40,000
7/6/2000	Lightning	-	0	0	$5,000
7/6/2000	Lightning	-	0	0	$150,000
4/10/2001	Hail	1.75 in.	0	1	$300,000,000
4/22/2001	Lightning	-	0	0	$165,000
4/30/2001	Hail	1.75 in.	0	0	$200,000,000
5/13/2001	Hail	2.50 in.	0	0	$1,000,000
6/13/2001	Lightning	-	0	0	$12,000
7/17/2001	Lightning	-	1	0	$0
7/5/2003	Thunderstorm Wind	51 kts. MG	0	0	$2,000,000
5/29/2004	Lightning	-	0	2	$0
7/2/2004	Lightning	-	0	1	$0
7/2/2004	Lightning	-	0	0	$50,000
7/13/2004	Lightning	-	0	0	$20,000
7/22/2004	Flash Flood	2-4 in.	1	0	$0
5/10/2005	Thunderstorm Wind	54 kts. MG	0	0	$500,000
8/10/2005	Lightning	-	0	0	$2,000,000
3/21/2007	Lightning	-	0	0	$5,000
3/31/2007	Lightning	-	0	0	$40,000
4/24/2007	Lightning	-	0	0	$150,000

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
4/24/2007	Lightning	-	0	0	$60,000
5/4/2007	Heavy Rain	4-8 in.	0	0	$1,000,000
10/13/2007	Lightning	-	0	0	$250,000
6/8/2008	Tornado	EF2	0	3	Unknown
6/27/2008	Thunderstorm Wind	100 kts. EG	0	0	$53,000,000
7/15/2008	Flash Flood	-	0	0	$2,000
4/6/2010	Lightning	-	0	0	$90,000
6/20/2010	Flood	-	0	0	$25,000
7/1/2010	Flood	-	0	0	$25,000
8/1/2010	Flood	-	0	0	$20,000
5/27/2011	Flood	-	0	0	$5,000
7/1/2011	Flood	-	0	0	$500,000
8/1/2011	Flood	-	0	0	$5,000,000
8/18/2011	Hail	4.25 in.	0	1	$0
8/18/2011	Flash Flood	-	0	0	$5,000
8/22/2011	Flash Flood	2-4 in.	0	0	$50,000
9/1/2011	Flood	-	0	0	$1,000,000
5/11/2014	Flash Flood	-	0	0	$10,000
6/3/2014	Flash Flood	-	0	0	$100,000
		Total	**3**	**9**	**$578,626,000**

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

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Omaha. 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 OMA.14: 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)*	Yes	-	Public safety; road closures; possible evacuations
Chemical Spills (Transportation)	Yes	-	Public safety; road closures
Civil Disorder	Yes	-	None
Dam Failure	No	-	Flooding; property damages; economic impacts; public safety
Drought	Yes	-	Water main breaks; fires; roadway damage

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Earthquakes	No	-	None
Extreme Heat	Yes	-	Vulnerable populations
Flooding	Yes	$17,742,000	Property damages; public safety; utility damages; economic impacts
Grass/Wildfires	No	-	None
Hail*	Yes	$501,202,000	Property damages; public safety
High Wind*	Yes	-	Public safety; property damages; economic impacts
Landslides	Yes	-	None
Levee Failure	Yes	-	Flooding; property damages; public safety
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$58,682,000	Public safety; property damages; economic impacts
Severe Winter Storms	Yes	-	Public safety; property damages; economic impacts
Terrorism	Yes	-	None
Tornados*	Yes	Unknown	Public safety; property damages; economic impacts
Urban Fire	Yes	-	Public safety; property damages

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

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

Chemical Spills (Fixed Sites)

The local planning team identified chemical spills from fixed site locations as one of the concerns for the City of Omaha. According to the U.S. Coast Guard's National Response Center database, there have been 140 fixed site chemical spill events in Omaha between 1982 and 2014. Property damages were reported for three separate chemical spill events totaling $185,000, which were all caused by fire from natural gas leaks. Thirteen people were injured in three separate spills and no deaths. The following table shows only the largest spills recorded in Omaha, events that caused damage, or spills that caused injuries.

Table OMA.15: Fixed Site Chemical Spills in Omaha

Date of Event	Location of Release	Quantity Spilled	Material Involved	Number of Injuries	Property Damage
12/20/1990	Omaha	Unknown	Unknown Material	2	$0
3/22/1991	Omaha	Unknown	Chlorine	10	$0

Date of Event	Location of Release	Quantity Spilled	Material Involved	Number of Injuries	Property Damage
4/6/1991	Omaha	11,000 Gallons	Asphalt Emulsion	0	$0
5/19/1992	Omaha	2,800 Gallons	Sodium Hypochlorite	0	$0
6/1/1992	Omaha	5,000 Gallons	Sulfuric Acid (Diluted to 8% Solution)	0	$0
6/23/1996	Omaha	5,000 Gallons	Waste Oil	0	$0
11/25/1996	Omaha	78,000 Pounds	Sodium Hypochlorite	0	$0
10/31/1998	Omaha	10,000 Pounds	Sulfuric Acid	0	$0
2/28/2006	Omaha	Unknown	Unknown Material	1	$0
8/26/2010	Omaha	0	Natural Gas	0	$75,000
9/18/2010	Omaha	0	Natural Gas	0	$60,000
11/14/2010	Omaha	0	Natural Gas	0	$50,000
6/26/2011	Omaha	16,000,000 Gallons	Sewage	0	$0

Source: National Response Center, 1982-2014

The local planning team is especially concerned with facilities that are not known registered with the city. In one instance, an unregistered plant was found working near a school. However, the city was notified and was able to shut down the facility. The team also noted two explosions in the past. The first occurred while a train car was being cleaned, and the second was from a fertilizer plant. The fire department is trained to respond to these situations, and there is a local hazardous materials team in Omaha.

Implemented mitigation projects:

- County-wide emergency operations plan is in place for the city
- Hazard materials team is located in Omaha to respond to incidents

Identified mitigation projects:

- Emergency management exercise to identify gaps in planning
- Pursue educational outreach opportunities

Dam Failure

Although not identified as one of the top concerns for the City of Omaha, the city could be significantly impacted by failure of high hazards dams located in the city. According to the Emergency Operations Plan, the failure of the Papillion Creek Site 11 Dam would affect an area slightly greater than the 1 percent annual chance floodplain with the greatest effect on areas along the creek through Omaha. It would approach 100 percent inundation. While there are no records of dam failure reported for the City of Omaha, the event has a potential for significant losses due to flooding, economic impacts, and business and housing damages.

Implemented mitigation projects:

- County-wide emergency operations plan is in place for the city
- Dams are inspected and maintained regularly

Identified mitigation projects:

- Conduct regular dam maintenance
- Emergency management exercise to identify gaps in planning

The following table provides a list of the high hazard dams located in Omaha.

Table OMA.16: High Hazard Dams in Omaha

NIDID	Dam Name	Location	Stream Name	Owner
NE00307	Boys Town Dam No 1	Omaha	Hell Creek	Father Flanagan's Boys Home
NE00031	Boys Town Dam No 2	Omaha	Big Papio Creek	First National Business Park Owners Association
NE00138	Candlewood Dam	Omaha	Big Papio Creek	P-MRNRD
NE00032	Legacy Dam	Omaha	Box Elder Creek	Legacy Homeowners Association
NE00030	Lonergan Dam	Omaha	Little Papio Creek	Conagra Foods
NE02784	Papio Dam Site 13-Youngman	Omaha	W. Papio Creek	P-MRNRD
NE01518	Papio Site 11-Cunningham Lake	Omaha	Little Papio Creek	US Army Corps
NE01065	Papio Site 15- Standing Bear Lake	Omaha	Papio Creek	US Army Corps
NE02185	Papio Site 18- Zorinsky Lake	Omaha	Box Elder Creek	US Army Corps
NE02735	Zorinsky Basin No 3-Whitehawk	Omaha	Box Elder Creek	P-MRNRD
NE03289*	Papio Creek 15-A	Omaha	North Branch W. Papillion Creek	P-MRNRD
NE09714*	Adams Park Dam	Omaha	Tributary to Missouri River	City of Omaha

Source: NDNR
**Approved for construction*

Levee Failure

While the local planning team did not identify levee failure as one of the top hazards, levee failure may cause loss of life and injuries as well as damages to property, the environment, and the economy. There have been no reports of levee failure in Omaha.

The following table identifies the levees that are located in the City of Omaha.

Table OMA.17: Omaha Levees

Name	Sponsor	City	Watercourse	Length (miles)	Type of Protection	Protected Area (sq miles)	Approximate Level of Protection
Omaha Channel Improvements	Papio-Missouri River NRD	Omaha	Little Papio Creek	6.9	Urban	25-49	0-24 year flood
Omaha FPP	City of Omaha	Omaha	Missouri	12.76	Urban	5-24	100-500 year flood

Source: Nebraska State Mitigation Plan and the 2011 P-MRNRD HMP

Implemented mitigation projects:

- County-wide emergency operations plan is in place for the city
- Levees are inspected and maintained regularly

Identified mitigation projects:

- Working with P-MRNRD on levee improvements
- Emergency management exercise to identify gaps in planning

Flooding

As a large metropolitan area, stormwater runoff causes flooding issues as intense rainfalls occasionally surpass the capabilities of the stormwater management systems. Furthermore, Omaha has a combined stormwater and wastewater system, which can result in additional flooding issues. In addition to stormwater runoff flooding, there are several riverine flood sources which impact the city. These include the Missouri River, Big Papillion Creek, Little Papillion Creek, Hell Creek, Cole Creek, Thomas Creek, and Boxelder Creek.

The following history of flooding in Omaha is primarily taken from the Douglas County Flood Insurance Study dated May 2010:

Missouri River

The first flood record that could be found was dated April 6, 1881, which was a major flood because a large ice jam was breached in Cedar County. This flood swept away entire towns and the Missouri was five miles wide at Omaha. People were forced to evacuate to the roofs of their homes on 9th Street. Along the Missouri, there was a total of three people killed, thousands of livestock perished, and damaged was placed in the "many millions". Another major flood occurred in 1943. At Omaha, the river crested at 22.45 feet and had a discharge of 200,000 cubic feet/second (89,760,000 gallons/minute). Three thousand men helped fight the flood, but after a week, the Missouri found a weak spot in the temporary dike and the battle was lost. One hundred homes were flooded when the floodwater also breached a new dike at Locust Street. The industrial section on Grace Street was flooded, and businesses were closed several days. One thousand people were evacuated from Carter Lake and East Omaha as the old Lake Florence bed filled and inundated the airport with seven feet of water in 18 hours. One person was killed in Omaha, and the damage estimate there was $1.4 million. A $6 million floodwall was constructed as a result of the 1943 flood, which served Omaha well during major floods in 1947 and 1950. The flood of record on the Missouri River took place on April 16, 1952 with a recorded discharge of 396,000 cfs (177,724,800 gallons per minute) with a record stage of 40.2 feet (flood stage at Omaha is 29 feet). Emergency freeboard was added to the top of the floodwall in order to keep Omaha from being flooded. The severe flooding on the Missouri River in the 1940s and 50s lead to the authorization for the construction of six large dams by the United States Army Corps of Engineers. These dams were completed in the early 1960s, and flooding on the Missouri has not been a significant problem since. The Corps also constructed a levee/floodwall system in Omaha which provides protection to the 500-year (0.2% change per-year) flood. The only significant flooding at Omaha after the completion of the dams took place in 1993, the year with record flooding over the entire Midwest. However, Missouri River flooding was much more pronounced south of Omaha, below the juncture with the Platte River and other large rivers from Iowa.

For information regarding the Missouri River flood of 2011, please refer to *Section Four: Risk Assessment*.

Big Papillion Creek

The two largest floods of record on the Big Papillion Creek took place in 1964 (45,900 cfs) and 1965 (31,200 cfs). The flood of June 16th and 17th, 1964, killed seven people and caused $5 million in damage, not including losses to personal property. 95 trailer homes were destroyed, with several being swept more

than a half-mile downstream by the torrent. Flood damages were recorded in the Big Papio Creek watershed from the consistent heavy downpours in the summer of 1993. Many homeowners had problems with bowing or collapsed foundation and retaining walls.

Little Papillion Creek
The flood of record for Little Papillion Creek took place on June 21, 1960. Intense localized thunderstorms in the watershed led to a discharge of 15,300 cfs at Irvington Street and 10,000 cfs at Cass Street. The severe thunderstorm of September 6, 1965 caused a discharge of 12,800 cfs at the mouth with the Big Papillion Creek.

West Papillion Creek
The largest flood on West Papillion Creek occurred in June 1964 having an approximate discharge of 40,800 cfs in the Elkhorn area and 31,500 cfs at the mouth with Big Papillion Creek. Mobile homes were swept away by this flood in the Millard area.

Hell Creek
Hell Creek flows from Boys Town to its confluence with West Papillion Creek. The flood of June 16-17, 1964, was caused by eight inches of rain falling in three hours. The 500-year flood discharge was exceeded, and reports noted that Hell Creek was fifty feet wide and had five-foot waves. Houses were moved from their foundations and garages were destroyed by these floodwaters. After some channel improvements earlier in 1965, the September 7, 1965, flood event on Hell Creek nearly equaled the severity of the 1964 event.

Cole Creek
Up to ten inches of rain fell overnight on August 6-7, 1999, forcing Cole Creek out of its banks. Cole Creek flows through the fully-urbanized watershed in northern Omaha of Debolt and Benson neighborhoods before joining the Little Papillion Creek near 77th & Dodge. One man was killed from the 1999 flood as a result of a basement wall caving in on top of him.

Thomas Creek
Thomas Creek flows primarily north-to-south past Irvington before joining Little Papillion Creek at Blair High Road. The Thomas Creek watershed has been rapidly developing in the last ten years, and downstream flood problems have been the result. During the August 1999 storm, one property owner was trapped by the rising water and nearly lost her life while trying to open the fences for her horses.

Boxelder Creek
Much of rapidly developing west Omaha is drained by Boxelder Creek. As a result, it should be expected that runoff rates will cause more water to flow in the creek more quickly. However, Zorinsky Lake is a flood control structure on Boxelder Creek which will minimize flooding.

Omaha has 1,022 NFIP policies in-force for $270,226,200. There are 2 single family, 2 non-residential, and 5 other residential (i.e. not single family or 2-4 family home) properties that are repetitive flood loss properties in the City of Omaha.

Table OMA.18: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$1,633,332,200	2,374	131,618	1.8%

Source: Douglas County Assessor

Implemented mitigation projects:

- Stormwater management and floodplain ordinances
- Participant in the Papillion Creek Watershed Partnership
- Member of the NFIP
- CRS Class 9

Identified mitigation projects:

- Partner with P-MRNRD on flood warning system
- Continue to encourage low impact development
- Ongoing bank stabilization projects
- Conduct a parcel level evaluation of flood prone properties
- Continue educational outreach opportunities

Hail

Hail events can cause significant, widespread damages to critical facilities, business, and personal property. The NCDC reports 4 hail events in the period from 1996 to 2014 that resulted in $501, 000,000 of combined property damages, 2 injuries and the biggest recorded hailstone size. The hail event recorded in 2001 reported hailstone size of 2.50 inches, while the event in 2011 had a record high hailstone size of 4.25 inches.

Implemented mitigation projects:

- County offers text alerts to warn residents of hazards
- Tree City USA community for 37 years

Identified mitigation projects:

- Continue Tree City USA participation
- Develop an urban tree management plan
- Provide weather radios for critical facilities in need

Severe Thunderstorms

Severe Thunderstorms are identified as a significant concern to the community due to the previous occurrences and reported property damage. Severe thunderstorms are part of regular climate in the region, including the City of Omaha. The NCDC reports 4 severer thunderstorm events in the period from 1996 to 2014 in the City of Omaha that resulted in $55,540,000 of combined property damages. The event recorded in Omaha in 2008 alone experienced a severe thunderstorm event of 100 kts that resulted in $53,000,000 in property damages. Severe thunderstorms combined with heavy rain can produce flash flood, power outages tree damages along with groundwater in basements.

Implemented mitigation projects:

- County offers text alerts to warn residents of hazards
- Tree City USA community for 37 years

Identified mitigation projects:

- Critical facility evaluation
- Provide weather radios for critical facilities in need
- Site hardening for critical facilities to elevate electrical systems above ground
- Develop an urban tree management plan

Tornados and High Winds

Tornados and high winds are identified as a high concern for the community due to the previous occurrences and reported economic losses. Previous occurrences reported in Douglas County include a high wind event reported County in 1996 causing one death, while another wind event that same year resulted in $34,000 in property damages. Tornados and high winds have the potential for significant damages and loss of life. The NCDC reports an EF2 tornado that was recorded in the City of Omaha in 2008 that caused 3 injuries and unknown damages. According to the USDA Risk Assessment Management Agency claim reports in the period from 2000 to 2014 in Douglas County, a single tornado event produced $115, 54 in crop damages.

Implemented mitigation projects:

- County offers text alerts to warn residents of hazards
- Tree City USA community for 37 years
- County-wide emergency operations plan is in place for the city

Identified mitigation projects:

- Identify, designate, and publicize tornado shelters
- Provide weather radios for critical facilities in need

Figure OMA.7: Map of High Hazard Dams in Omaha

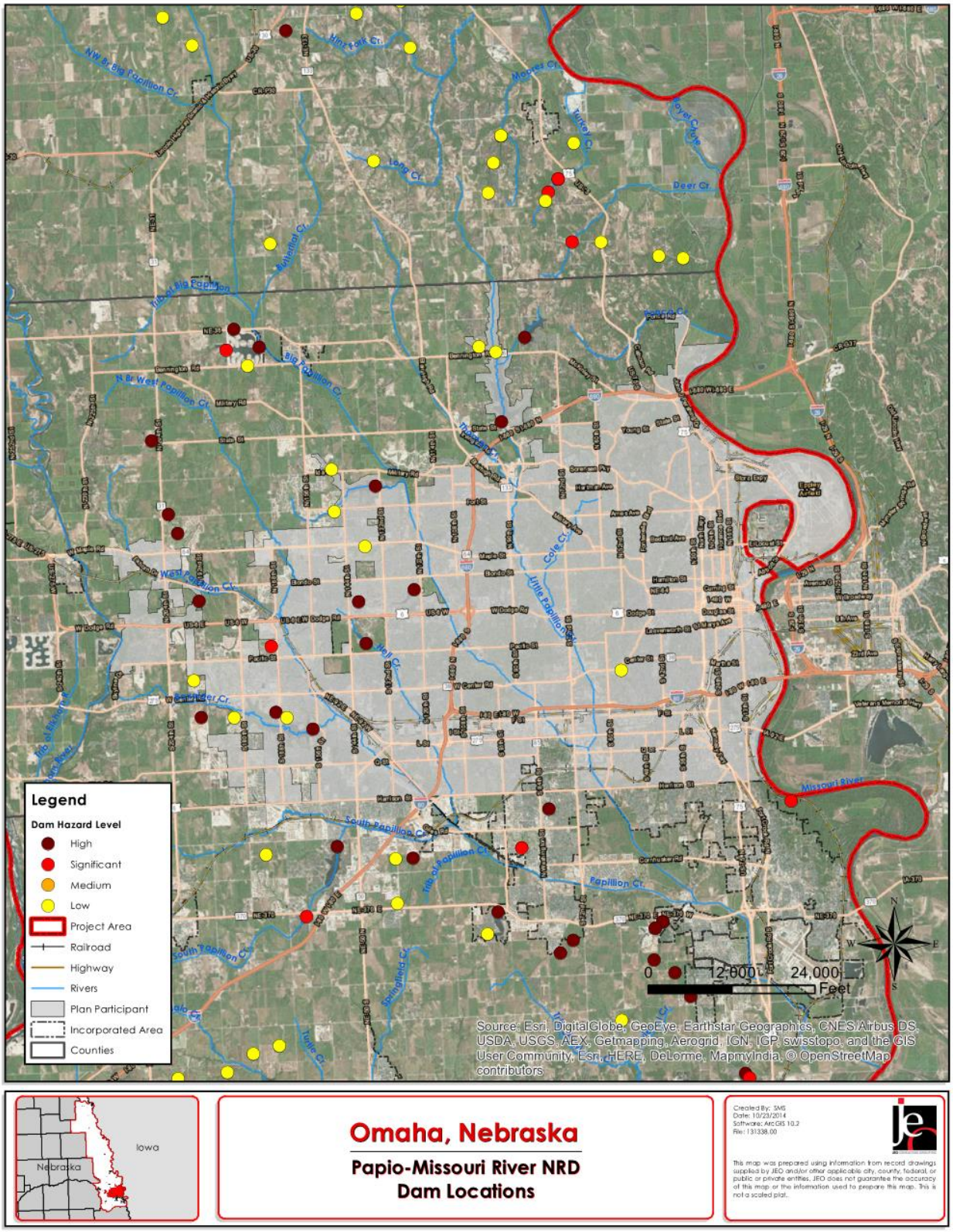


Figure OMA.8: Leveed Areas in Omaha

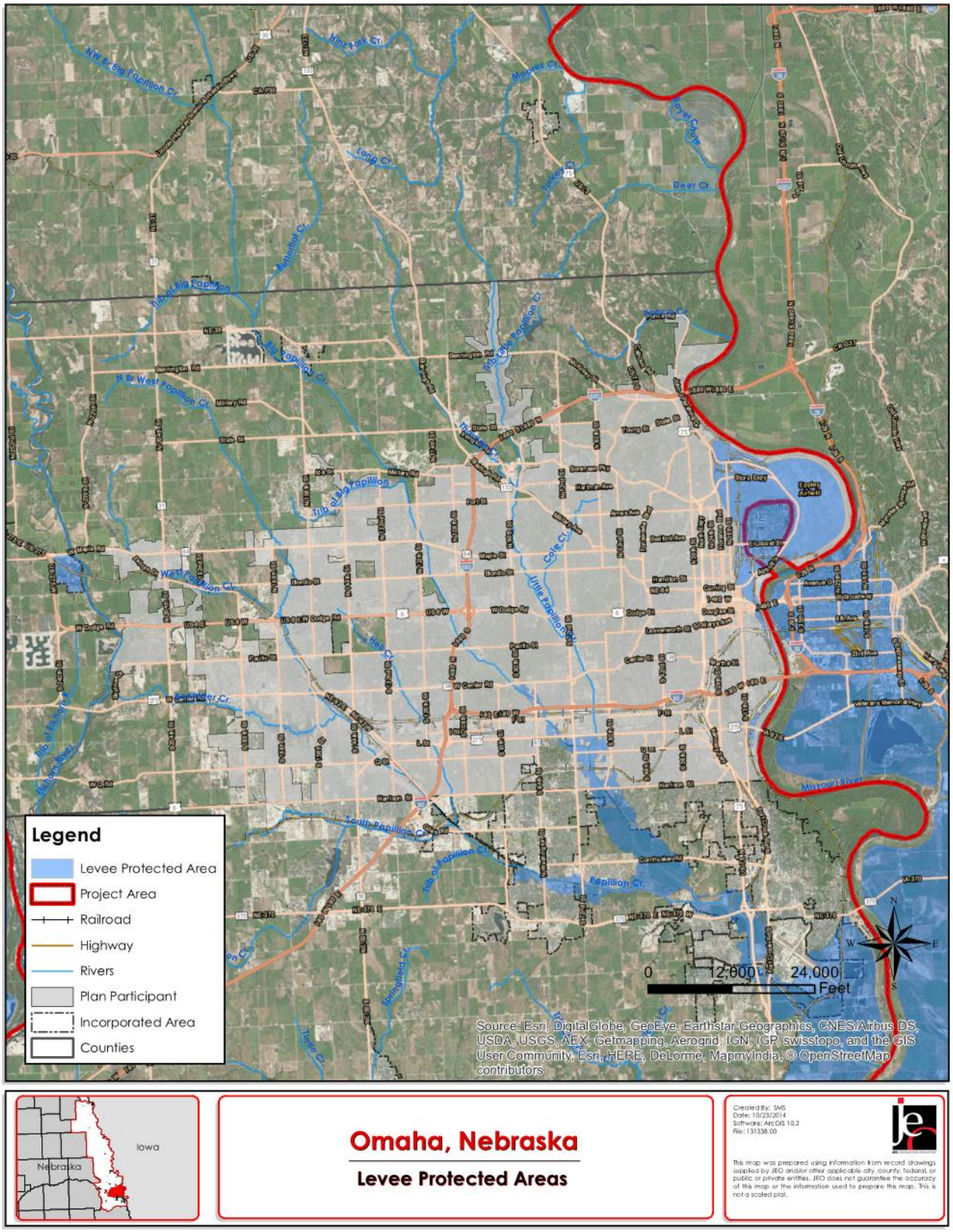
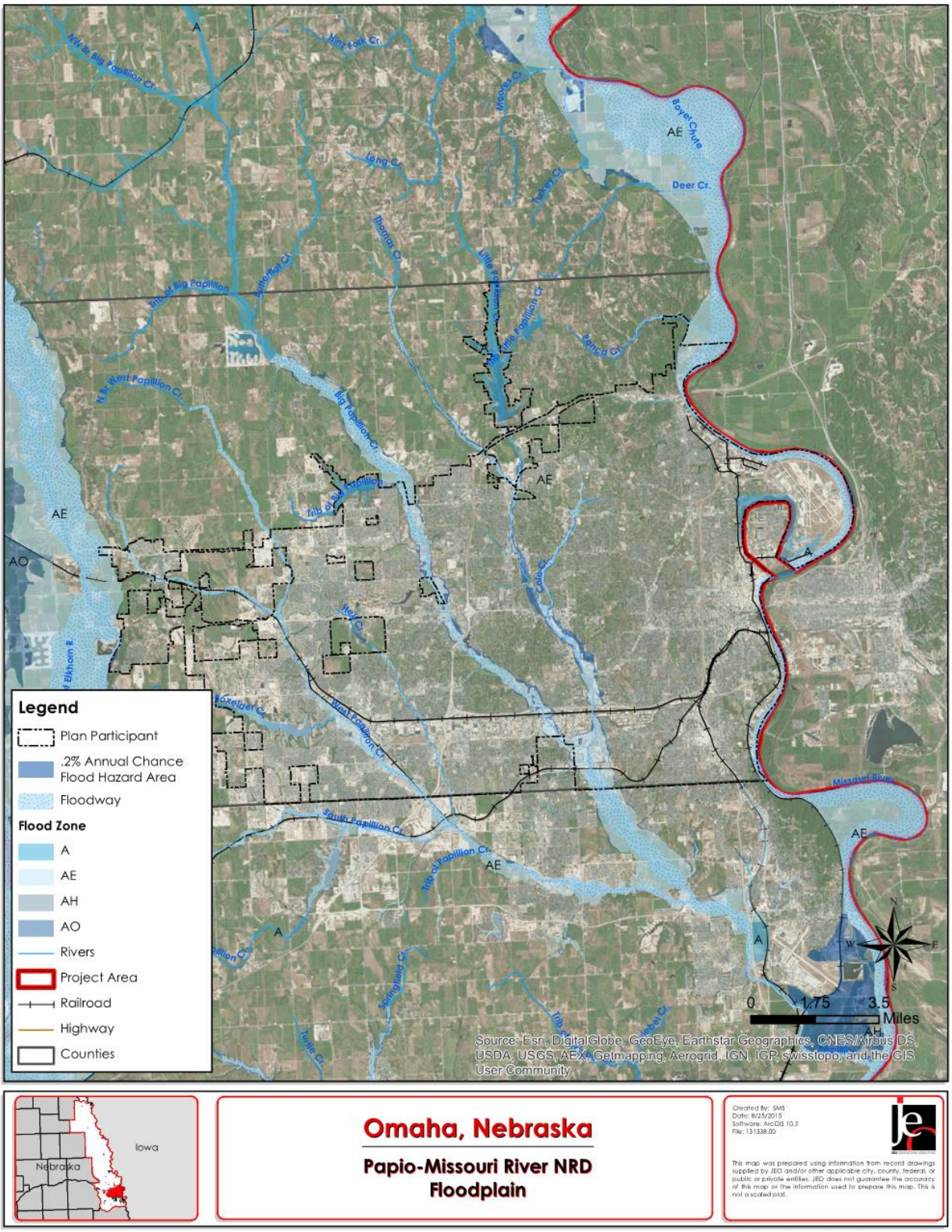


Figure OMA.9: Omaha 1% and 0.2% Annual Chance Floodplain



GOVERNANCE

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City of Omaha has a seven member city council led by a mayor, and a number of offices and departments that may be involved in implementing hazard mitigation initiatives.

- Mayor's Office
- City Clerk
- Finance Department
- Fire Department
- Human Resources
- Library
- Parks, Recreation, & Public Property
- Planning Department
- Police Department
- Public Works
- Tree Board

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 OMA.19: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	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	Yes (Class 9)
	Other (if any)	Tree City USA 37 years
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

Survey Components/Subcomponents		Existing (Yes/No)
	Civil Engineering	Yes
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes
	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	Yes
	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
	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 Omaha's participant section.

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

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2015
Master Plan	2013
Floodplain Ordinance	Revised 2014
Zoning Ordinance	Revised 2015
Building Code	2006
Subdivision Regulations	1995
Stormwater Management Ordinance	Revised 2014

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.

Omaha 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 Omaha, which was last updated in 2015, is an annex of Douglas 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.

Omaha's Master Plan includes the following elements: Concept Element, Environment Element, Public Facilities Element, Housing Element, Transportation Element, Future Land Use Element, Parks Master Plan Element, and Urban Development Element. The Environmental Element mentions Hazard Mitigation, and the hazards identified in the plan. Furthermore, it discusses the need for mitigation to reduce or eliminate the vulnerability of people and property from natural hazards and their effects. One of several objectives listed in the plan includes the need to minimize the potential for flooding as well as the potential cost of damage and loss of life in case of flooding. It also suggest that development within the floodplain should be prevented or reduced. Additionally, it suggests that the city strengthen the emergency response warning system to reach all residents and address language barriers and to actively plan for community safety, including climate change and emergency prevention and adaptability.

Omaha's Floodplain Ordinance was last updated in 2014. The ordinance requires all new construction, cumulative substantial improvements, or substantial improvements of residential structures have the lowest floor elevated to or above one foot above the base flood elevation. Since the ordinance includes a one foot freeboard, this should be sufficient in reducing losses in current and most likely future flooding conditions. Development of residential structures in the floodway are prohibited. The Zoning Ordinance contains flood fridge and floodway overlay districts that set conditions, as described in the floodplain ordinance, for land use within these districts. Buoyant, flammable, explosive, or could be injurious is prohibited in the floodplain. The storage of material is allowed if firmly anchored to prevent flotation during a flood.

The city has adopted the International Building Code, 2006 edition.

The Subdivision Regulations contain restrictions for subdivision development where land is known to flood or have poor drainage. It states that if a subdivision is traversed by the Big Papillion, Little Papillion, or West Branch Papillion Creeks, there must be a permanent easement allowed for construction, operation, and maintenance of the channel and flood control improvements and public recreational trails.

MITIGATION STRATEGY

REVIEW POSSIBLE ACTIVITIES

The local planning team met to discuss a wide range of possible mitigation activities that the city could include in the HMP to be more resilient to flooding. As required for Activity 510 *Floodplain Management Planning* for consideration of CRS points, the discussion included activities that are currently implemented or ongoing, activities that should be added to the 2016 HMP, and also activities that were not selected because they were either inappropriate for the community or not feasible. The following table provides a list of the discussed mitigation actions, whether the activity was selected or not selected, and reasons for the selection.

Table OMA.21: Selection of Mitigation Actions

Flood Mitigation Action	Selected	Not Selected	Reason
Parcel Level Evaluation of Floodprone Properties	X		Interested as a long range project.
Emergency Management Exercise	X		Ongoing project with Douglas County.
Bank Stabilization	X		Ongoing project P-MRNRD
Wetlands Protection	X		Ongoing project as part of the Master Plan Preservation
Maintain Good Standing in NFIP	X		High priority for community
Community Rating System Continuation	X		High priority for community
Community-Wide Master Plan to Prioritize all Flood Related Projects	X		A member of the Papillion Creek Watershed Partnership
Develop Flood Assistance Strategies	X		Ongoing project with Douglas County
Elevate Pad Mounted Transformers and Switch Gear		X	Not a priority at this time.
Facility Flood Proofing	X		Ongoing since 2011 flood.
Floodplain Management	X		Ongoing. Easements are included in regulations.
Mitigate Repetitive Loss Properties	X		Ongoing. Working with P-MRNRD
Floodplain Regulation Enforcements/Updates	X		Ongoing. Floodplain Administrator enforces regulations.
Improvements to Flood Warning System	X		Ongoing project with P-MRNRD
Upgrades and Improvements to Levees	X		Ongoing partnership with P-MRNRD, Bellevue, and Sarpy County
Low Impact Development	X		Encouraged at a private level
Promote Infiltration	X		Ongoing for Hell Creek and Rockbrook Creek
Relocation of Hazardous Storage		X	Not a priority at this time.
Continue Enforcement Stormwater Management Ordinance	X		Ongoing project for city.
Create a Stormwater Management Committee	X		A member of the Papillion Creek Watershed Partnership
Floodplain Regulations/Development Restrictions	X		Regulations include floodway restrictions and cumulative substantial improvements.
Risk Communication/Community Outreach	X		Ongoing project for city

Flood Mitigation Action	Selected	Not Selected	Reason
Site Hardening	X		Critical facilities needing site hardening.

An action plan with included prioritization for each of the selected mitigation projects can be found under the "Ongoing Mitigation Actions" or "New Mitigation Actions" below. The ongoing mitigation actions are updates to mitigation actions that were included in the 2011 HMP.

MITIGATION STRATEGY

Ongoing Mitigation Actions from 2011 HMP

Description	Mitigate Repetitive Loss Properties
Analysis	Mitigate repetitive loss properties through voluntary acquisition, elevation, etc.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	Flood
Category of Floodplain Management	Property Protection
Estimated Cost	Varies
Funding	Douglas County EM, City of Omaha, FEMA, NEMA, P-MRNRD, HMGP, PDM
Timeline	5+ years
Priority	High
Lead Agency	Public Works
Status	Ongoing
Meets Expectations	Yes although there are funding issues at this time.

Description	Continue Enforcement of Stormwater Management Ordinance
Analysis	Continue enforcement of stormwater management ordinance
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	Flood, Thunderstorm, High Wind, Hail
Category of Floodplain Management	Preventive
Estimated Cost	Existing Staff
Funding	Cost is absorbed by current staff, City of Omaha, P-MRNRD
Timeline	5+ years
Priority	High
Lead Agency	Public Works
Status	Ongoing
Meets Expectations	Yes

Description	Identify, Designate and Publicize Tornado Shelters
Analysis	Identify, designate and publicize tornado shelters
Goal/Objective	Goal 1/ Objective 1.5
Hazard(s) Addressed	Tornado, Thunderstorm, High Wind, Hain
Estimated Cost	Unknown
Funding	City of Omaha
Timeline	5+ years
Priority	Medium
Lead Agency	Emergency Management
Status	Not started
Meets Expectations	N/A

Description	Complete Inventory of Vulnerable Structures
Analysis	Complete inventory of vulnerable structures
Goal/Objective	Goal 3/ Objective 3.3
Hazard(s) Addressed	All
Estimated Cost	Unknown
Funding	Deferred until staffing/budget allows
Timeline	5+ years
Priority	Low
Lead Agency	Planning Department
Status	Not started
Meets Expectations	N/A

Description	Purchase Weather Radios
Analysis	Ensure adequate severe weather notifications to critical facilities by purchasing weather radios
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	$50/radio
Funding	City of Omaha, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	Every department responsible
Status	Ongoing
Meets Expectations	Yes

Description	Develop an Urban Tree Management Program
Analysis	Develop an urban tree management program, particularly for the Emerald Ash Borer. This would include an inventory of the location, size, and whether the tree can be or has been removed.
Goal/Objective	Goal 3/ Objective 3.7
Hazard(s) Addressed	All
Estimated Cost	Unknown
Funding	City of Omaha
Timeline	Ongoing
Priority	Medium
Lead Agency	Parks Department
Status	Ongoing
Meets Expectations	Yes

Description	Bury Power Lines
Analysis	Initiate a power line burying project
Goal/Objective	Goal 2/ Objective 2.1
Hazard(s) Addressed	Tornado, Thunderstorm, High Wind, Hail, Sever Winter Storm
Estimated Cost	Unknown
Funding	Not identified
Timeline	5+ years
Priority	Low
Lead Agency	Not identified
Status	Deferred for budgeting
Meets Expectations	N/A

Description	Maintain Good Standing in 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
Category of Floodplain Management	Property Protection
Estimated Cost	Staff time
Funding	City of Omaha
Timeline	Ongoing
Priority	High
Lead Agency	Planning Department
Status	Ongoing
Meets Expectations	Yes

New Mitigation Actions

Description	Parcel Level Evaluation of Floodprone Properties
Analysis	Conduct a study examining parcels located in floodprone areas and identify mitigation measures that can reduce future impacts.
Goal/Objective	Goal 3/ Objective 3.3
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Property Protection
Estimated Cost	$50,000
Funding	City budget, FMA
Timeline	5+ years
Priority	Low
Lead Agency	Planning and Zoning, Public Works
Status	Not yet started.

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	Flooding, Dam Failure, Levee Failure, Tornado, Chemical Spills
Category of Floodplain Management	Emergency Services
Estimated Cost	$10,000
Funding	City budget, PDM, HMGP
Timeline	Ongoing
Priority	Low
Lead Agency	Planning Department, Emergency Management
Status	Ongoing. City works with EM, county, and P-MRNRD on emergency exercises.

Description	Bank Stabilization for Erosion Control
Analysis	Stabilize banks along streams and rivers. This may include, but is not limited to: reducing bank slope, addition of riprap, installation of erosion control materials/fabrics.
Goal/Objective	Goal 3/Objective 3.2
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Natural Resource Protection
Estimated Cost	Varies

Description	**Bank Stabilization for Erosion Control**
Funding	City budget, FMA, PDM, P-MRNRD
Timeline	Ongoing
Priority	High
Lead Agency	Public Works, P-MRNRD
Status	Ongoing project – Hell Creek.

Description	**Wetlands Protection**
Analysis	Preserve and protect wetland areas
Goal/Objective	Goal 3/Objective 3.5
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Natural Resource Protection
Estimated Cost	Varies
Funding	City budget, FMA
Timeline	Ongoing
Priority	High
Lead Agency	Planning and Zoning
Status	Ongoing as part of the Plan Development Ordinance and Master Plan Preservation.

Description	**Community Rating System Continuation**
Analysis	Maintain status as a Community Ratings System (CRS) community to reduce flood insurance premiums.
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Property Protection
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator
Status	CRS Class 9

Description	**Community Wide Master Plan to Prioritize all Flood Projects**
Analysis	Identify potential flooding sources and flood-vulnerable areas. Explore solutions and prioritize projects.
Goal/Objective	Goal 4/ Objective 4.2
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Staff Time
Funding	City budget
Timeline	Ongoing
Priority	High
Lead Agency	Public Works, Planning Department
Status	Ongoing through the Papillion Creek Watershed Partnership

Description	**Develop Flood Assistance Strategies**
Analysis	Develop strategies to provide necessary services in the event of flooding.
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	Flooding

Description	**Develop Flood Assistance Strategies**
Category of Floodplain Management	Emergency Services
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	Medium
Lead Agency	Emergency Management, Planning Department
Status	LEOP identifies temporary shelters and provides instructions for evacuation.

Description	**Facility Flood proofing**
Analysis	Explore the possibility of flood proofing for facilities which fall into the one percent annual floodplain.
Goal/Objective	Goal 2/Objective 2.4
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Property Protection
Estimated Cost	Varies
Funding	City budget, PDM, FMA
Timeline	Ongoing
Priority	High
Lead Agency	Public Works
Status	Ongoing project since 2011 project

Description	**Floodplain Management**
Analysis	Preserve natural and beneficial functions of floodplain land through measures such as retaining natural vegetation, restoring streambeds, and preserving open space in the floodplain.
Goal/Objective	Goal 3/Objective 3.5
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Natural Resource Protection
Estimated Cost	Varies
Funding	City budget, FMA, PDM
Timeline	Ongoing
Priority	Medium
Lead Agency	Planning and Zoning Department, Public Works
Status	Ongoing

Description	**Floodplain Regulation Enforcement/Updates**
Analysis	Continue to enforce local floodplain regulations for structures located in the 1 percent floodplain. Continue education of building inspectors or Certified Floodplain Managers.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator, Planning Department
Status	Ongoing. Reduced floodplain development included in floodplain ordinance.

Description	**Improvements to Flood Warning System**
Analysis	Update equipment, ensure equipment is in a secure location, and install additional gauges.
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Emergency Services
Estimated Cost	Varies
Funding	City budget, FMA, PDM, P-MRNRD
Timeline	Ongoing
Priority	Low
Lead Agency	Planning Department
Status	Stream gauges installed in partnership with P-MRNRD. Additional or replacement equipment may be needed in the future.

Description	**Upgrades and Improvements to Levees MR-R-613 and MR-R-616**
Analysis	Complete construction upgrades and improvements to levees MR-R-613 and 616 in order to maintain FEMA accreditation
Goal/Objective	Goal 2/Objective 2.3
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Structural Projects
Estimated Cost	$25 million
Funding	P-MRNRD, City of Bellevue, City of Omaha, and Sarpy County
Timeline	2 year construction timeframe
Priority	High
Lead Agency	P-MRNRD, Public Works
Status	A memorandum of Understanding was agreed between the NRD, Omaha, Bellevue, and Sarpy County. Design work for the levee improvements are nearing completion. 404 and 408 permits have been submitted. Construction anticipated to begin in late 2016.

Description	**Low Impact Development**
Analysis	Utilize low impact development practices and green infrastructure to reduce flood risk.
Goal/Objective	Goal 4/Objective 4.3
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Variable
Funding	City budget, PDM, FMA
Timeline	Ongoing
Priority	Medium
Lead Agency	Planning Department
Status	Ongoing. City encourages low impact development, particularly at the private level.

Description	**Promote Infiltration**
Analysis	Convert concrete-lined channels to natural channels to promote infiltration.
Goal/Objective	Goal 3/Objective 3.5
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Structural Projects
Estimated Cost	Varies
Funding	City budget, FMA
Timeline	Ongoing

Description	**Promote Infiltration**
Priority	Medium
Lead Agency	Public Works
Status	Hell Creek and Rockbrook Creek identified as projects.

Description	**Stormwater Management Committee**
Analysis	Establish a stormwater development committee to oversee improvements to the stormwater system and to respond to community concerns.
Goal/Objective	Goal 2/Objective 2.3
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	Medium
Lead Agency	Public Works
Status	Papillion Creek Watershed Partnership project

Description	**Risk Communication**
Analysis	Provide information on the floodplain to area residents. Outreach activities may include distributing maps, evacuation plans, environmental education, etc.
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Public Information
Estimated Cost	$20,000
Funding	City budget, HMGP, FMA, PDM
Timeline	Ongoing
Priority	High
Lead Agency	Planning Department
Status	The city sends informational flyers to repetitive flood loss properties annually. The city website also includes information on floodplain maps, resources, etc. City would like to include information in electric bills but it cost prohibitive at this time.

Description	**Floodplain Regulations/Development Restrictions**
Analysis	Continue to enforce floodplain regulations and floodplain development restrictions.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator, Planning and Zoning
Status	Ongoing

Description	**Site Hardening**
Analysis	Identify needs for critical systems and consider moving electrical systems to higher floors or the roof rather than the basement
Goal/Objective	Goal 2/ Objective 2.4
Hazard(s) Addressed	Flooding, Thunderstorm, High Wind, Hail

Description	Site Hardening
Category of Floodplain Management	Property Protection
Estimated Cost	Varies
Funding	City budget, FMA, PDM, HMGP
Timeline	5+ years
Priority	Low
Lead Agency	Public Works
Status	Not yet started

Removed Mitigation Actions

None

PARTICIPANT SECTION
FOR THE

CITY OF RALSTON

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

Name	Title	Department / Jurisdiction
Dan Freshman	Public Works Director/Building Inspector	City of Ralston

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.

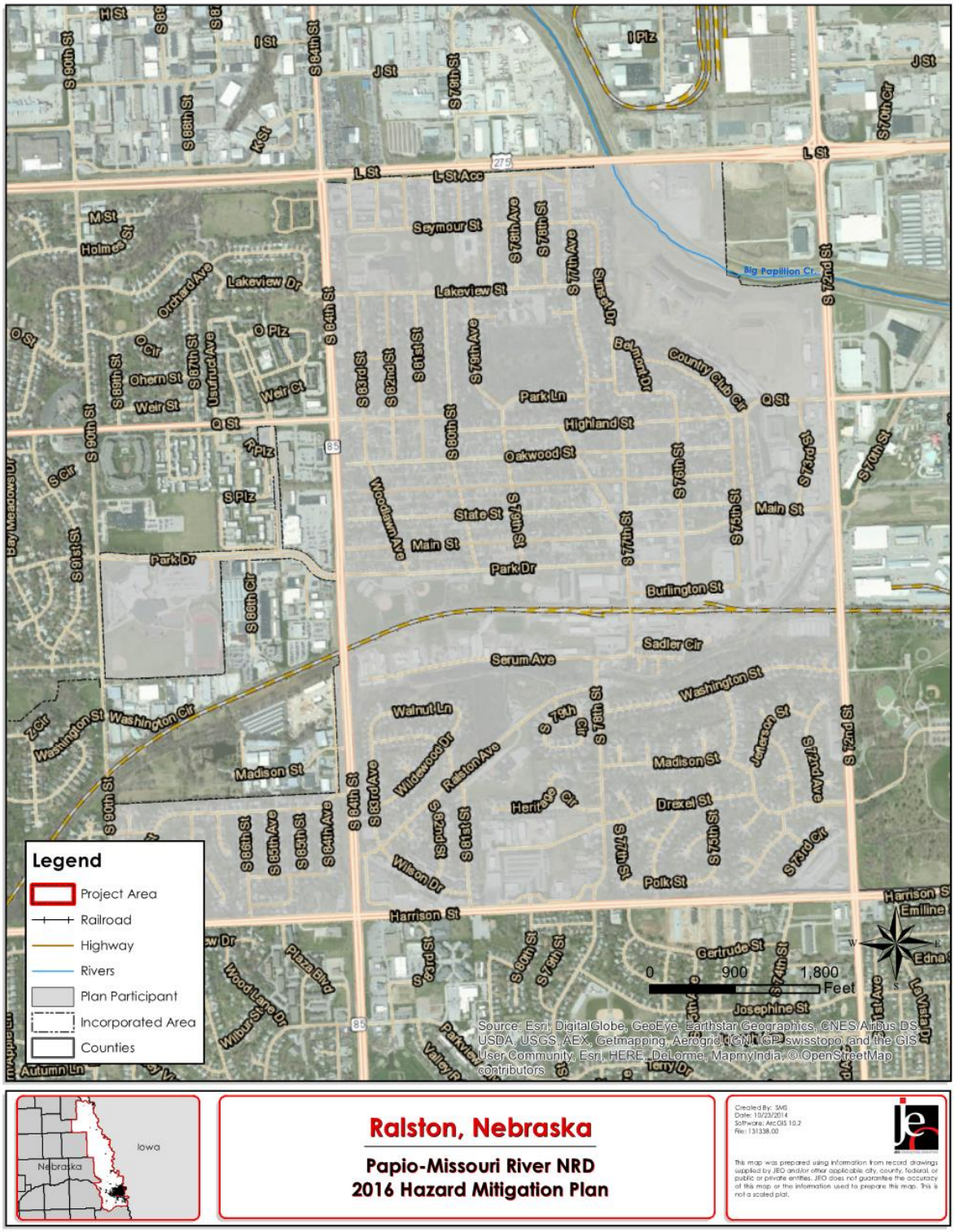
Table RTN.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
June 16, 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 Ralston is located in the south-central portion of Douglas County and covers an area of 1.65 square miles. The major waterway in the area is the Big Papillion Creek in northeast Ralston.

Figure RTN.1: Map of the City of Ralston



CLIMATE

For Ralston, the normal high temperature for the month of July is 84.8 degrees Fahrenheit and the normal low temperature for the month of January is 12.7 degrees Fahrenheit. On average, Ralston gets 31.21 inches of rain and 26.5 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table RTN.3: Climate Data for the City of Ralston

Age	Ralston	Planning Area	State of Nebraska
July High Temp	84.8°F	85.6°F	88.0°F
January Low Temp	12.7°F	11.8°F	12.0°F
Annual Rainfall	31.21 inches	30.64 inches	30.3 inches
Annual Snowfall	26.5 inches	31.2 inches	25.9 inches

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

TRANSPORTATION

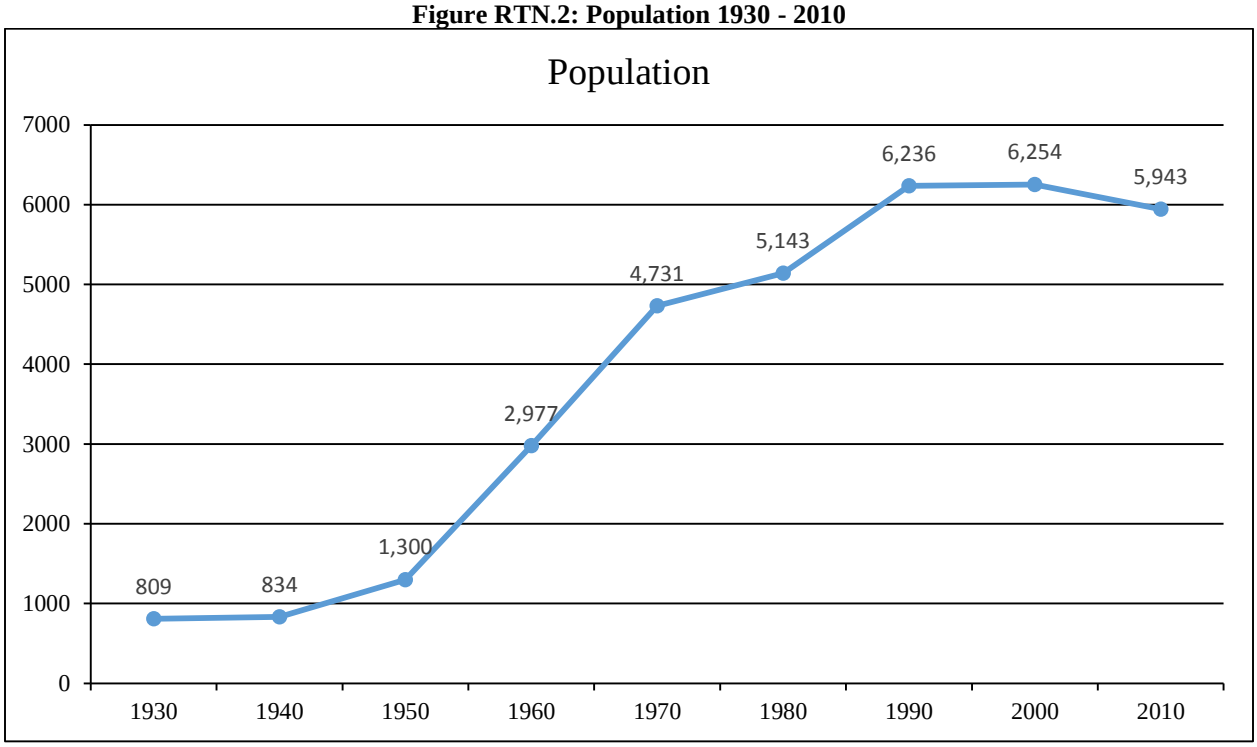
Ralston's major transportation corridors include Nebraska Highways 92 and 85. Highway 92 has on average 25,850 vehicles per day with 1,885 of those being heavy commercial vehicles. Highway 85 has 24,535 vehicles on average per day with 980 heavy commercial vehicles. Burlington North Santa Fe Railroad and Amtrak both have rail lines going through the center of Ralston. 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.

Transportation routes of most concern to the local planning team are 84th Street, 72nd Street, L Street, and Harrison Street. The critical facilities City Hall, Fire Station, and Police Station are located along main transportation routes

DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Ralston had been increasing through 2000, but has experienced a recent decline in population in 2010. A decreasing population can result in decreasing revenue for the city, making it difficult to implement mitigation projects.

Figure RTN.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates the City of Ralston has a higher percentage of residents over the age of 64 when compared to the county. 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 RTN.4: Population by Age

Age	Ralston	Douglas County	State of Nebraska
<5	6.6%	7.7%	7.2%
5-64	78.8%	81.5%	79.2%
>64	14.6%	10.8%	13.6%
Median	37.5	33.7	36.2

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

The following table indicates that Ralston's median household income is about $5,000 lower than the county, but the median home value and rent are also lower. 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 RTN.5: Housing and Income

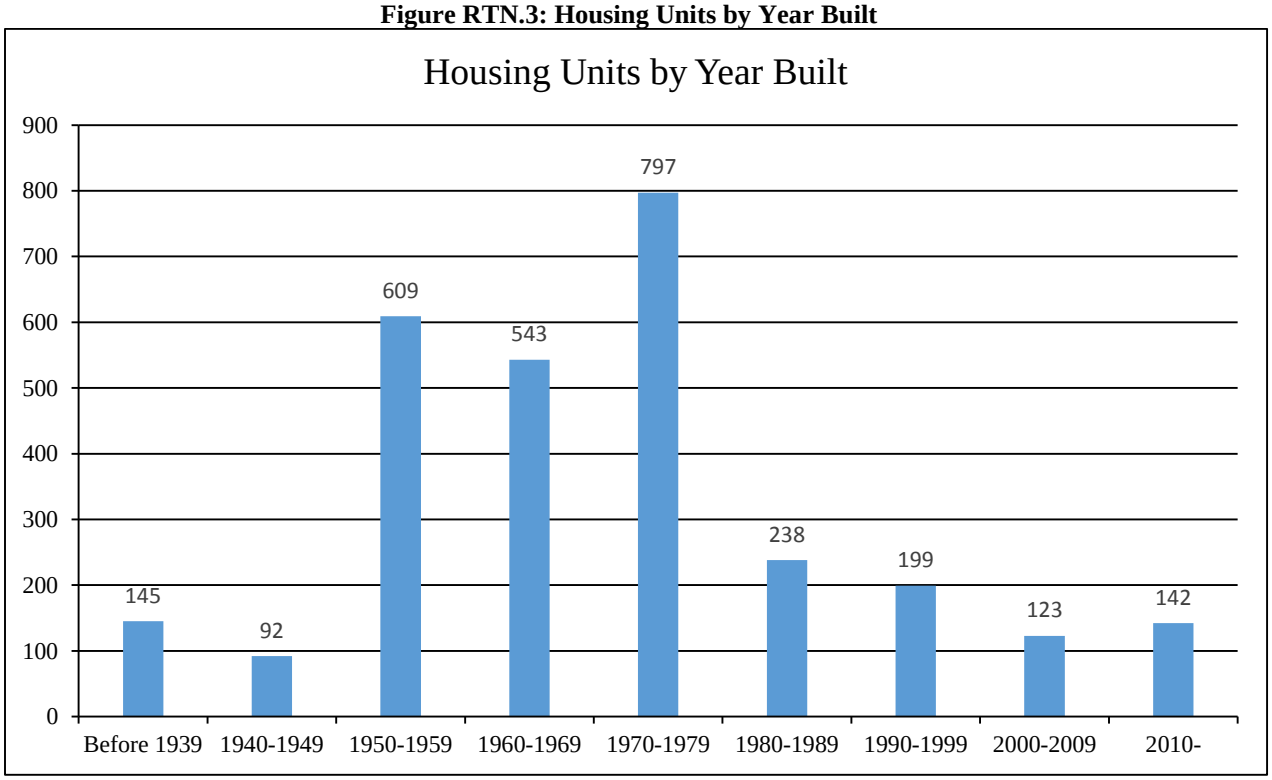
	Ralston	Douglas County	State of Nebraska
Median Household Income	$48,304	$53,325	$51,672
Per Capita Income	$25,359	$29,180	$26,899
Median Home Value	$127,600	$143,000	$128,000
Median Rent	$690	$790	$706

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 Ralston was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the community has 2,888 housing units with 94.2 percent of those

units occupied. There are no mobile home parks located within Ralston. 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 RTN.3: Housing Units by Year Built



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

Table RTN.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Ralston	2,721	94.2%	167	5.8%		1,887	69.3%	834	30.7%
Douglas County	204,226	92.3%	17,085	7.7%		128,058	62.7%	76,168	37.3%

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

MAJOR EMPLOYERS

Major employers in Ralston include: Trane, Safelite, Ralston Arena, Enterprise, and Ralston Schools. A large percentage of residents also commute to Omaha.

FUTURE DEVELOPMENT TRENDS

In the last five years, the City of Ralston has added over 30 homes, 300 apartment, an 84 room hotel, and built the Ralston Arena. Future development in the community will be mixed use and some businesses development.

Figure RTN.4: Developed Areas

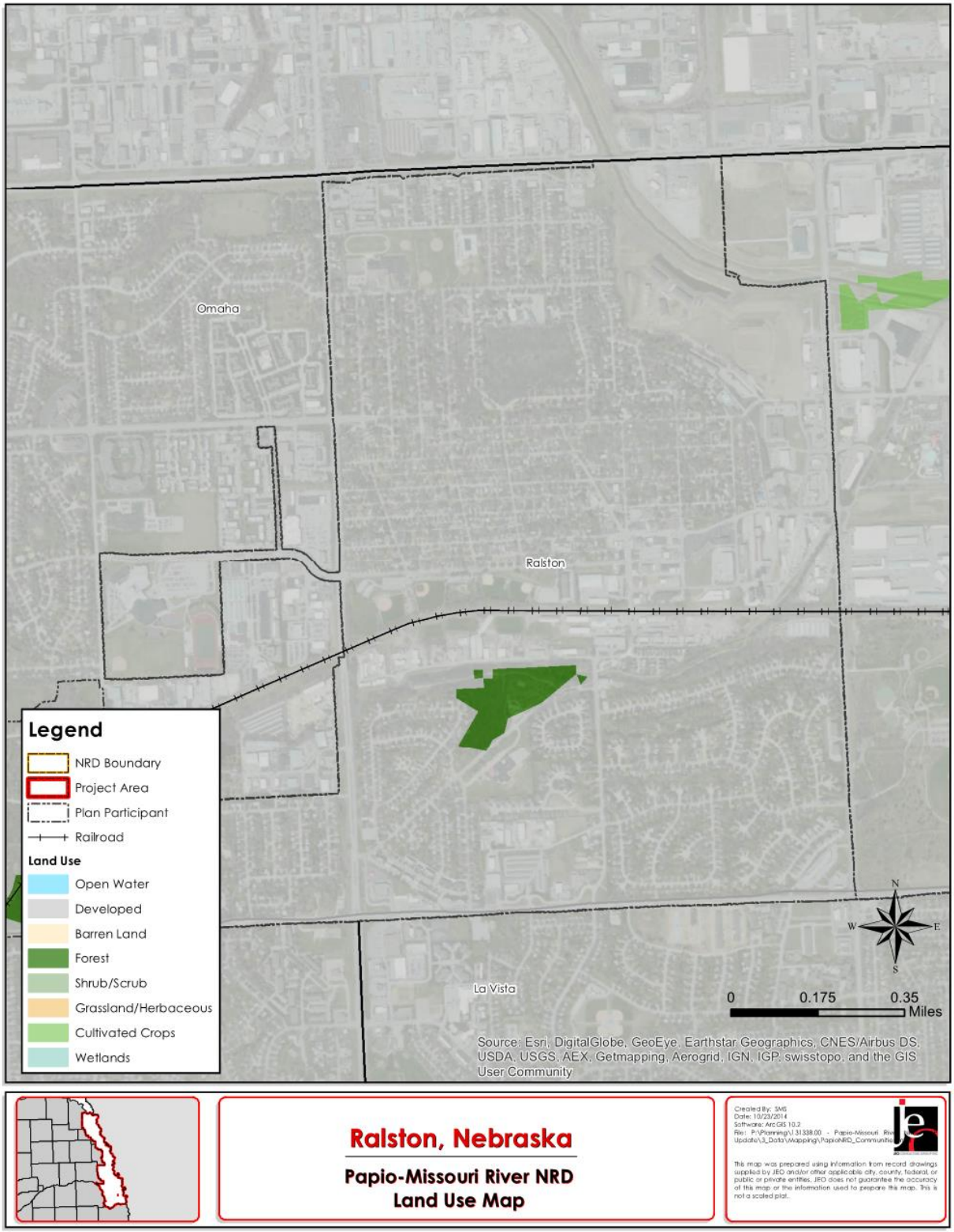
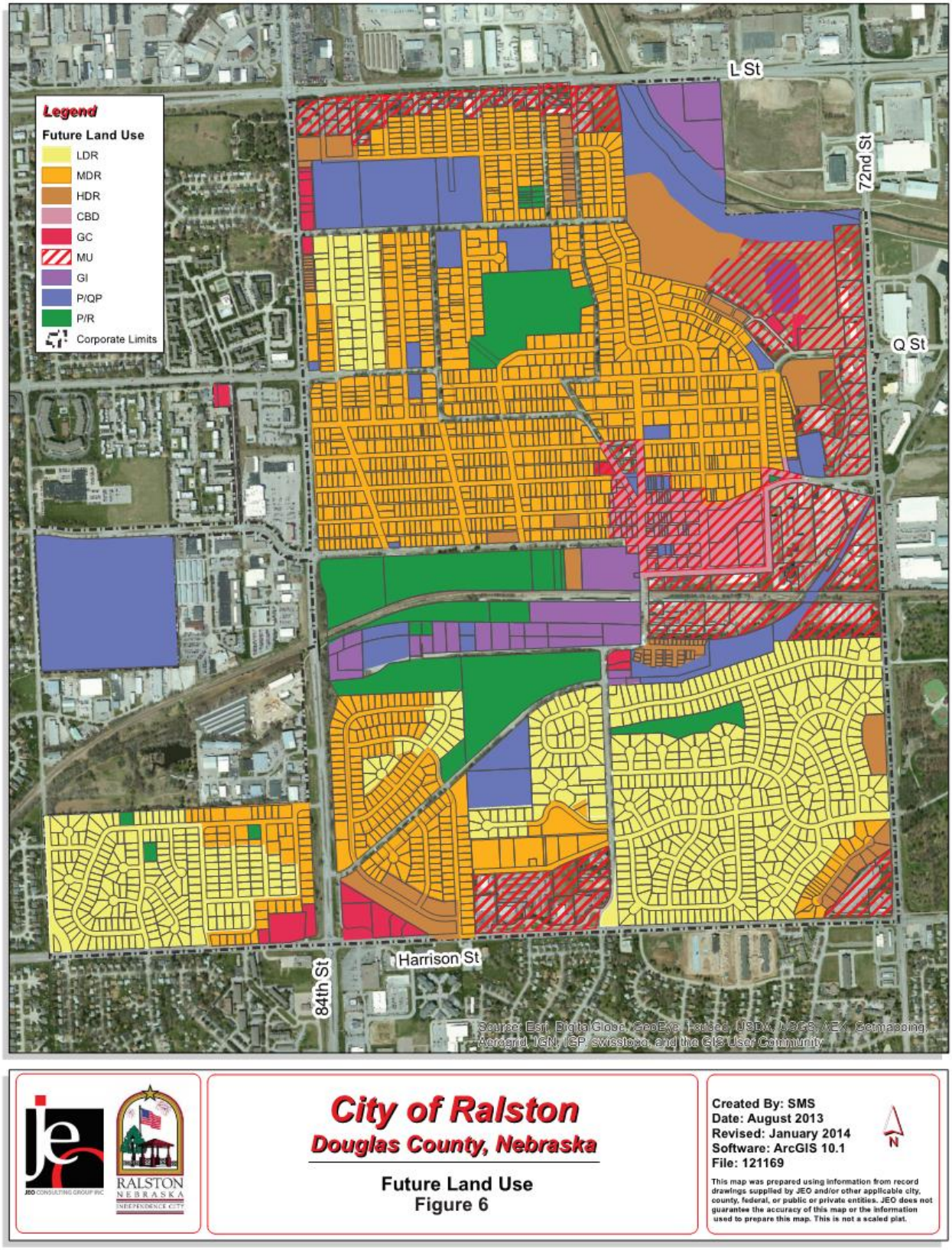


Figure RTN.5: Future Land Use Map



PARCEL IMPROVEMENTS AND VALUATION

The planning team requested GIS parcel data from the County Assessor. 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 RTN.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
2,206	$344,040,800	$155,957	46	$52,084,300

Source: Douglas 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 is 1 chemical storage site in Ralston, and it does not house materials that are categorized as hazardous.

Table RTN. 8: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
Omega Chemical Co Inc	7577 Burlington St, Ralston	None

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 Ralston.

CRITICAL FACILITIES

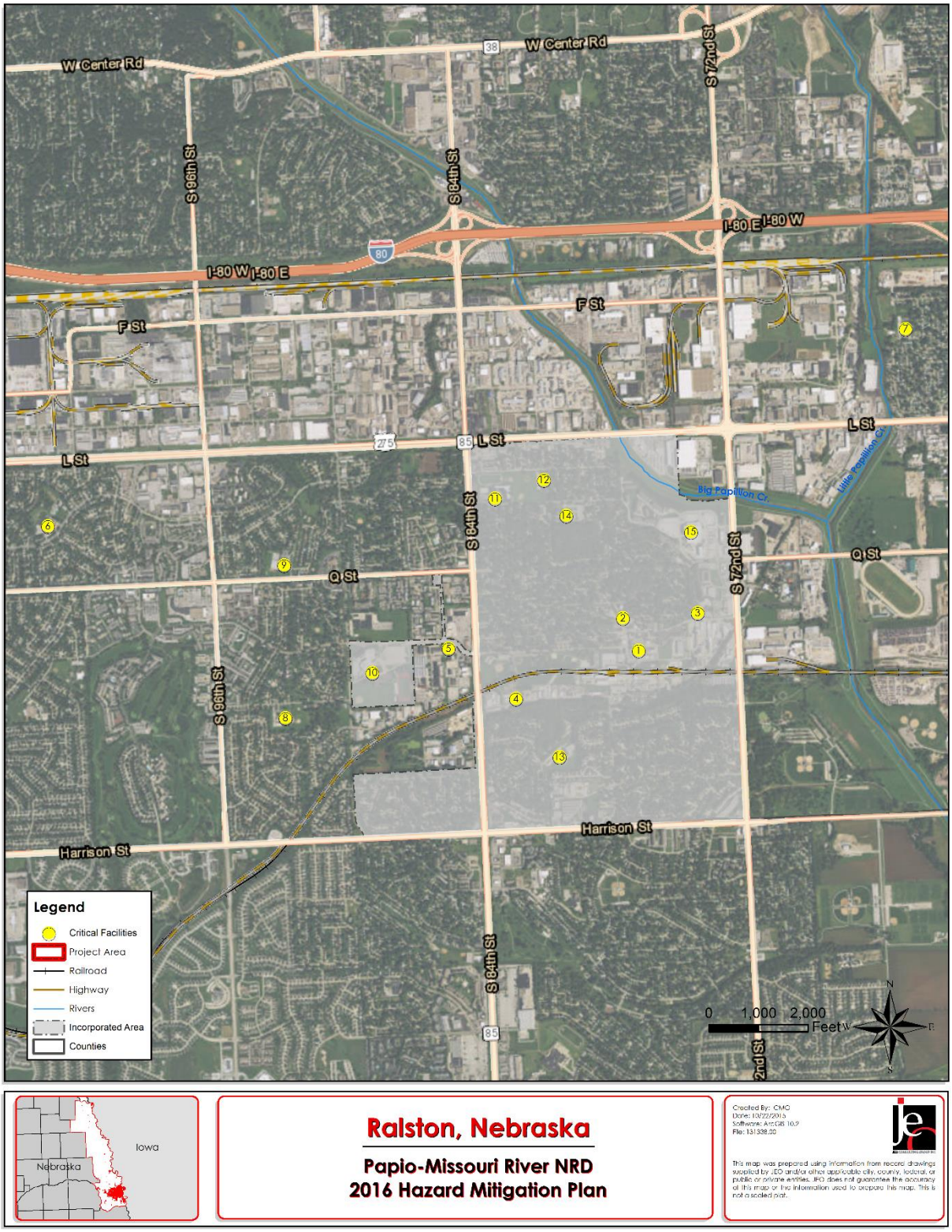
Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction's functions to normal during and after a disaster. Critical facilities were identified during the original 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 RTN.9: List of Critical Facilities in Ralston

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Fire Station	Ralston Volunteer Fire Department	7623 Park Dr, Ralston	Y	Y	N
2	Municipal Building	Ralston City Hall	5500 S. 77th St, Ralston	N	Portable Plugin	N
3	Police Station	Ralston Police Department	7400 Main St, Ralston	N	Portable Plugin	N
4	Municipal Building	Ralston Public Works	8220 Serum Avenue	N	N	N

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
5	School	Ralston Public Schools Administration	8545 Park Dr, Ralston	N	N	N
6	School	Blumfield Elementary School	10310 Mockingbird Dr, Omaha	N	N	N
7	School	Karen Western Elementary School	6224 H St, Omaha	N	N	Y
8	School	Meadows Elementary School	9225 Berry, Omaha	N	N	N
9	School	Mockingbird Elementary School	5100 S. 93rd St, Omaha	N	N	N
10	School	Ralston High School	8969 Park Dr, Ralston	Y	N	N
11	School	Ralston Middle School	8202 Lakeview, Ralston	N	N	N
12	School	Seymour Elementary School	4900 S. 79th St, Ralston	N	N	N
13	School	Wildewood Elementary School	8071 Ralston Ave, Ralston	N	N	N
14	School	St. Gerald Elementary School	7857 Lakeview St, Ralston	N	N	N
15	City Arena	Ralston Arena	7300 Q St, Ralston	Y	Y	Y

Figure RTN.6: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 11 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 Douglas County's participant section.

Table RTN.10: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
7/27/1996	Thunderstorm Wind	62 kts.	0	0	$50,000
5/24/1996	Hail	1.00 in.	0	0	$0
6/26/1998	Hail	0.88 in.	0	0	$0
6/26/1998	Hail	0.88 in.	0	0	$0
7/3/1999	Hail	0.75 in.	0	0	$0
5/10/2005	Thunderstorm Wind	50 kts. EG	0	0	$0
5/31/2005	Hail	0.75 in.	0	0	$0
6/27/2005	Hail	0.75 in.	0	0	$0
3/30/2006	Thunderstorm Wind	50 kts. EG	0	0	$0
6/11/2008	Thunderstorm Wind	50 kts. EG	0	0	$0
6/20/2014	Flash Flood	-	0	0	$0
		Total	**0**	**0**	**$50,000**

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 Ralston. 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 RTN.11: 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	-	Adequate equipment and training
Chemical Spills (Transportation)	Yes	-	Adequate equipment and training
Civil Disorder	No	-	None
Dam Failure	No	-	Public safety; property damage

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Drought	Yes	-	Water restrictions
Earthquakes	No	-	None
Extreme Heat	Yes	-	Elderly and vulnerable populations; drought; economic impacts
Flooding*	Yes	-	Economic impacts; public safety; property damages
Grass/Wildfires	No	-	None
Hail*	Yes	-	Property damages; economic impacts
High Winds*	Yes	-	Property and critical facility damages; power outages
Landslides	Yes	-	None
Levee Failure	No	-	Public safety; property damage
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms	Yes	$50,000	Property damage; power outages
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 local planning team as a top concern for the jurisdiction*

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

Flooding

The local planning team identified flooding as a hazard of top concern for the city. Ralston Creek and Big Papillion Creek have reached high capacity two to four times in the last ten years, according to the local planning team. There are also several areas that were noted by the team as having poor stormwater drainage including an area southeast of the police station and two areas near the rail line. Ralston has 15 NFIP policies in-force for $4,938,500. There are no repetitive flood loss properties in the City of Ralston.

Table RTN.12: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$52,084,300	46	2,206	2.1%

Source: Douglas County Assessor

Implemented mitigation projects:

- Member of the NFIP
- Local emergency operations plan is in place

Identified mitigation projects:

- Drainage and erosion control projects
- Stabilize banks along streams and rivers
- Complete stormwater system and drainage improvements

Levee Failure

Although the local planning team did not identify levee failure as a top concern for the city, there is a levee along the Big Papillion Creek in the northeastern part of the city. If a levee were to fail, flood waters would impact the areas along the river with inundation being similar to the one percent floodplain.

Implemented mitigation projects:

- Local emergency operations plan
- Levees are regularly maintained

Identified mitigation projects:

- Pursue public education and outreach opportunities

Hail

Hail events can cause significant, widespread damages to critical facilities, businesses, and personal property. The NCDC reports six hail events since 1996 with the largest hail stone at 1.00 inch. However, climatologically it is possible for hail to reach 2.50 inches or greater, which can damage siding, roofs, vehicles, HVAC systems, and windows. Critical facilities have had their roofs damaged by hail in the past, and they are insured for hail with a high deductible.

Implemented mitigation projects:

- Local tree board – Ralston Park and Tree Commission
- Tree City USA for 29 years

Identified mitigation projects:

- Continue participation in Tree City USA
- Install hail resistant roofing material

Severe Winter Storms

Severe winter storms are a regular part of the climate in Ralston. An early winter storm in on October 26, 1997 brought heavy, wet snow of 12 inches or more, which severely damaged trees and brought down power lines. Many residences and businesses were without power for several days. The storm system also left in its wake record low temperatures, reaching the single digits on October 27. The local planning team noted that it was difficult for the snow crew to manage snow storms that drop large amounts of snow in a short period of time or if the storm is prolonged. The team estimates that the city's snow removal resources are sufficient for about 80-90 percent of winter storms.

Implemented mitigation projects:

- Back-up power generators at City Hall, Police Station, and Public Works

Identified mitigation projects:

- Obtain additional back-up power generators for critical facilities
- Purchase additional snow plows

Tornados and High Winds

Tornados and high winds have the potential for significant damages, economic impacts, and loss of life. Although there haven't been recent tornadic events, there was an F-4 tornado that damaged critical facilities, homes, and businesses in parts of Ralston and killed three people in the Omaha metro area in 1975. Straight-line winds from severe thunderstorms have also impacted the city with tree damage and downed power lines. The city does not have a community safe room at this time.

Implemented mitigation projects:

- Power lines buried mainly south of rail line
- Municipal records are routinely backed-up
- Back-up power generators at City Hall, Police Station, and Public Works
- Weather radios available in critical facilities

Identified mitigation actions:

- Construct a tornado safe room
- Obtain additional back-up power generators for critical facilities
- Establish an Emergency Operations Center

Figure RTN.7: Ralston 1% Annual Chance Floodplain

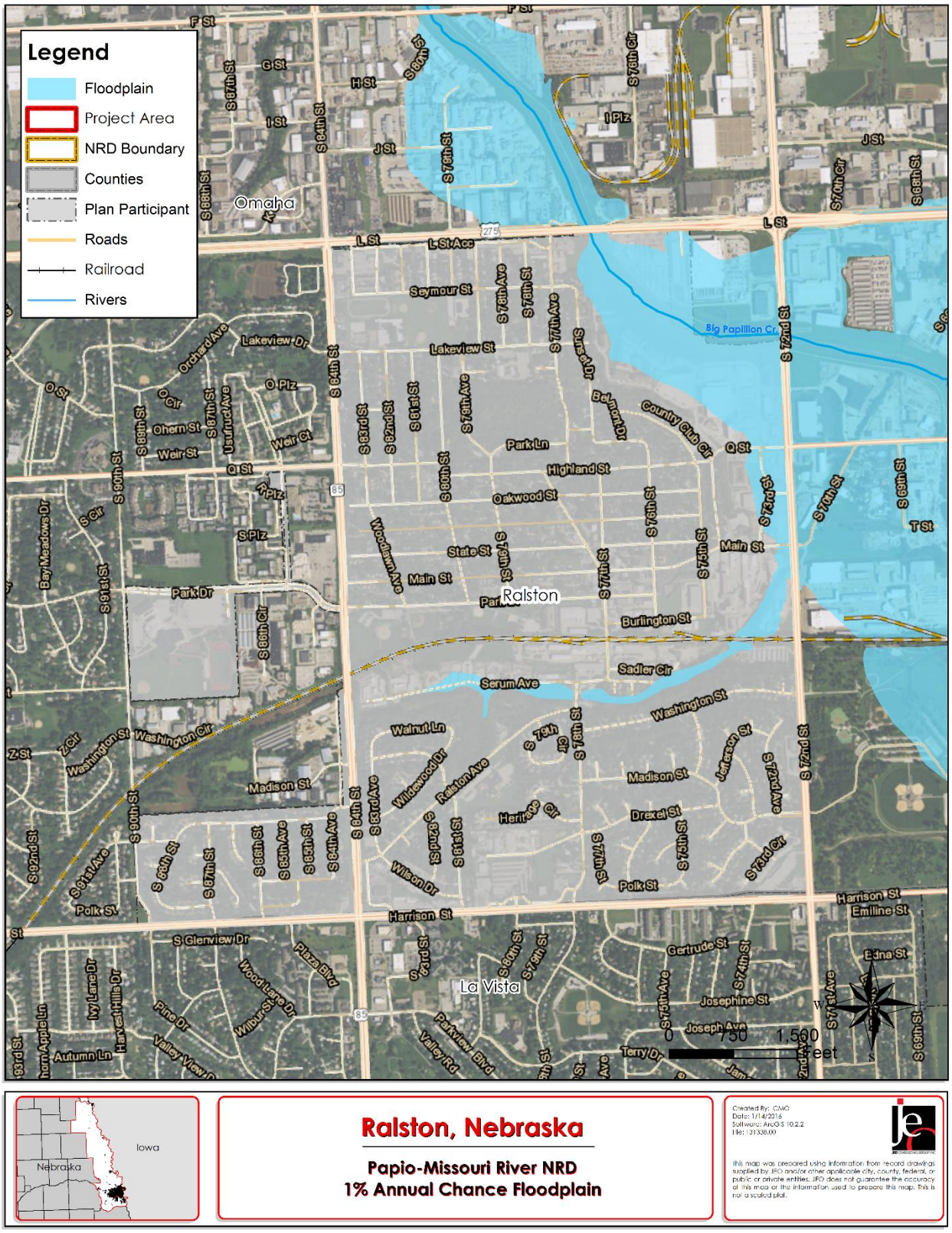
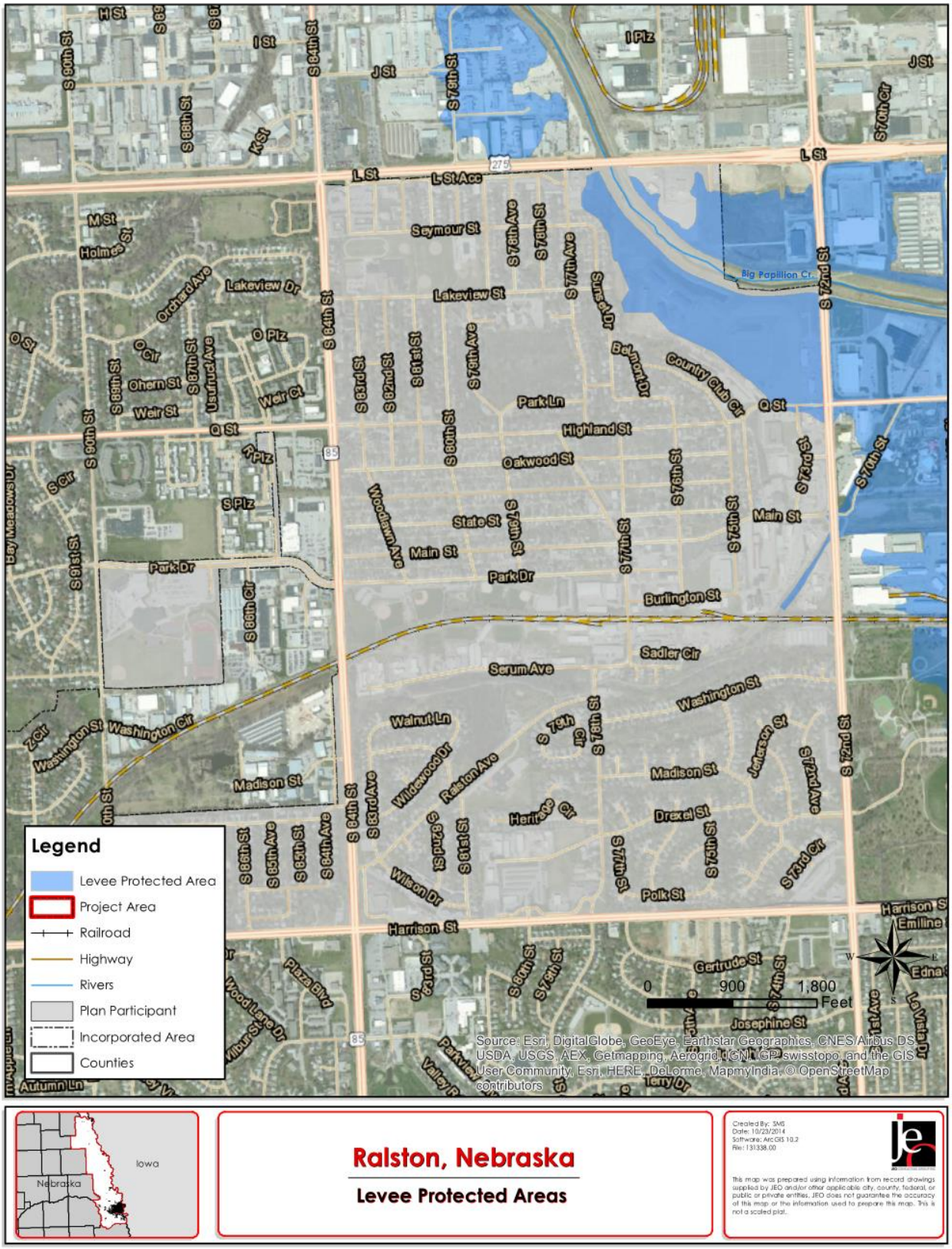


Figure RTN.8: Leveed Areas in Ralston



GOVERNANCE

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

- City Clerk/Treasurer
- Economic Development
- Zoning Department
- Library
- Police Department
- Volunteer Fire Department
- Public Works
- Board of Adjustment
- Civil Service Commission
- Community Redevelopment Authority
- Parks & Tree Commission
- Planning Commission
- Chamber of Commerce
- CDBG Board
- PRT Committee (Problem Resolution Team)

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 RTN.13: Capability Assessment

Survey Components/Subcomponents		Existing (Yes/No)
Planning and Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Hazard Mitigation Plan	Yes
	Economic Development Plan	Yes
	Emergency Operational Plan	Yes (County)
	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	Planning Commission	Yes
	Hazard Mitigation Planning Commission	No

Survey Components/Subcomponents		Existing (Yes/No)
Capability	Floodplain Administration	Yes
	Emergency Manager	Yes (County)
	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	Yes
	Authority to Levy Taxes for Specific Purposes	Yes
	Gas/Electric Service Fees	Yes
	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
	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 Waterloo's participant section.

Table RTN.14: Sources, Plans, Reports, and Regulations

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2015

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.

Ralston 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 Ralston, which was last updated in 2015, is an annex of Douglas 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.

Ongoing or New Mitigation Actions

Description	**Maintain Good Standing in the NFIP**
Analysis	Maintain good standing in the NFIP by enforcing floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs)
Goal/Objective	Goal 1/ Objective 1.1
Hazard(s) Addressed	Flood
Estimated Cost	Staff time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain administrator
Status	Ongoing

Description	**Drainage and Erosion Control**
Analysis	Drainage and erosion control
Goal/Objective	Goal 3/ Objective 3.5
Hazard(s) Addressed	Flood
Estimated Cost	Unknown
Funding	City budget, HMGP, PDM, FMA
Timeline	2-5 years
Priority	High
Lead Agency	Public works/ Engineering consultant
Status	Awaiting budget approval

Description	**Structural Inventory**
Analysis	Complete structural inventory of Ralston
Goal/Objective	Goal 3/ Objective 3.3
Hazard(s) Addressed	All
Estimated Cost	Unknown
Funding	City budget
Timeline	2-5 years
Priority	High
Lead Agency	City Staff/Consultant
Status	Awaiting budget approval

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

Description	**Back-up Power Generator**
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000+
Funding	City budget, HMGP, PDM
Timeline	2-5 years
Priority	High
Lead Agency	Public Works
Status	City Hall and the Police Department are in need of generators.

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	City budget, HMGP
Timeline	5+ years
Priority	Medium
Lead Agency	Emergency Management
Status	Not yet started

Description	**Bank Stabilization**
Analysis	Stabilize banks along streams and rivers. This may include but is not limited to: reducing bank slope, addition of riprap, installation of erosion control materials/fabrics
Goal/Objective	Goal 3/ Objective 3.2
Hazard(s) Addressed	Flooding
Estimated Cost	$1,000,000
Funding	City budget, FMA, PDM, HMGP
Timeline	2-5 years
Priority	High
Lead Agency	Public Works
Status	Not yet started

Description	**Stormwater System and Drainage Improvements**
Analysis	Survey existing system to determine which improvements are needed.
Goal/Objective	Goal 3/ Objective 3.3
Hazard(s) Addressed	Flooding
Estimated Cost	$400,000
Funding	City budget, FMA, PDM
Timeline	2-5 years
Priority	High
Lead Agency	Public Works
Status	Not yet started

Description	**Snow Plow**
Analysis	Purchase additional snow plow.
Goal/Objective	Goal 3/ Objective 3.8
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	$750,000
Funding	City budget
Timeline	2-5 years
Priority	High
Lead Agency	Public Works
Status	Not yet started

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	City budget, HMGP, PDM
Timeline	2-5 years
Priority	High
Lead Agency	Public Works
Status	Not started

Description	Impact Resistant Roof Coverings
Analysis	Use roofing materials that are resistant to hail impacts for new buildings. Retrofit existing building with hail resistant roofing.
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	Hail, High Winds, Severe Thunderstorms
Estimated Cost	$1,000,000
Funding	City budget
Timeline	2-5 years
Priority	Medium
Lead Agency	Public Works
Status	Not started

Removed Mitigation Actions

None

PARTICIPANT SECTION
FOR THE

CITY OF VALLEY

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 Hazard Mitigation Plan, but rather is specific information for the City of Valley, 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 VLY.1 provides the list of participating members that comprised the City of Valley 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 VLY.1: City of Valley Local Planning Team

Name	Title	Department / Jurisdiction
Shawn Isom	Deputy Clerk	City of Valley
Michael Burns	Zoning & Floodplain Administrator/Building Inspector	City of Valley
Mitch Paine	Flood Mitigation Planning Coordinator	NDNR
Lori Laster	Stormwater Engineer	P-MRNRD
Jeff Henson	Department Manager	JEO Consulting Group, Inc.
Rebecca Appleford	Project Coordinator	JEO Consulting Group, Inc.

Members of the local planning team attended the following meetings, which were open to the public.

Table VLY.2: Meeting Dates and Times

Meeting Type	Date and Time
HMP Kick-off (Regional Planning Team)	February 19, 2015 2:00 PM
CRS/HMP Strategy	April 9, 2015 9:00 AM
Round 1 Meeting	May 7, 2015 2:00 PM
Second Regional Planning Team Meeting	June 24, 2015 2:00 PM
Round 2/Flood Mitigation Strategy	August 31, 2015 2:00 PM

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 VLY.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
April 1, 2015 – October 1, 2015	MindMixer Survey Website	http://papiohmp.mindmixer.com/
April 15, 2015	MindMixer Website Engagement Tool	http://papiohmp.mindmixer.com/
June 8, 2015	Post Project Flyer	City Hall, Public Library
May 12, 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/

COORDINATION WITH AGENCIES

The following agencies were contacted for hazard information, particularly flooding, as it pertains to the City of Omaha. The representatives from these agencies also attended at least one public meeting during the course of the planning effort.

Name	Title	Agency
Lori Laster	Stormwater Engineer	P-MRNRD
Mary Baker	State Hazard Mitigation Officer	NEMA
Mitch Paine	Flood Mitigation Planning Coordinator	NDNR

For additional stakeholders and neighboring communities that were contacted to participate or provide information but were not involved in the planning process, please see *Section Two: Planning Process*.

LOCATION AND GEOGRAPHY

The City of Valley is located in the northwestern portion of Douglas County and covers an area of 3.62 square miles. Major waterways in the area are the Platte River, which flows from northwest to southeast about 1.5 miles southwest of the city, and the Elkhorn River, which is east of the city about 3 miles. The Platte River causes the most severe flooding in the city, and the Elkhorn River has caused flooding primarily within Valley's extraterritorial area. The most severe flooding has occurred in the early spring, as a result of snowmelt and heavy rains in conjunction with ice jams.

CLIMATE

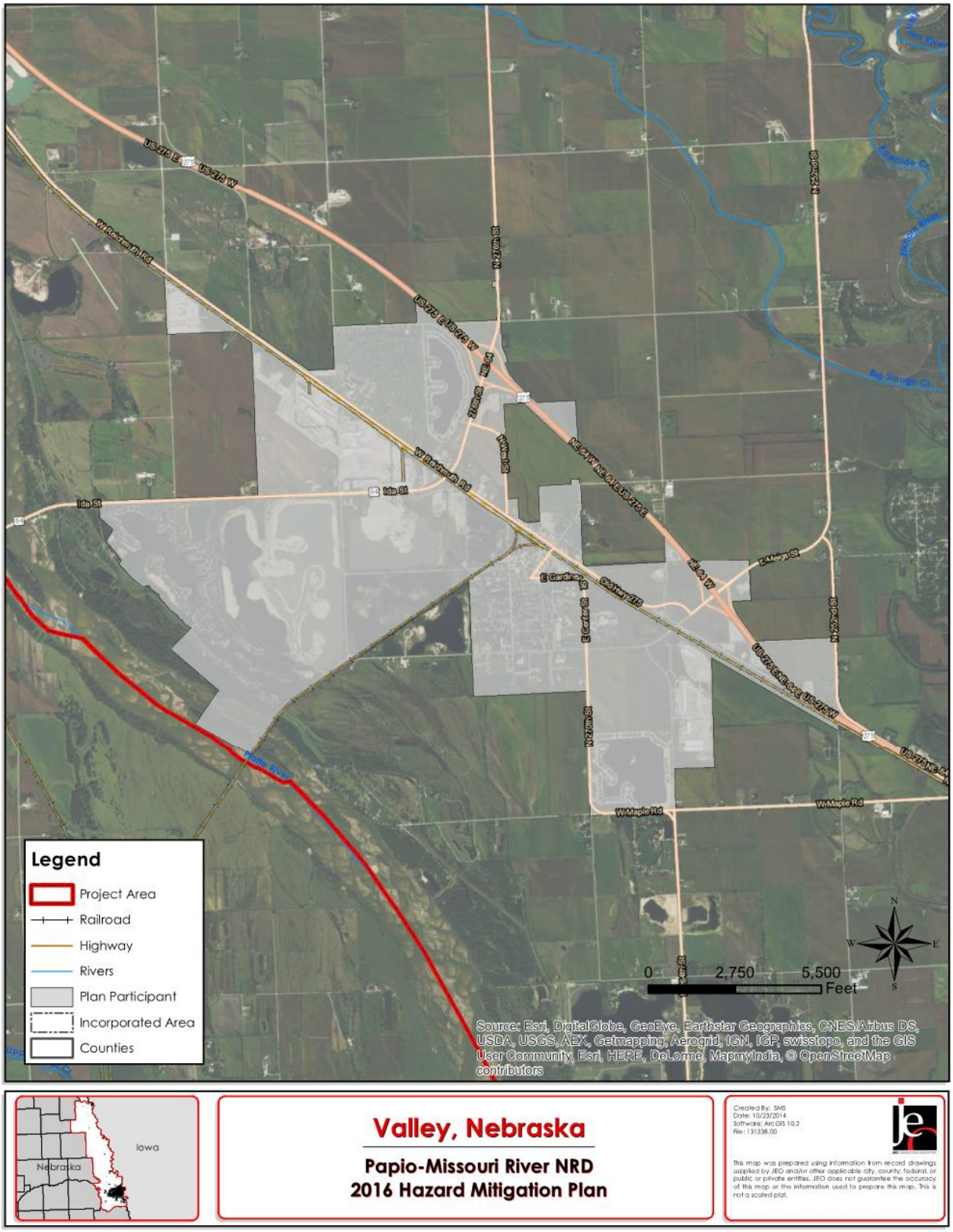
For Valley, the normal high temperature for the month of July is 84.8 degrees Fahrenheit and the normal low temperature for the month of January is 12.7 degrees Fahrenheit. On average, Valley gets 31.21 inches of rain and 26.5 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table VLY.3: Climate Data for the City of Valley

Age	Valley	Planning Area	State of Nebraska
July High Temp	84.8°F	85.6°F	88.0°F
January Low Temp	12.7°F	11.8°F	12.0°F
Annual Rainfall	31.21 inches	30.64 inches	30.3 inches
Annual Snowfall	26.5 inches	31.2 inches	25.9 inches

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

Figure VLY.1: Map of the City of Valley



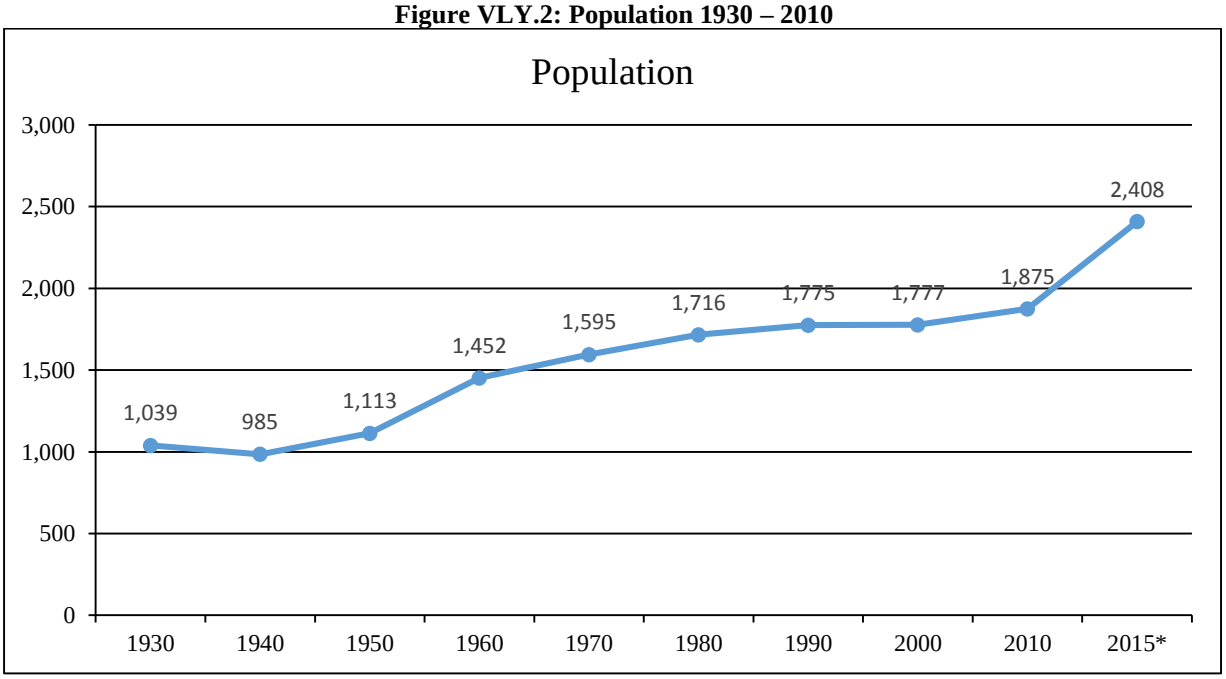
TRANSPORTATION

Valley's major transportation corridors include U. S. Highway 275 and Nebraska Highway 64. Highway 275 has an average of 24,040 vehicles per day with 2,205 of those being heavy commercial vehicles. The local planning team identified chemicals are regularly transported along local routes. The Union Pacific Railroad has rail lines that go through the center of the city. 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.

DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Valley 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. The local planning team estimates the population of Valley to be approximately 2,408 with recent annexations and new housing development.

Figure VLY.2: Population 1930 – 2010



Source: U.S. Census Bureau; City of Valley 2015 estimate

The following table indicates the City of Valley has a higher percentage of residents over the age of 64 when compared to the county. 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 VLY.4: Population by Age

Age	Valley	Douglas County	State of Nebraska
<5	6.8%	7.7%	7.2%
5-64	77.0%	81.5%	79.2%
>64	16.2%	10.8%	13.6%
Median	39.0	33.7	36.2

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

The following table indicates that Valley's median household income is about $10,000 lower than the county. The median home value is also lower than the county median home value, but the median rent is higher than the county. These numbers may have changed with recent housing development. 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.

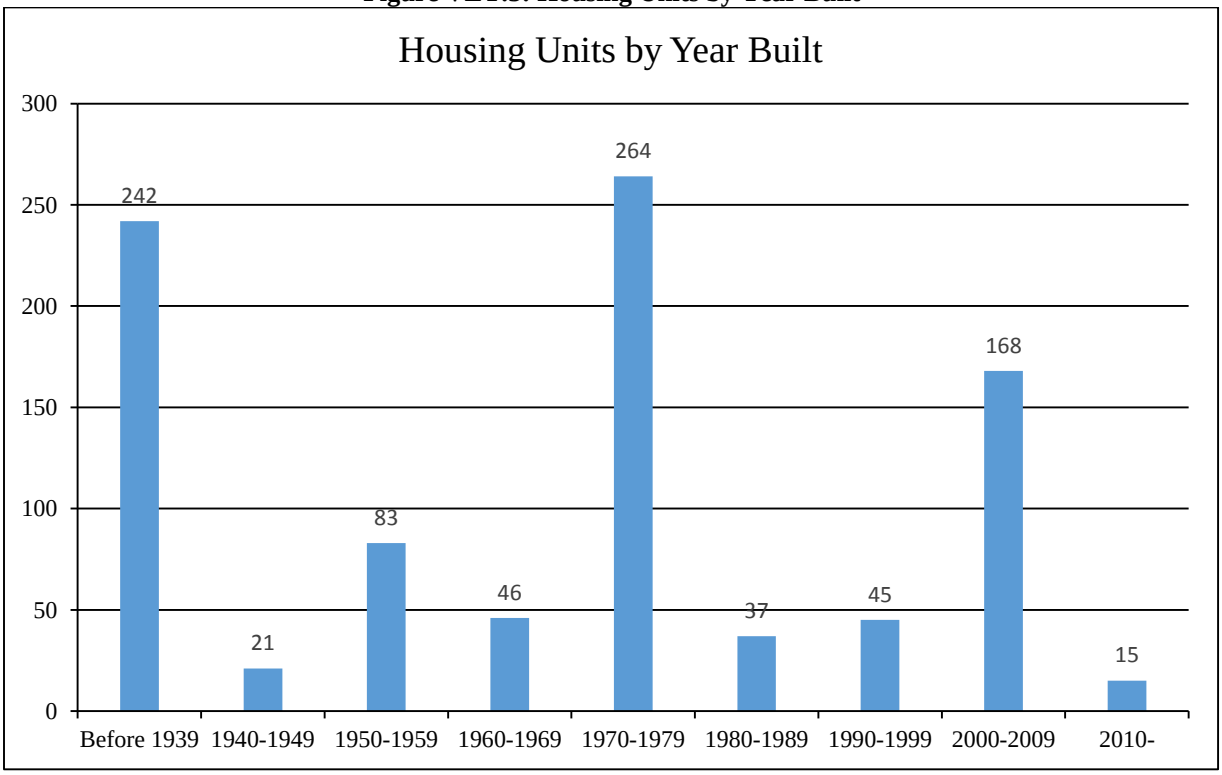
Table VLY.5: Housing and Income

	Valley	Douglas County	State of Nebraska
Median Household Income	$43,819	$53,325	$51,672
Per Capita Income	$24,424	$29,180	$26,899
Median Home Value	$115,500	$143,000	$128,000
Median Rent	$825	$790	$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 Valley (71 percent) was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the community has 921 housing units with 97.5 percent of those units occupied. According to the local planning team, there are approximately 30 mobile homes in the community, many of which are located near the intersection of Meigs and West Streets. Furthermore, the team noted that the estimated housing units built since 2010 is too low. 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 VLY.3: Housing Units by Year Built



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

Table VLY.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Valley	898	97.5%	23	2.5%		553	61.6%	345	38.4%
Douglas County	204,226	92.3%	17,085	7.7%		128,058	62.7%	76,168	37.3%

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

MAJOR EMPLOYERS

Major employers include: Valmont, 3M, Valley Public Schools, and Midwest Manufacturing. A large percentage of residents commute to Omaha and Fremont.

FUTURE DEVELOPMENT TRENDS

The City of Valley has been steadily growing for several decades, and in 2010, the city annexed areas south and west of the city. This lead to a population increase of over 600 people. The annexation included two Sanitary and Improvement Districts, gravel and sand mines, individual acreages, and two homes on a private lake. Furthermore, there has been new lakefront development and growth along Highway 275, which is attracting new residents to the city. Also, the local planning team indicated that a new housing development is planned for the 288th and Ida Streets area. The Valley Shores subdivision is still in development and has additional requirements to meet builder certification. The requirements include a sump pump must be installed and rebar reinforcement must be included in the foundation. New businesses include a truck stop planned for the intersection of Meigs Street and Highway 275, and a retail store planned for the intersection of Highway 275 and Ida Street.

PARCEL IMPROVEMENTS AND VALUATION

The planning team requested GIS parcel data from the County Assessor. 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 VLY.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
815	$158,795,200	$194,841	755	$150,532,800

Source: Douglas County Assessor

Figure VLY.4: Developed Areas

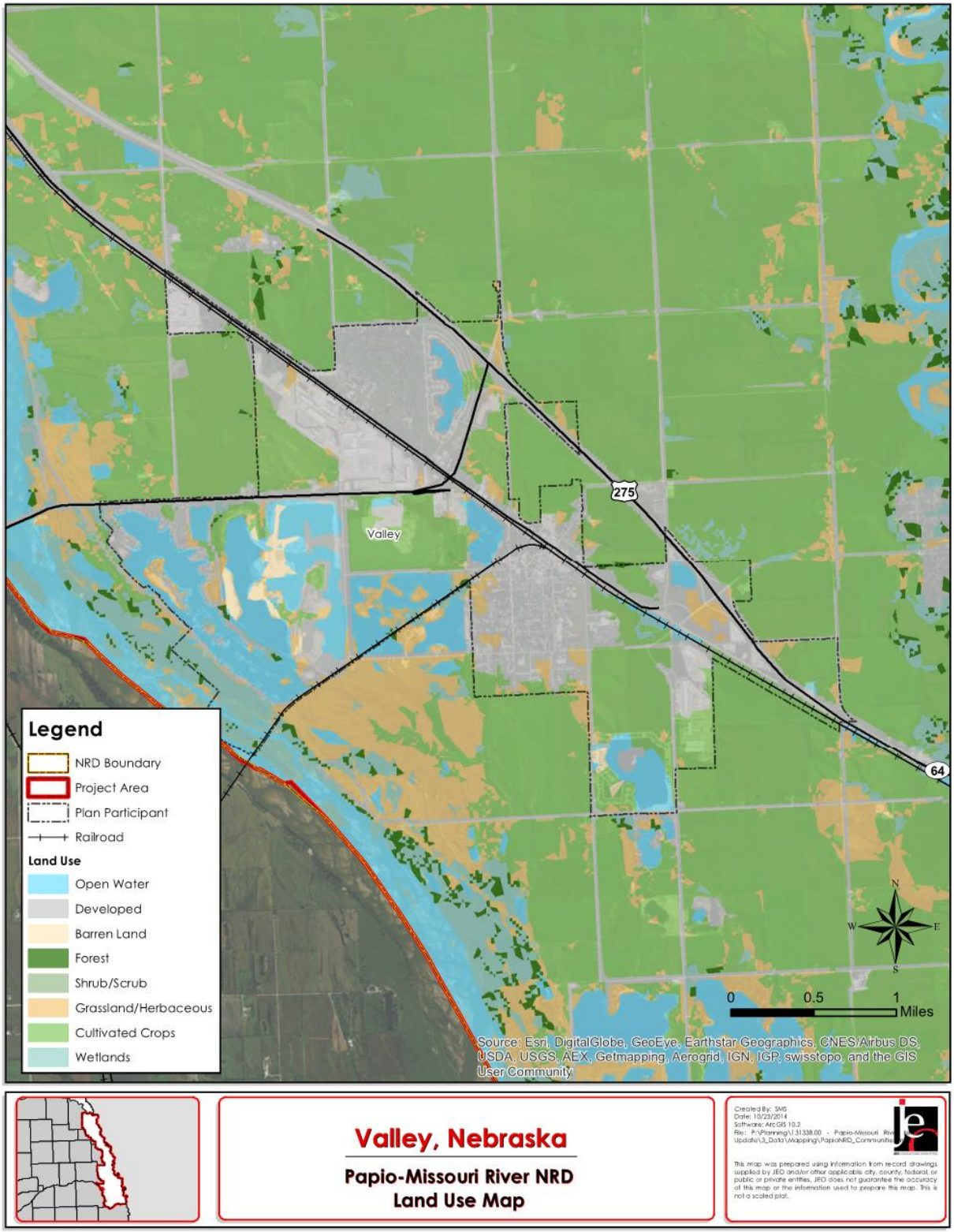


Figure VLY.5: Future Land Use Map

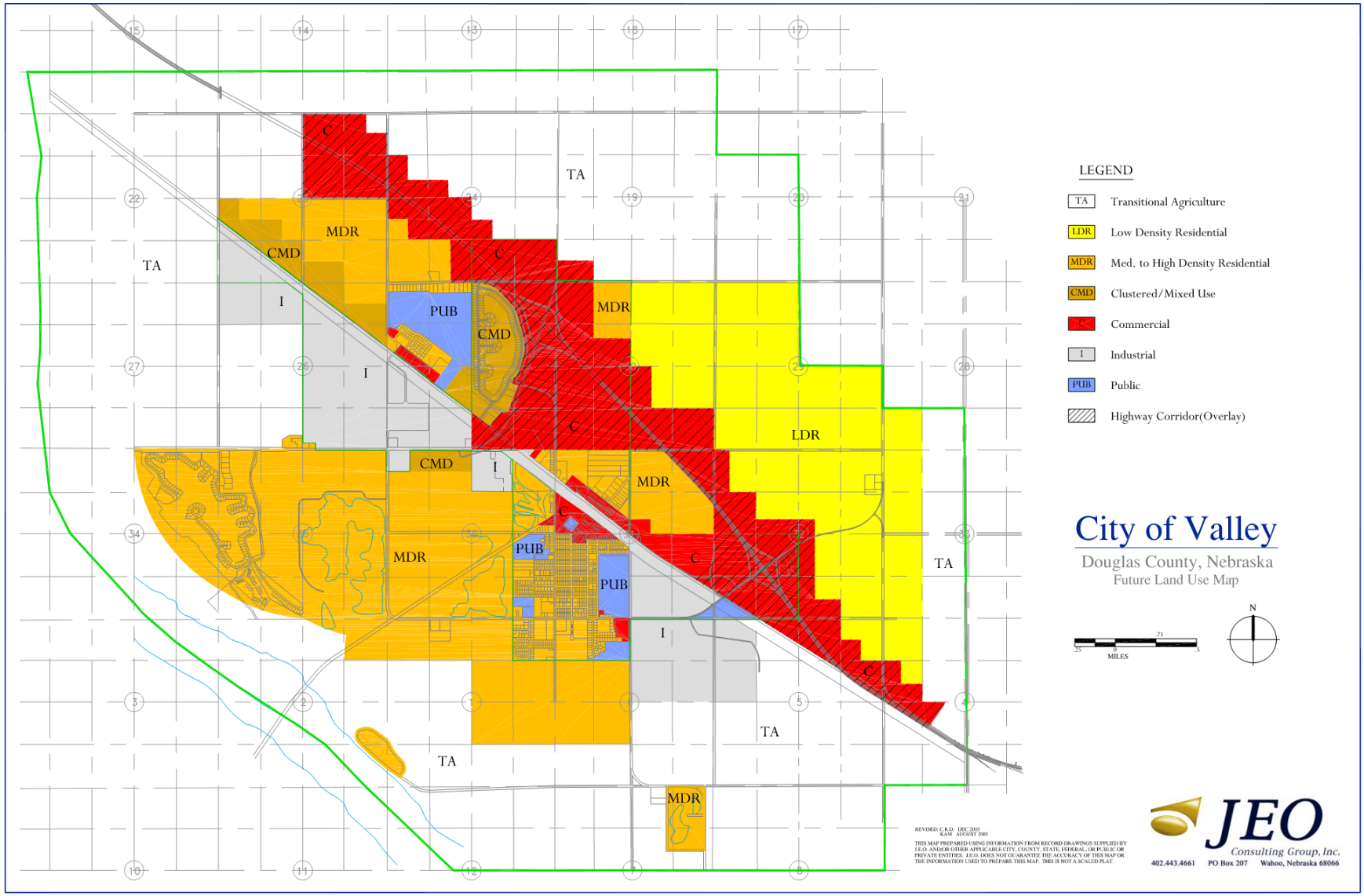
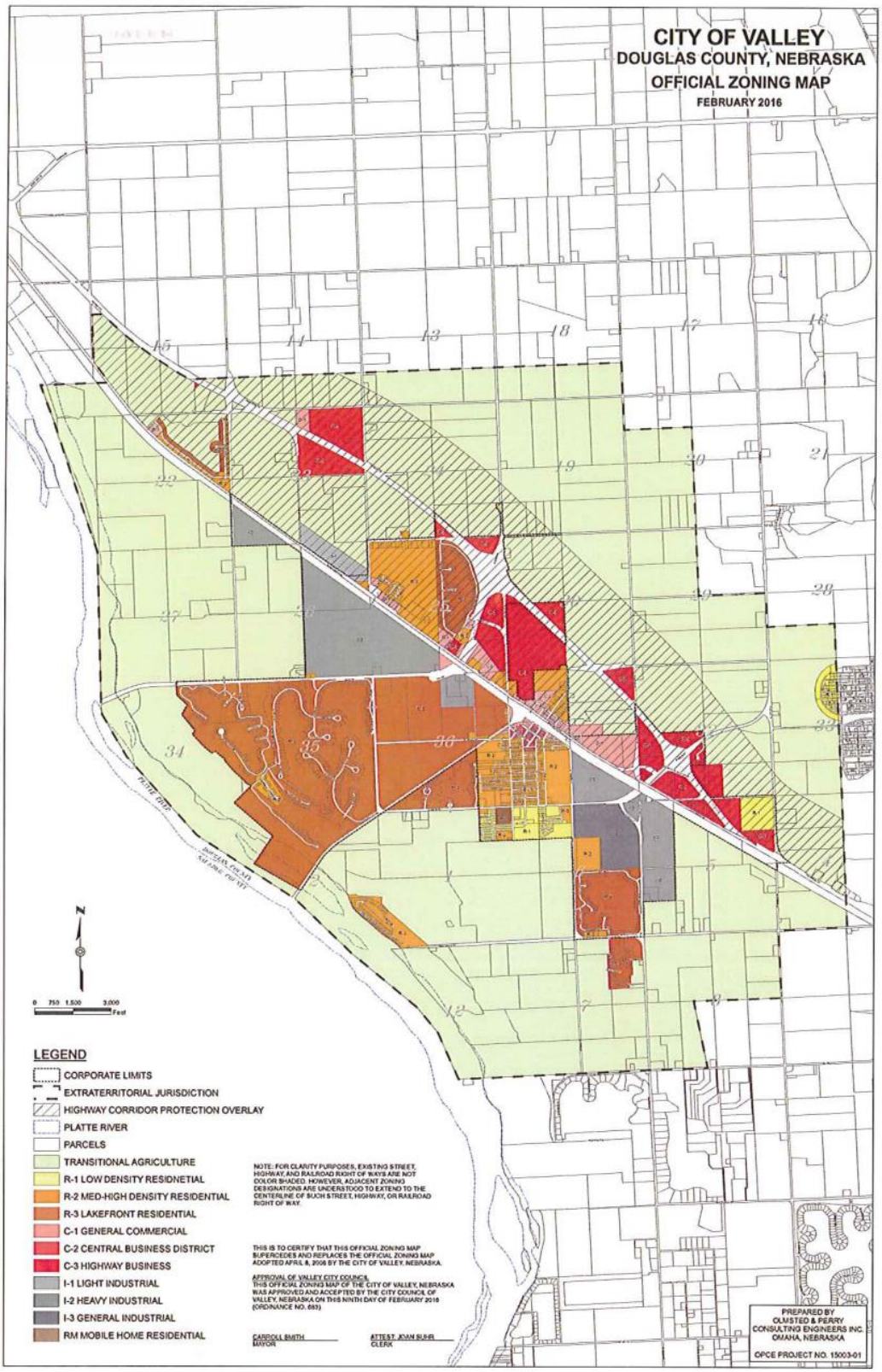


Figure VLY.6: Zoning Map



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 10 chemical storage sites in Valley, and 6 of these house materials that are categorized as hazardous. The following table lists facilities that house hazardous materials only. In addition to these sites, the local planning team identified Midwest Manufacturing as having chemicals to make treated wood products and concrete materials.

Table VLY. 8: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
CenturyLink	310 W. Valley St, Valley	Sulfuric Acid
MCI	Locust St, Valley	Lead Acid Batteries
OPPD Substation No 902	E. Reichmuth Rd, Valley	Unknown
OPPD Substation No 984	Highway64, Valley	Unknown
Valmont Industries Inc	28800 Ida Cir, Valley	Sulfuric Acid
3M Co	600 E. Meigs St, Valley	Sulfuric Acid

Source: Nebraska Department of Environmental Quality

The local planning team identified a number of concerns regarding chemical spills. First, there have been flooding events that have resulted in spills into the floodwaters. Second, one of the chemical fixed sites (3M) is located near the school, which is a critical facility, and the location of a vulnerable population.

HISTORIC SITES

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

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.

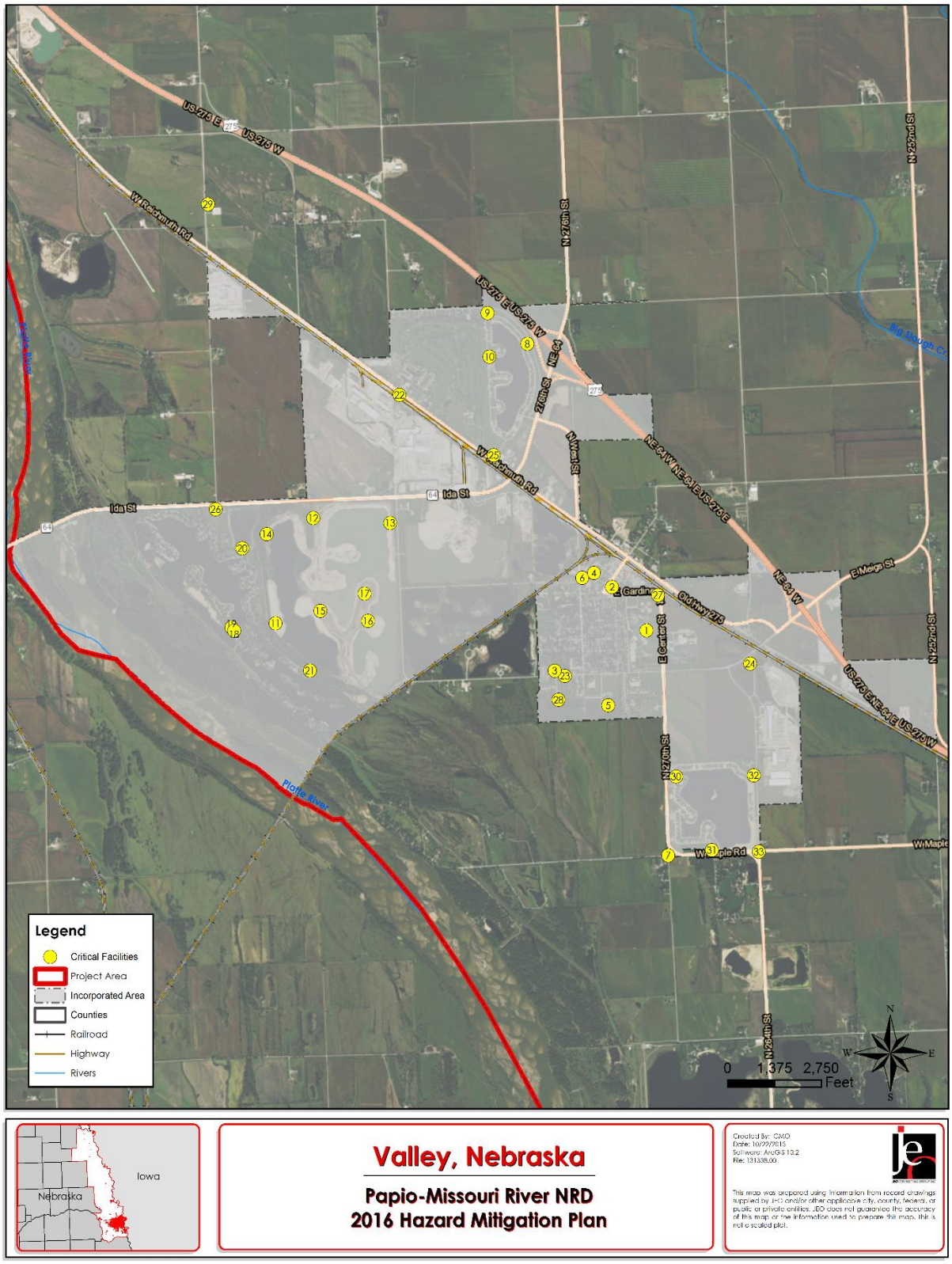
Table VLY.9: List of Critical Facilities in Valley

CF #	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	School	Douglas Co West Elementary and High School	401 S. Pine St, Valley	N	N	N
2	Municipal Building/Police Station	Valley City Hall/Police Station	203 N. Spruce St, Valley	N	Y	N
3	Nursing Home	Golden Living Center	300 W. Meigs St, Valley	N	Y	Y
4	Fire Station	Volunteer Fire Department	210 W. Church St, Valley	N	Y	Y
5	Nursing Home	Orchard Gardens Assisted Living	1006 S. Mayne St	N	Y	Y
6	Water Facility	Water Tower	N. West St. and N. Walnut St.	N/A	Y	Y

CF #	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
7	Water Facility	Water Treatment Plant	5002 N. 270th St.	N/A	Y	Y
8	Lift Station	Valley Shores Lift Station 1	8005 N. 279th St	N/A	Y	Y
9	Lift Station	Valley Shores Lift Station 2	7220 N. 280th St.	N/A	N	Y
10	Lift Station	Valley Shores Lift Station 3	7913 N. 281st Ave	N/A	N	Y
11	Lift Station	Bluewater Lift Station 1	6202 N. 295th St	N/A	N	Y
12	Lift Station	Bluewater Lift Station 2	6510 N 293rd St	N/A	N	Y
13	Lift Station	Bluewater Lift Station 3	6613 N. 289th St	N/A	N	Y
14	Lift Station	Bluewater Lift Station 4	5910 N. 295th St.	N/A	N	Y
15	Lift Station	Bluewater Lift Station 5	6099 N. 294th Circle	N/A	N	Y
16	Lift Station	Bluewater Lift Station 6	29113 Laurel Circle	N/A	N	Y
17	Lift Station	Bluewater Lift Station 7	5302 N. 292nd Circle	N/A	N	Y
18	Lift Station	Ginger Cove Lift Station 1	1 Ginger Cove	N/A	N	Y
19	Lift Station	Ginger Cove Lift Station 2	40 ½ Ginger Cove	N/A	N	N
20	Lift Station	Ginger Woods Lift Station 1	6550 Ginger Woods	N/A	N	Y
21	Lift Station	Ginger Woods Lift Station 1	73 ½ Ginger Woods	N/A	N	Y
22	Lift Station	Valmont Lift Station	7002 N. 288th St	N/A	N	Y
23	Lift Station	Valhaven Lift Station	230 W. Meigs St	N/A	N	Y
24	Lift Station	Meigs Lift Station	1221 E. Meigs St	N/A	Y	Y
25	Lift Station	Legacy Lift Station	6100 N. 261st Circle	N/A	Y	Y
26	Lift Station	Ida Lift Station	30401 Ida St	N/A	Y	Y
27	Lift Station	Gardiner Lift Station	429 E. Gardiner St.	N/A	N	Y
28	Lift Station	Country Aire Lift Station	809 S. Valley View	N/A	N	Y
29	Lift Station	Byarsville Lift Station	9325 N. 300th St	N/A	Y	Y
30	Lift Station	Mallard Lake Lift Station 1	4419 N. 269th St	N/A	N	N
31	Lift Station	Mallard Lake Lift Station 2	3710 N. 267th Ave	N/A	N	Y
32	Lift Station	Mallard Lake Lift Station 3	26401 Taylor St	N/A	N	Y

CF #	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
33	Lift Station	Mallard Lake Lift Station 4	26402 W. Maple Rd	N/A	N	Y

Figure VLY.7: Critical Facilities



HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 48 severe weather events from January 1996 through July 2015. Only events that caused damage, injury, or death are shown in the table below.

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 Douglas County's participant section.

Table VLY.10: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
6/12/1996	Thunderstorm Wind	80 kts.	0	0	$80,000
5/4/2007	Heavy Rain	4-6 in.	0	0	$1,000,000
3/22/2011	Hail	1.75 in.	0	0	$250,000
		Total	**0**	**0**	**$1,330,000**

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 Valley. 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 VLY.11: Risk Assessment

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Agricultural Animal Disease	Yes	-	None
Agricultural Plant Disease	Yes	-	Disposal sites for diseased trees
Chemical Spills (Fixed Site)	Yes	-	School proximity to chemical storage sites; chemicals leaching into floodwaters
Chemical Spills (Transportation)*	Yes	-	Chemicals transported on Hwy 275 and by rail
Civil Disorder	No	-	None
Dam Failure	No	-	None
Drought	Yes	-	Water supply during extended drought periods
Earthquakes	No	-	None
Extreme Heat	Yes	-	Lack of shaded structures in parks
Flooding*	Yes	-	Transportation routes blocked; flooded lift stations;
Grass/Wildfires	Yes	-	None
Hail	Yes	$250,000	Damage to critical facilities

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
High Winds*	Yes	-	Power outages
Landslides	No	-	None
Levee Failure*	No	-	Widespread flooding
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms*	Yes	$1,080,000	Heavy rain flooding ditches and lift stations
Severe Winter Storms*	Yes	-	Road blockages; economic loss; power outages
Terrorism	No	-	None
Tornados*	No	-	Power outages; hazardous trees
Urban Fire	Yes	-	None

**Identified as a top concern by the local 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 Valley's Risk Assessment Summary that is relevant to each hazard. Only hazards identified either as a concern to the community by the local planning team or based on the occurrence and risk of the hazard to the community are discussed in detail below.

Chemical Spills (Transportation)

The local planning team identified chemical spills by transportation a top concern for the city due to several manufacturers located in the city and the proximity to the rail line and highway. Although the planning team is aware of chemicals transported along the highway and railroad, it is not known the types or amounts of chemicals that are transported or the frequency. According PHMSA, there was one chemical spill that occurred on March 5, 2001 when a truck carrying gasoline rolled over from an auto accident causing the contents to spill as it was turned upright on Highway 275 near Highway 36. It caused over $163,000 in damages. Manufacturers such as Valmont, 3M, and Midwest Manufacturing have regular truck shipments that are brought into and out of the city. Residents are not educated about the threat and appropriate response in the event of a spill. However, the Fire District has protective gear and training to respond to a spill and that Omaha Hazardous Materials Team would assist in such a situation.

Implemented mitigation projects:

- Firefighters are trained on chemical spills and have sufficient protective gear
- Omaha Hazardous Materials Team can respond to chemical spills

Identified mitigation projects:

- Provide educational materials especially to residents near Highway 275, rail line, and manufacturing
- Conduct an emergency exercise on hazardous spills

Dam Failure

Although dam failure was not identified as a top concern for Valley, the Kingsley Dam, upstream on the Platte River in western Nebraska, would impact the city if it was to fail. This high hazard dam has not had failures in the past and is regularly inspected and maintained. The peak flood stage would be reached at Valley if the dam failed in about 4 to 5 days. The inundation area would be greater than the 1 percent floodplain for Valley. In the event of a dam failure, the evacuation section of the local emergency operations plan would be implemented to safely evacuate residents where necessary.

Implemented mitigation projects:

- County-wide emergency operations plan is in place for the city
- Floodplain Management Ordinance which requires a one foot freeboard for all new construction or substantial improvements
- Maintain good standing with the NFIP
- CRS Class 8

Identified mitigation projects:

- Continue public awareness and educational opportunities
- Obtain permanent back-up power generators for the lift stations

Levee Failure

Union Dike and No-Name Dike run along the Platte River just west of Valley and both are rated as minimally acceptable. The levees are not FEMA certified, nor do they provide 100-year flood protection. The levees are owned by the P-MRNRD. According to the local planning team, if the levee was to fail there would likely be widespread flooding. In fact, one of the worst ice jams caused the Platte River to overtop the Union Dike in 1978. As a result, the entire City of Valley was flooded. Please see the *Flooding* section for additional information. In the event of a levee failure, the evacuation section of the local emergency operations plan would be implemented to safely evacuate residents where necessary.

Table VLY.12: Valley Levees

Name	Sponsor	City	River	Length (miles)	Type of Protection	Protected Area (sq miles)	Approximate Level of Protection
No-Name Dike	P-MRNRD	Valley	Platte	2.3	Agriculture	25-49	50-99 year flood
Union Dike	P-MRNRD	Valley	Platte	10	Urban	25-49	50-99 year flood

Source: Nebraska State Mitigation Plan, 2014

Implemented mitigation projects:

- County-wide emergency operations plan is in place for the city

Identified mitigation projects:

- Develop a levee failure evacuation plan
- Conduct a levee failure exercise
- Provide education materials to residents about the benefits and risks of the levees

Flooding

The City of Valley has a long history of flooding with the first recorded flood dating back to 1872. Records document that floods have occurred in 1881, 1903, 1912, 1936, 1944, 1947, 1948, 1950, 1960, 1962, 1966, 1967, 1971, 1978, 1984, and 1993. Flooding did not necessarily occur in Valley corporate limits during all of these events since the nearest USGS stream gage station, number 06796000, operated on the Platte River is located near North bend. The North Bend gage has been in operation since 1949. There is a gage station located closer to Valley at the Highway 64 bridge near Leshara, but operation only dates back to 1994.

Due to the geomorphology of the Platte River channel, the primary flood threat for Valley is from ice jam flooding in the winter and early spring months. The flood of 1912 took place on March 29th when an ice jam more than five miles northwest of town flooded the entire town. Water was three to four feet deep on the southwest side of town, and several miles of the Union Pacific Railroad tracks were washed out. It was this flood which led to the construction of the Union Dike in 1919. An ice jam caused the flood of 1936, and an ice jam in February and March of 1948 breached Union Dike and flooded a considerable portion of the city. The March 29, 1960 ice jam flood is recorded as the second largest flood in Valley and is estimated to have been a 60-year recurrence interval. Once again, Union Dike was breached and most of the town was flooded. One-third of the population was evacuated, and one person died. On March 24, 1962, about 90 percent of the city was inundated after an ice jam overtopped Union Dike. The record flood in Valley occurred in March of 1978, after a period of rapid warming caused ice jams at the same time as a high volume of water was generated by snowmelt. Union Dike overtopped in several locations, and the record flood height indicated several feet of water made it into the city. Based on elevation, not discharge values, this flood was estimated to have had an 83-year recurrence interval, and caused more than $60 million in damage in Valley and western Douglas County.

More recent floods have occurred in 2007, 2008, and 2010. In February of 2007, ice jams and rising water due to snow melt on the Platte River cause flooding. Very large slabs of ice were pushed onto the banks along the Platte River from west of Valley to southwest of Waterloo. The water flooded near some cabins and onto county roads near the river. No damage estimates were provided.

A widespread area around Valley experienced heavy rain with totals reaching between four and eight inches during May of 2007. This heavy rain flooded basements and caused ponding of water across the county. Damages were estimated at over $1 million.

Several county roads were closed briefly in western Douglas County near Valley on July 15, 2008 due to flash flooding. Three to five inches of rain was reported in the area. Reported damage was minimal.

In June 2010, three to five inches of rain fell over the Elkhorn River basin. This caused near record flooding along the river from upstream at Neligh on south to Valley and the confluence of the Platte River. The heaviest hit was just east of Valley at Kings Lake where 160 homes and cabins sustained flood damage and 23 homes declared unfit due to septic tanks backing up. A man had to be rescued driving around police barricades and suffered hypothermia. The Elkhorn River crested at 18.7 feet near Waterloo, south of Valley.

Flooding was identified as a significant concern for the city. As indicated in Table VLY.13, nearly 93 percent of all structures in the City of Valley are located within the 1 percent floodplain, and 4 of the 33 the identified critical facilities (Table VLY.9) are also in the floodplain. The local planning team has identified that heavy rains have recently caused lift-stations to flood. Areas on the north side of Valley are well-known by the local planning team as having poor stormwater drainage that can lead to flooding. Some drainage ditches overflow due to lack of maintenance on private property. Gardiner Street is also known to flood repeatedly, but stormwater drainage improvements and road elevation may help with flood issues in the future. This street is prioritized next for construction improvements and is identified as a mitigation action under street stormwater improvements.

Additional concerns are the economic impacts on the community if flooding were to shut down the major employers in the area, including Valmont, 3M, and Midwest Manufacturing. These businesses employ a large number of residents in the community and surrounding areas. Schools may also be closed for an extended period of time impacting students, parents, and staff. Road closures are also possible during major flooding events, which would compound the economic impacts on commercial shipping and the ability for fire and rescue to reach citizens in need.

During and following a flood, there are several health concerns that should be made aware to citizens impacted by floodwaters. According to the Centers for Disease control and Prevention, drinking water and food could be contaminated if certain steps are not followed, causing illness if ingested. Mold is also quite common as flood waters recede and high moisture content is present. Vulnerable populations include those that suffer from asthma, allergies, or other breathing conditions. People with weakened immune systems and with chronic lung diseases may develop mold infections in their lungs. Special face masks should be worn for any person that intends to spend a period of time in a building with mold.

Valley has 431 NFIP policies in-force for $65,674,100. There are 2 single family homes that are repetitive flood loss properties in the City of Valley. The city does annually mail to these repetitive loss properties information on flooding as part of their outreach projects.

Table VLY.13: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$150,532,800	755	815	92.6%

Source: Douglas County Assessor

The City of Valley maintains a community website with several links and articles that contain information about flooding in the community, flood safety, property protection measures, information on the NFIP, and a discussion on the natural and beneficial functions of the floodplain.

Implemented mitigation projects:

- Floodplain Management Ordinance which requires a one foot freeboard for all new construction or substantial improvements
- Member of the NFIP
- CRS Class 8
- Completed drainage improvements to North Spruce Street in 2013

Identified mitigation projects:

- Lift station improvements to reduce flooding
- Obtain permanent back-up power generators for the lift stations
- Work with property owners on clearing and maintaining drainage ditches
- Several additional mitigation projects have been identified and provided at the end of this participant section

Severe Thunderstorms
The local planning team identified severe thunderstorms as a top concern for the city. The local concern with this hazard relates to the subsequent flooding that occurs with this hazard due to the heavy rain associated with severe thunderstorms which can lead to flash flooding. Drainage ditches tend to overflow on private lands due to lack of maintenance by private owners.

Also, NCDC reported 18 thunderstorm wind events since 1996. The strongest event occurred in 1996 when wind gusts reached 92 mph, which snapped power poles and tore a roof of a convenience store. Dozens of trees were uprooted and center-pivot irrigation systems were damaged near Valley. The local planning team noted that there are several hazardous trees on private property that require removal or maintenance.

Implemented mitigation projects:
- Municipal records are protected with surge protectors and offsite back-up
- About 30 percent of power lines have been buried in the city
- City Hall and Fire Station have back-up power generators
- Tree City USA community for 21 years
- Weather radios available in critical facilities

Identified mitigation projects:
- Work with property owners on removing hazardous trees
- Work with property owners on clearing and maintaining drainage ditches
- Lift station improvements to reduce flooding
- Obtain permanent back-up power generators for the lift stations
- Continue public awareness and educational opportunities

Severe Winter Storms
Severe Winter Storms are a regular part of the climate in Valley and the local planning team identified it as a top concern. The winter of 2009-2010 included several severe winter storms that greatly impacted the region, including the City of Valley. The Christmas Winter Storm of 2009, which began on December 23rd and ended on the 26th, brought up to 15 inches of snow along with gusting winds over 40 mph. These winds in combination with the heavy snow produced widespread visibilities below a quarter mile during the event, making travel dangerous to impossible. Many of the roads became blocked and travel was brought to a standstill during a normally heavy travel period for the holidays.

Local concern associated with this hazard is the ability to travel in and out of the community to work or shopping. Drifting typically happens in open, rural areas. The city has designated West Street and Meigs Street as snow routes. Streets are cleared by city crews, and snow removal equipment is currently sufficient for local events, however heavier snow events do require the city to call for outside contractor to remove snow. There have been no reported damages to critical facilities from winter storm events.

Implemented mitigation projects:
- About 30 percent of power lines have been buried in the city
- City Hall and Fire Station have back-up power generators
- Tree City USA community for 21 years
- Weather radios available in critical facilities
- Snow fences used on N. West Street and Center Street

Identified mitigation projects:
- Continue public awareness and educational opportunities

Tornados and High Winds
High winds and tornados are a top concern for the city. According to the NCDC, there have been two funnel clouds and both occurred in the spring of 2006. Neither of these funnels became a tornado nor did they do any damage. The local planning team is concerned with the time necessary for utility companies to respond and recover from damages due to these hazards. Past high wind events have damaged power lines, causing power outages. Valley does have backup systems for municipal records. The community does not have a safe room. However, the school could be made available to community members seeking shelter. All new subdivisions have buried powerlines, which greatly reduces the risk of power outages from high winds.

Implemented mitigation projects:

- County offers text alerts to warn residents of hazards
- Mutual aid agreements with neighboring communities: Waterloo, Yutan, Fremont, and Omaha
- City Hall and Fire Station have back-up power generators
- Tree City USA community for 21 years
- Weather radios available in critical facilities
- Emergency Operations Plan is in place through the county

Identified mitigation projects:

- Construct a storm shelter in the community
- Continue to work with Public Power District to bury power lines
- Work with property owners on removing hazardous trees
- Work with property owners on clearing and maintaining drainage ditches
- Lift station improvements to reduce flooding
- Obtain permanent back-up power generators for the lift stations
- Continue public awareness and educational opportunities

Figure VLY.8: Leveed Areas

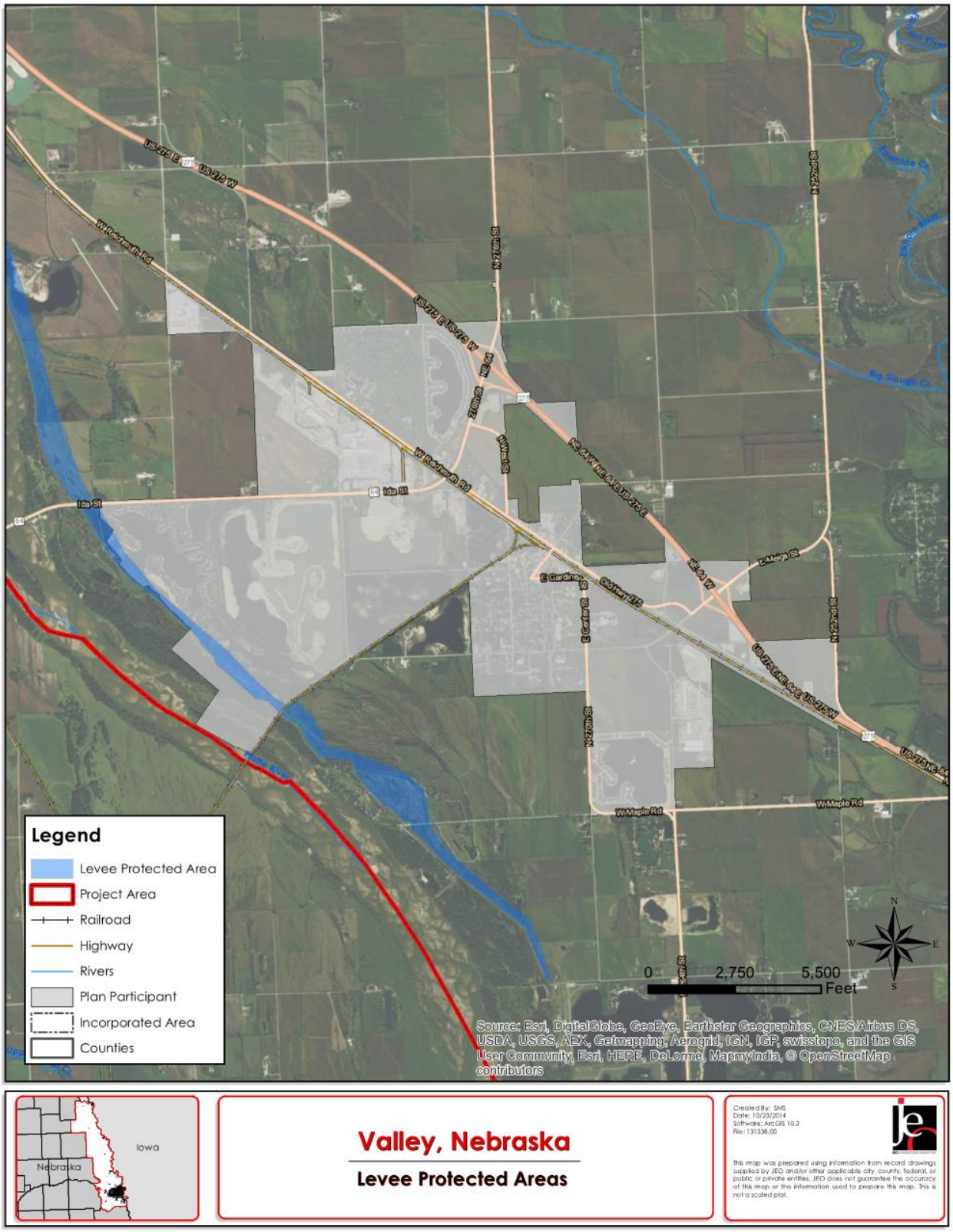
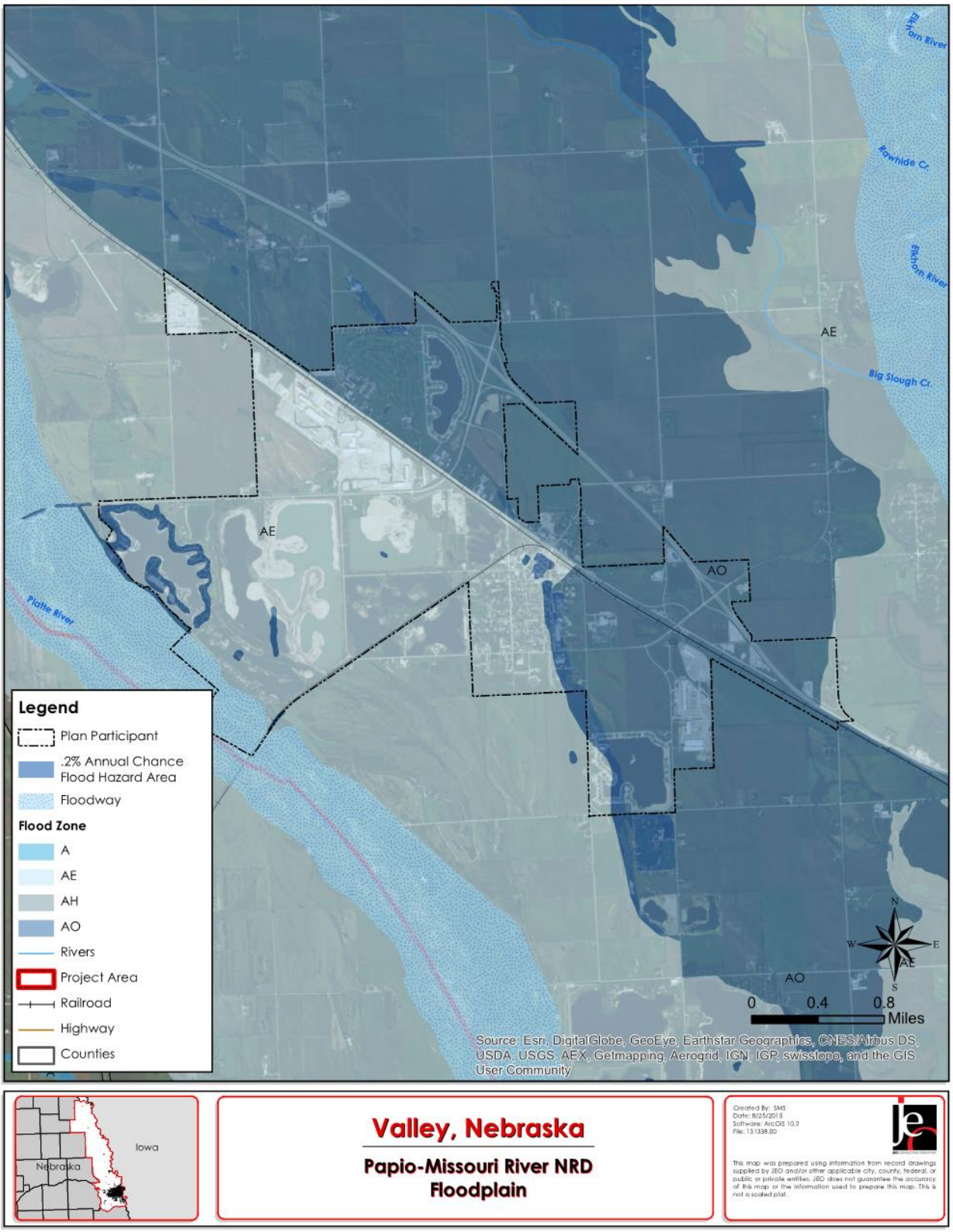


Figure VLY.9: Valley 1% and 0.2% Annual Chance Floodplain



GOVERNANCE

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The City of Valley has a four member city council led by a mayor and a number of offices and departments that may be involved in implementing hazard mitigation initiatives.

- City Clerk
- Building & Zoning Department
- Police Department
- Public Works
- Library
- Valley Suburban Fire District
- Utilities
- Tree Board

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 VLY.14: 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	Yes (Class 8)
	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
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes

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

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

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2015
Valley Comprehensive Plan	2007, revised 2014
CRS Verification Report	2013
Floodplain Ordinance	2005
Zoning Ordinance	2005, revised 2011
Building Code	2009
Subdivision Regulations	2005, revised 2014

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.

Valley 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 Valley, which was last updated in 2015, is an annex of Douglas 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.

Valley's Comprehensive Plan was last updated in 2007 and revised in 2014. The plan includes environmental goals where the city will retain a high-quality natural environment that conserves and protects the natural resources and promotes compatible land uses to support sustainable future development activities in the community. This includes the encouragement of preserving of sensitive areas such as wetlands, wooded areas, waterways, landmark tree, and other amenities. It also encourages restrictions on land uses within the floodplain which are open and undeveloped. The plan also discusses future subdivision development and the need for considering the impact upon downstream areas regarding increased amounts of stormwater runoff.

As a participant in the CRS program, the city has several ongoing flood mitigation activities that help protect lives and reduce property damage in the community. The Verification Report stemming from a visit in October 2013 provides the list of activities that the city received credit for CRS points. A selection of the activities include:

- Elevation certificates are maintained in the Building Department for new and substantially improved buildings
- Flood zone information is provided upon request from the community's latest FIRM. The city provides additional FIRM information, information about problems not shown on the FIRM and historical flood information.
- Outreach projects include brochures available for pickup, mailings to all residents of the community and a targeted outreach project that includes a mailing to the repetitive loss areas.
- Documents relating to floodplain management are available in the reference section of the Valley City Library, and floodplain information is displayed on the community's website.
- Higher regulatory standards are in enforced that require development limitations and freeboard for new and substantial improvement construction.
- Credit provided for the adoption of the Papio-Missouri River NRD HMP in 2011.
- Valley's drainage system is inspected regularly throughout the year and maintenance is performed as needed.

Valley's Floodplain Ordinance was last updated in November 2005. The ordinance requires all new construction or substantial improvements of residential structures have the lowest floor elevated to or above one foot above the base flood elevation. Since the ordinance includes a one foot freeboard, this should be sufficient in reducing losses in current and most likely future flooding conditions. Development of residential structures in the floodway are prohibited. The Zoning Ordinance contains flood fridge and floodway overlay districts that set conditions, as described in the floodplain ordinance, for land use within these districts. Buoyant, flammable, explosive, or could be injurious is prohibited in the floodplain. The storage of material is allowed if firmly anchored to prevent flotation during a flood.

The city has adopted the International Building Code, 2012 edition.

The Subdivision Regulations were revised in 2014 and contains restrictions of subdivision development where land is known to flood. All development must be floodproofed and follow the flood hazard zoning provisions. The development must also have adequate drainage to reduce the exposure to flood hazards.

MITIGATION STRATEGY

REVIEW POSSIBLE ACTIVITIES

The local planning team met to discuss a wide range of possible mitigation activities that the city could include in the HMP to be more resilient to flooding. As required for Activity 510 *Floodplain Management Planning* for consideration of CRS points, the discussion included activities that are currently implemented or ongoing, activities that should be added to the 2016 HMP, and also activities that were not selected because they were either inappropriate for the community or not feasible. The following table provides a list of the discussed mitigation actions, whether the activity was selected or not selected, and reasons for the selection.

Table VLY.16: Selection of Mitigation Actions

Flood Mitigation Action	Selected	Not Selected	Reason
Parcel Level Evaluation of Floodprone Properties		X	Not feasible with current staffing and budget constraints
Emergency Management Exercise	X		City is interested
Adopt a No Adverse Impact		X	Not a priority at this time
Bank Stabilization		X	Does not apply
Ditch and Bridge Improvements		X	Public ditches are maintained and cleaned regularly. No authority over private ditches
NFIP Continuation	X		High priority for community
Community Rating System Maintenance	X		High priority for community
Create a Community-Wide Master Plan to Prioritize all Flood Related Projects	X		Although much of the information is available or known by floodplain administrator, important to have it written down and formalized
Develop Flood Assistance Strategies		X	Flood assistance strategies are already outlined in the LEOP
Drainage ditches and culverts	X		City cleans out public ditches and culverts on an ongoing basis and will continue it
Drainage Study/Stormwater Master Plan	X		A comprehensive study with a plan for 2 inch rainfall events
Elevate Pad Mounted Transformers and Switch Gear		X	City does not have jurisdiction over transformers/switch gear
Facility Flood Proofing		X	Flood proofing not needed. City hall is not in 1 percent floodplain
Filtration Facility Upgrade		X	Does not apply
Develop or Update FIRM Maps for Regulatory Use		X	DFIRMs available and used as needed for regulatory purposes
Flood Prone Property Acquisition		X	Not feasible at this time

Flood Mitigation Action	Selected	Not Selected	Reason
Floodplain Regulation Enforcements/Updates	X		Ongoing – building inspector and floodplain administrator enforce floodplain regulations
Grade Control Structures		X	Does not apply
Improve/Upgrade Bridges		X	No needs at this time
Improve Drainage	X		Ongoing – project identified in 2011 HMP and listed under 'Street Stormwater Improvements'
Improvements to Flood Warning System	X		USGS oversees flood warning system. City supports USGS efforts.
Infrastructure Protection		X	Does not apply
Levee/Floodwall Construction and/or Improvements		X	Not feasible at this time
Low Impact Development	X		Ongoing - rain gardens constructed in new subdivisions.
Mutual Aid through Water/Wastewater Agency Response Network (WARN) Program	X		City is interested in the program
Promote Infiltration		X	Does not apply
Relocation of Hazardous Storage		X	Not feasible. There is no place for the city to move municipal fuel tanks.
Stormwater Management	X		Public Works monitors large rain events
Stormwater Management Committee	X		City is interested
Development Restrictions	X		Enhanced floodplain regulations in place
Continue Floodplain Regulations Including More Restrictive Regulations	X		One foot freeboard regulation
Risk Communication	X		Ongoing public outreach
Site Hardening		X	Does not apply. City Hall out of floodplain.

An action plan with included prioritization for each of the selected mitigation projects can be found under the "Ongoing Mitigation Actions" or "New Mitigation Actions" below. The completed and ongoing mitigation actions are updates to mitigation actions that were included in the 2011 HMP.

Completed Mitigation Actions from 2011 HMP

Description	Drainage Improvements
Analysis	Drainage improvements to North Spruce Street.
Goal/Objective	Goal 3/Objective 3.5
Hazard(s) Addressed	Flooding
Estimated Cost	$300,000
Funding	P-MRNRD and city budget
Completed	August 2013

Description	Street Stormwater Improvements: West Street
Analysis	Complete street stormwater improvements on West Street.
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	Flooding

Description	Street Stormwater Improvements: West Street
Estimated Cost	$300,000
Funding	Bonds
Completed	October 2014

Ongoing Mitigation Actions from 2011 HMP

Description	Street Stormwater Improvements: East Street and Gardiner Street
Analysis	Complete street stormwater improvements on East Street and Gardiner Street.
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Structural Projects
Estimated Cost	$600,000
Funding	Bonds
Timeline	2-5 years
Priority	Medium
Lead Agency	City Engineer
Status	East Street is under construction. Gardiner Street is next priority.
Meets Expectations?	Yes

Description	Back-up Generators
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	$140,000
Funding	Budgeted funds, HMGP, PDM
Timeline	5+ years
Priority	Low
Lead Agency	City Engineer
Status	City Hall secured a back-up generator in 2012 with HMGP and city funds. A portable generator is available for lift stations and applying for funds for additional generators.
Meets Expectations?	Yes

Description	Lift Station Improvements
Analysis	Replace the Gardiner Street lift station with a gravity line.
Goal/Objective	Goal 2/Objective 2.4
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Structural Projects
Estimated Cost	$350,000
Funding	Bonds
Timeline	Ongoing
Priority	High
Lead Agency	City Engineer
Status	Under construction
Meets Expectations?	Yes

Description	Storm Shelters
Analysis	Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, school, public buildings, outdoor venues, and other areas.

Description	**Storm Shelters**
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornado, Severe Thunderstorms, High Winds, Hail
Estimated Cost	$100,000
Funding	Bonds, Budgeted funds, HMGP
Timeline	5+ years
Priority	Low
Lead Agency	Building Department
Status	Not yet started.
Meets Expectations?	N/A

Description	**Fuel Tank Anchoring**
Analysis	Anchor unsecured fuel tanks in the maintenance yard to prevent floatation during floods or debris during other hazard events
Goal/Objective	Goal 3/Objective 3.6
Hazard(s) Addressed	Flooding, Tornado, Severe Thunderstorm, High Winds
Category of Floodplain Management	Property Protection
Estimated Cost	$15,000
Funding	Budgeted funds
Timeline	2-5 years
Priority	Low
Lead Agency	Public Works
Status	Not yet started
Meets Expectations?	N/A

Description	**Grade Control Sewer Lift Stations**
Analysis	Implement grade control projects at sewer lift stations
Goal/Objective	Goal 2/Objective 2.4
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Structural Projects
Estimated Cost	$70,000
Funding	Budgeted funds, Bonds, HMGP, PDM
Timeline	5+ years
Priority	Low
Lead Agency	City Engineer
Status	New lift stations are designed to be out of the floodplain. Older lift stations require protection. No formal plans have been submitted yet.
Meets Expectations?	Yes

Description	**Reverse 911**
Analysis	Utilize reverse 911 system to warn residents of hazards
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	$40,000
Funding	HMGP, Budgeted funds, County funds
Timeline	5+ years
Priority	Low
Lead Agency	City Administration and Douglas County Emergency Management
Status	Not yet started but the city would like to partner with Douglas County on this project.
Meets Expectations?	N/A

Description	Remove Flow Constriction
Analysis	Remove flow constrictions to reduce risk of flooding by improving drainage, stabilizing creeks, and clearing channels
Goal/Objective	Goal 3/Objective 3.5
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Structural Projects
Estimated Cost	$100,000
Funding	Budgeted funds, PDM, FMA
Timeline	Ongoing
Priority	Medium
Lead Agency	Public Works
Status	Ongoing maintenance throughout the jurisdiction
Meets Expectations?	Yes

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

New Mitigation Actions

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	Flooding, Dam Failure, Levee Failure
Category of Floodplain Management	Emergency Services
Estimated Cost	$10,000
Funding	Budgeted funds, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Police Department, Fire Department and coordinate with County EMA
Status	Not yet started.

Description	Community Rating System Continuation
Analysis	Maintain status as a Community Ratings System (CRS) community to reduce flood insurance premiums.
Goal/Objective	Goal 1/Objective 1.1
Hazard(s) Addressed	Flooding

Description	Community Rating System Continuation
Category of Floodplain Management	Property Protection
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Zoning Administrator
Status	CRS Class 8

Description	Community-Wide Master Plan to Prioritize Flood Related Projects
Analysis	Create a community-wide master plan that identifies potential flooding sources and flood-vulnerable areas. Explore solutions and prioritize.
Goal/Objective	Goal 4/Objective 4.2
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	$10,000
Funding	Budgeted funds, FMA, PDM
Timeline	5+ years
Priority	Low
Lead Agency	Zoning Administrator
Status	Much of the information is available but needs to be put into a comprehensive plan and to explore solutions.

Description	Drainage Ditches and Culverts
Analysis	Deepen drainage ditches and clean out culverts
Goal/Objective	Goal 3/Objective 3.5
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Structural Projects
Estimated Cost	$10,000
Funding	Budgeted funds
Timeline	Ongoing
Priority	Medium
Lead Agency	Public Works
Status	Public ditches and culverts are cleaned out as needed

Description	Drainage Study/Stormwater Master Plan
Analysis	Preliminary drainage studies and assessments can be conducted to identify and prioritize design improvements to address site specific localized flooding/drainage issues to reduce and/or alleviate flooding. Stormwater master plans can be developed to help identify stormwater problem areas and potential drainage improvements.
Goal/Objective	Goal 3/Objective 3.3
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	$50,000
Funding	Budgeted funds, HMGP, FMA, PDM
Timeline	3-5 years
Priority	Medium
Lead Agency	City Engineer
Status	Not yet started

Description	Floodplain Regulation Enforcements/Updates
Analysis	Continue to enforce local floodplain regulations for structures located in the 1-percent floodplain. Strict enforcement of the type of development and elevations of structures should be considered through issuance of building permits by any community or county. Continue education of building inspectors or Certified Floodplain Managers.
Goal/Objective	Goal 3/Objective3.1
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator
Status	Building inspector approves building permits and maintains a record.

Description	Improvements to Flood Warning System
Analysis	Update equipment, ensure equipment is in a secure location, and install additional gauges.
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	Flooding, Dam Failure, Levee Failure
Category of Floodplain Management	Emergency Services
Estimated Cost	Unknown
Funding	Budgeted funds, USGS
Timeline	Ongoing
Priority	High
Lead Agency	City of Valley in coordination with USGS
Status	Valley would support efforts by USGS to maintain and upgrade flood gauge equipment

Description	Low Impact Development
Analysis	Utilize low impact development practices and green infrastructure to reduce flood risk.
Goal/Objective	Goal 4/Objective 4.3
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Variable
Funding	Budgeted funds, private funds, PDM, FMA
Timeline	Ongoing
Priority	Medium
Lead Agency	Zoning Administrator
Status	Ongoing. Rain gardens under construction in new subdivisions.

Description	Mutual Aid through WARN Program
Analysis	Establish mutual aid agreements through Water/Wastewater Agency Response Network (WARN) Program to share emergency resources.
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Staff Time
Funding	N/A

Description	Mutual Aid through WARN Program
Timeline	1-3 years
Priority	High
Lead Agency	Public Works
Status	Not yet started.

Description	Stormwater Management
Analysis	Upgrade sewer system to improve storm water management
Goal/Objective	Goal 2/Objective 2.3
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Structural Projects
Estimated Cost	Varies
Funding	Budgeted funds
Timeline	Ongoing
Priority	Medium
Lead Agency	Public Works
Status	City monitors 2 inch rainfall events and identifies problem areas

Description	Stormwater Management Committee
Analysis	Establish a stormwater development committee to oversee improvements to the stormwater system and to respond to community concerns.
Goal/Objective	Goal 2/Objective 2.3
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Staff Time
Funding	N/A
Timeline	2-4 years
Priority	Medium
Lead Agency	Public Works and City Council
Status	Not yet started.

Description	Development Restrictions
Analysis	Enhance floodplain regulations to restrict types of development allowed in the floodplain.
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Preventive
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	Low
Lead Agency	Floodplain Administrator
Status	Development in the floodway is prohibited.

Description	Continue Floodplain Regulations Including More Restrictive Regulations
Analysis	Develop and pass more restrictive floodplain regulations. Enhancements may include: limiting types of development within the floodplain, redefining substantial loss for impacted homes, etc.
Goal/Objective	Goal 3/Objective 3.1
Hazard(s) Addressed	Flooding

Description	Continue Floodplain Regulations Including More Restrictive Regulations
Category of Floodplain Management	Preventive
Estimated Cost	Staff Time
Funding	N/A
Timeline	Ongoing
Priority	Low
Lead Agency	Floodplain Administrator
Status	The city has adopted higher restriction in the floodplain that includes structures to be elevated to at a minimum of one foot above base flood elevation.

Description	Risk Communication
Analysis	Provide informational flyers, newsletters, and post information to the city website with flooding information, preventative and preparedness measures, mapping resources, etc.
Goal/Objective	Goal 1/Objective 1.5
Hazard(s) Addressed	Flooding
Category of Floodplain Management	Public Information
Estimated Cost	$5,000+
Funding	Budgeted funds
Timeline	Ongoing
Priority	High
Lead Agency	Floodplain Administrator
Status	The city conducts several information outreach projects including: annually mails letters to all residents in the community, maintains a community website, and provides informational brochures.

Removed Mitigation Actions

None

PARTICIPANT SECTION
FOR THE

VILLAGE OF WATERLOO

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 Waterloo, 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 WLO.1 provides the list of participating members that comprised the Village of Waterloo 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 WLO.1: The Village of Waterloo Local Planning Team

Name	Title	Department / Jurisdiction
Melissa Johnson	Village Clerk	Village of Waterloo

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 WLO.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
May 12, 2015	Passed Resolution of Participation	Village Offices
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND GEOGRAPHY

The Village of Waterloo is located in the western portion of Douglas County and covers an area of 0.65 square miles. Major waterways in the area include the Elkhorn River just east of the village boundary, and the Platte River, which is a few miles west of the village.

Figure WLO.1: Map of the Village of Waterloo

CLIMATE

For Waterloo, the normal high temperature for the month of July is 84.8 degrees Fahrenheit and the normal low temperature for the month of January is 12.7 degrees Fahrenheit. On average, Waterloo gets 31.21 inches of rain and 26.5 inches of snowfall per year. The following table compares these climate indicators with those of the entire state.

Table WLO.3: Climate Data for the Village of Waterloo

Age	Waterloo	Planning Area	State of Nebraska
July High Temp	84.8°F	85.6°F	88.0°F
January Low Temp	12.7°F	11.8°F	12.0°F
Annual Rainfall	31.21 inches	30.64 inches	30.3 inches
Annual Snowfall	26.5 inches	31.2 inches	25.9 inches

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

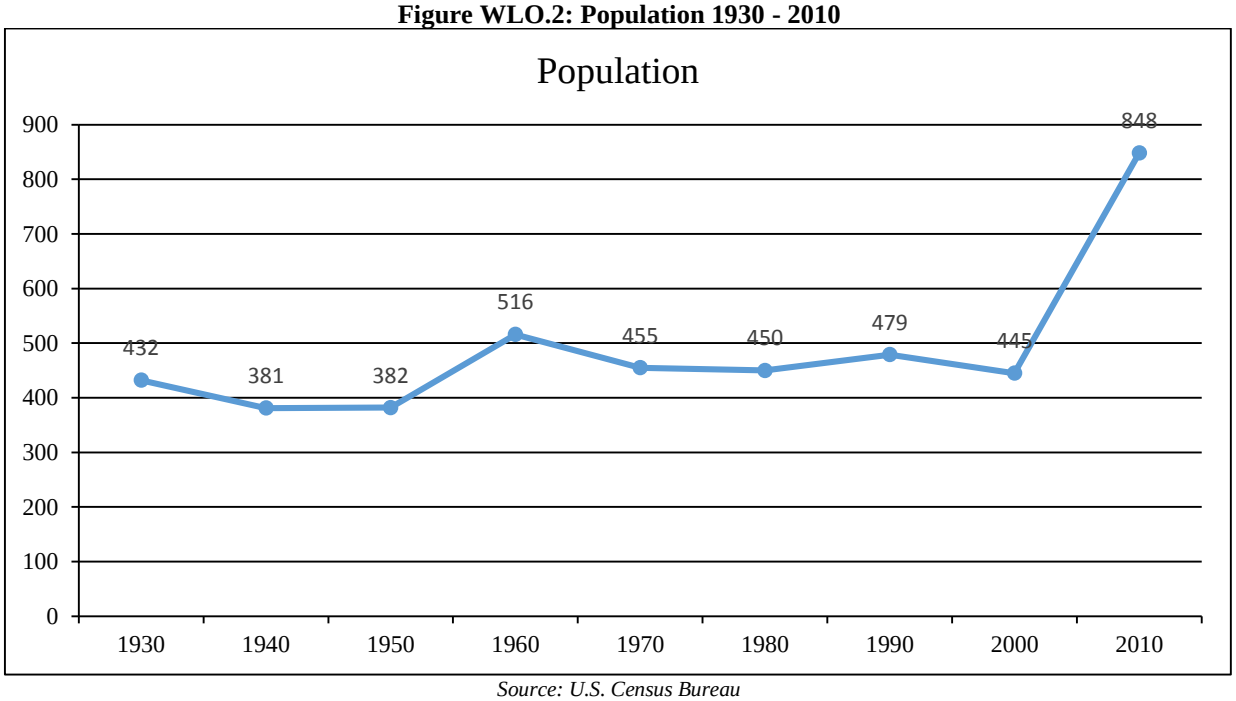
TRANSPORTATION

Waterloo's major transportation corridors include U.S. Highway 275 and Nebraska Highway 64. Highway 275 has an average of 18,585 vehicles per day with 1,670 of those being heavy commercial vehicles. Highway 64 has an average of 6,535 vehicles per day with 490 of those being heavy commercial vehicles. The Union Pacific Railroad has rail lines that travel through the center of the village. 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.

DEMOGRAPHICS

The following figure displays the historical population trend from 1930 to 2010. This figure indicates that the population of Waterloo has been holding steady for several years, but between 2000 and 2010, the village has experienced an increase in population. When population is increasing, the village 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 WLO.2: Population 1930 - 2010



Source: U.S. Census Bureau

The following table indicates the Waterloo has a higher percentage of children under the age of 5 than the rest of the county. 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 WLO.4: Population by Age

Age	Waterloo	Douglas County	State of Nebraska
<5	12.7%	7.7%	7.2%
5-64	78.3%	81.5%	79.2%
>64	9.0%	10.8%	13.6%
Median	29.9	33.7	36.2

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

The following table indicates that Waterloo's median household income is similar to the county's median household income, however, the per capita income is significantly lower. Median rent is also higher when compared to the county and state. 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.

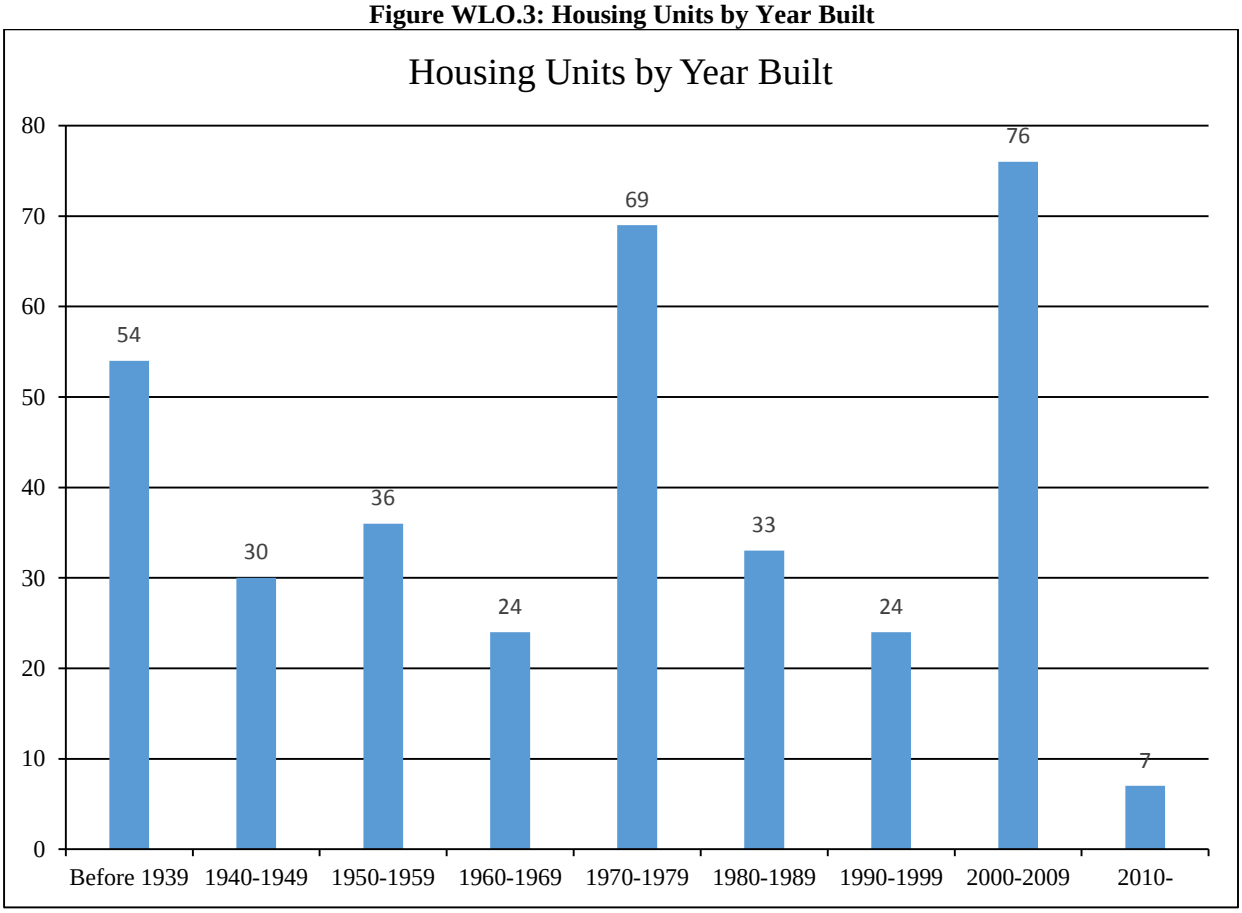
Table WLO.5: Housing and Income

	Waterloo	Douglas County	State of Nebraska
Median Household Income	$52,222	$53,325	$51,672
Per Capita Income	$20,163	$29,180	$26,899
Median Home Value	$125,400	$143,000	$128,000
Median Rent	$1,057	$790	$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 (60.3 percent) in Waterloo was built prior to 1980. According to 2009-2013 ACS 5-year estimates, the community has 353 housing units with 94.1 percent of those units occupied. There are no mobile home parks in the community. 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.

Figure WLO.3: Housing Units by Year Built



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

Table WLO.6: Housing Units

Jurisdiction	Total Housing Units					Occupied Housing Units			
	Occupied		Vacant			Owner		Renter	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
Waterloo	332	94.1%	21	5.9%		193	58.1%	139	41.9%
Douglas County	204,226	92.3%	17,085	7.7%		128,058	62.7%	76,168	37.3%

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

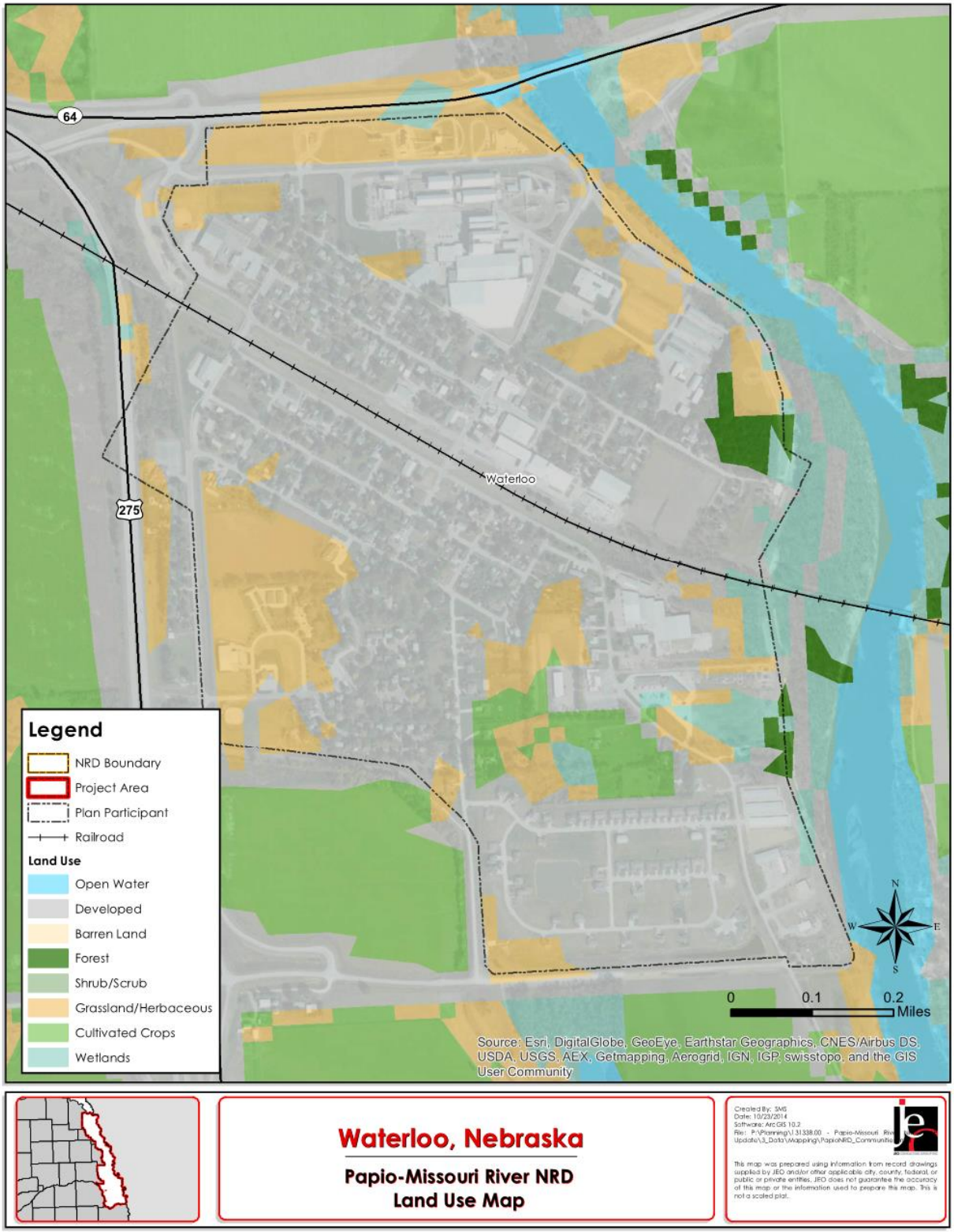
MAJOR EMPLOYERS

A major employer in Waterloo is Syngenta. A large percentage of residents also commute to Omaha, Fremont, and Valley.

FUTURE DEVELOPMENT TRENDS

In the last five years, Waterloo has experienced some residential and commercial development. The village annexed a subdivision that is now approximately 75 to 85 percent complete. This subdivision will continue to develop in the next five years. There is also a shooting range and dance hall planned to be built within the next few years.

Figure WLO.4: Developed Areas



PARCEL IMPROVEMENTS AND VALUATION

The planning team requested GIS parcel data from the County Assessor. 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 WLO.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
383	$57,197,000	$149,339	6	$1,229,300

Source: Douglas 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 2 chemical storage sites in Waterloo, and both of these house materials that are categorized as hazardous. There are no critical facilities or vulnerable populations located near these fixed sites.

Table WLO.8: Chemical Storage Fixed Sites

Facility	Address	Hazardous Material
Monke Bros Fertilizer Co	101 N. Front St, Waterloo	Paraquat Dichloride, Phosfume 2
Syngenta Seeds Inc	101 J C Robinson Blvd, Waterloo	Battery Electrolyte

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 Waterloo.

Table WLO.9: National Historic Registry

Site Name	Date Listed	In Floodplain?
J. C. Robinson House	11/28/1980	Yes

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 WLO.10: List of Critical Facilities in Waterloo

CF Number	Type	Name	Address	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Fire Station	Waterloo Fire Department	405 7th Street	N	Y	N
2	Wastewater Facility	Waterloo Sewage Plant	River Road Drive & Sewer Treatment Plant Rd.	N	Y	N
3	Municipal Building/Police Department	Village Office and Waterloo Police Department	509 S. Front Street	N	N	N
4	Municipal Building	Village Maintenance	402 N. Front Street	N	N	N

Figure WLO.5: Critical Facilities

HISTORICAL OCCURRENCES

The NCDC Storm Events Database reported 12 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 Douglas County's participant section.

Table WLO.11: NCDC Severe Weather Events

Date	Hazard	Magnitude	Deaths	Injuries	Property Damage
5/30/2008	Flash Flood		0	0	$0
6/4/2008	Hail	1.25 in.	0	0	$0
6/15/2008	Thunderstorm Wind	50 kts. EG	0	0	$0
6/24/2008	Heavy Rain		0	0	$0
6/27/2008	Thunderstorm Wind	70 kts. EG	0	0	$0
3/10/2010	Flood	(Ice Jam)	0	0	$0
6/18/2010	Hail	1.00 in.	0	0	$0
8/31/2010	Hail	1.75 in.	0	0	$0
5/30/2013	Hail	0.88 in.	0	0	$0
5/11/2014	Tornado	EF1	0	0	$0
6/16/2014	Hail	1.25 in.	0	0	$0
1/27/2015	Flood		0	0	$0
		Total	**0**	**0**	**$0**

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

RISK ASSESSMENT

HAZARD IDENTIFICATION

The following table is a localized risk assessment of hazards identified specifically for Waterloo. 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 WLO.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	-	None
Chemical Spills (Transportation)	No	-	None
Civil Disorder	No	-	None

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	LOCAL LOSSES	SPECIFIC CONCERNS IDENTIFIED
Dam Failure	No	-	None
Drought	Yes	-	None
Earthquakes	No	-	None
Extreme Heat	Yes	-	None
Flooding*	Yes	-	Poor drainage; property and infrastructure damage
Grass/Wildfires	Yes	-	None
Hail	Yes	-	None
High Winds	Yes	-	Power outages; property damage
Landslides	Yes	-	None
Levee Failure*	No	-	Loss of life; property damage
Radiological Incident (Fixed Site)	No	-	None
Radiological Incident (Transportation)	No	-	None
Severe Thunderstorms	Yes	-	Property damage; flash flooding
Severe Winter Storms*	Yes	-	Economic impacts; limited resources
Terrorism	No	-	None
Tornados*	Yes	-	Loss of life; economic impacts; property damage
Urban Fire*	Yes	-	Low volume and insufficient access to water; property damage

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

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

Levee Failure

The Village of Waterloo owns a ring levee that encompasses the entire corporate limits as shown in the following map. The levee is FEMA certified and provides 100 year flood protection. If the Elkhorn River were to experience sustained high water levels, it could potentially compromise the integrity of the levee. If the levee were to fail, the entire village would likely be inundated.

Implemented mitigation projects:

- Regular levee maintenance
- Local emergency operations plan is in place

Figure WLO.6: Leveed Areas for Waterloo

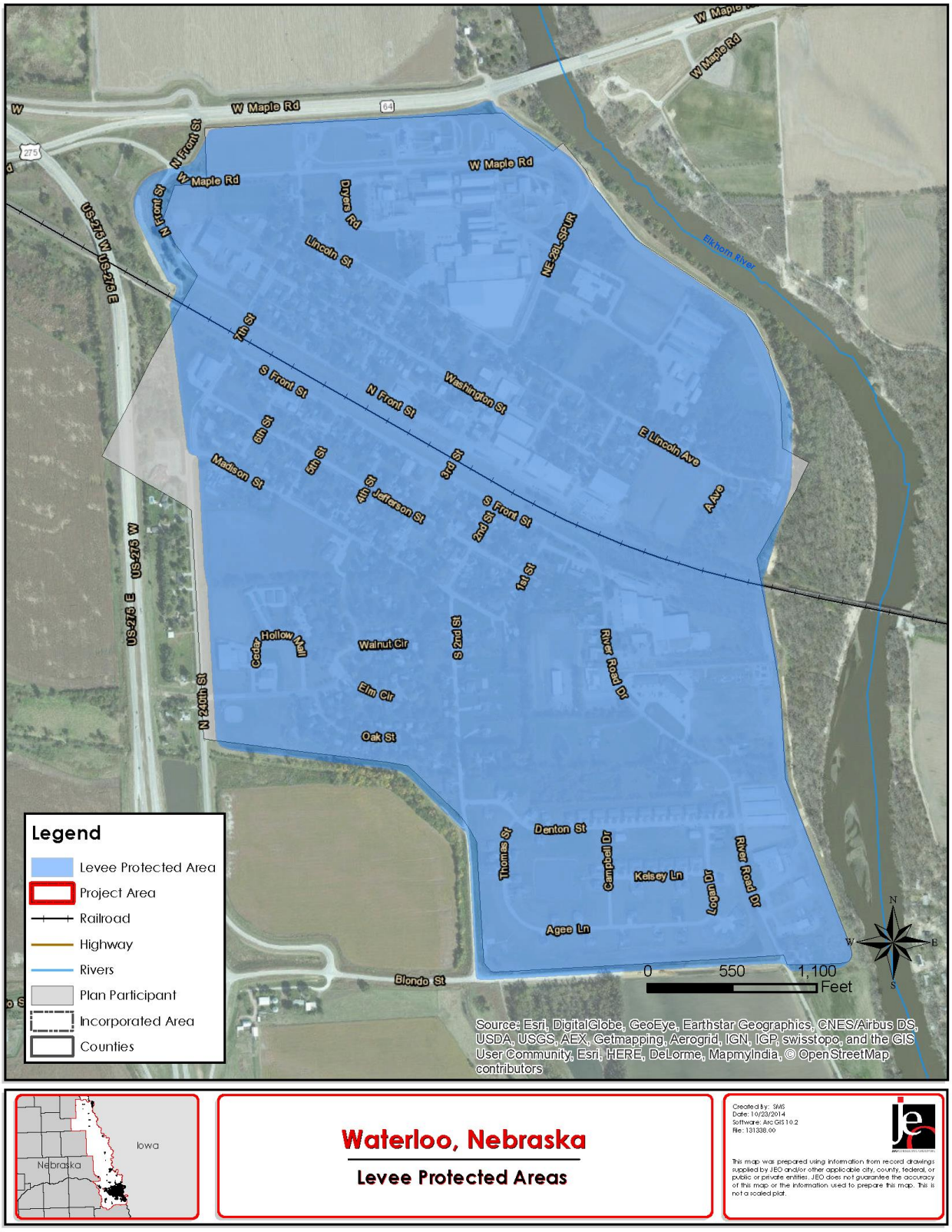


Figure WLO.7: Waterloo 1% Annual Chance Floodplain

Flooding

The local planning team identified flooding a hazard of top concern because Waterloo is very flat and has little, if any, interior drainage. If the Elkhorn River is high, the village has no place to put the water. The entire village has poor stormwater drainage and according to the local planning team, heavy rains tend to flood the streets. Waterloo has 21 NFIP policies in-force for $4,601,100. There are no repetitive flood loss properties in the Village of Waterloo.

Table WLO.13: Improvements in the Floodplain

Value of Improvements in Floodplain	Number of Improvements Affected	Number of Improvements in Community	Percentage of Affected Improvements
$1,229,300	6	383	0.8%

Source: Douglas County Assessor

Implemented mitigation projects:

- Member of the NFIP

Identified mitigation projects:

- Improve interior drainage throughout the village

Severe Winter Storms

The main concern regarding this hazard is the limited resources for snow removal, and limited places to put piles of snow. In 2012, there was a significant snow storm that led to financial impacts for the village due to hiring outside contractors. Severe winter storms can also cause power outages and hazardous driving conditions with low visibilities and slick roads. Streets throughout the village are designated snow routes.

Implemented mitigation projects:

- Designated snow routes

Identified mitigation projects:

- Obtain permanent back-up power generator for Village Office and Maintenance
- Provide weather radios in all critical facilities

Tornados and High Winds

Tornados and high wind events happen frequently in Nebraska and the rest of the planning area. In 2014, an EF1 tornado occurred near Waterloo, however there were no reported damages or injuries. The concern of the local planning team regarding this hazard is the lack of access to shelter for residents. Very few houses in the village have basements, and there are no safe rooms in the community. Currently there are no educational outreach activities regarding this hazard done in the village.

Implemented mitigation projects:

- Permanent back-up power generator installed at library
-
- Local emergency operations plan is in place
- Municipal records have surge protectors
- Thirty percent of power lines are buried

Identified mitigation projects:

- Construct a tornado shelter in vulnerable areas
- Obtain permanent back-up power generator for Village Office and Maintenance

Urban Fire
The local planning team identified that there is insufficient access to water to combat urban fires. There are sprinkler systems in the fire department and the school. The local planning team identified that Waterloo Fire Department had approximately 430 calls (including rural calls) in the past year. The fire department does have a fire prevention education program.

Implemented mitigation projects:

- Mutual Aid Agreement with Valley Rural Fire District
- Fire prevention education program for residents

GOVERNANCE

A community's governance indicates the number of boards or offices that may be available to help implement hazard mitigation actions. The village is governed by a five member village board led by a chairperson. The village has a number of offices or departments that may be involved in implementing hazard mitigation initiatives.

- Clerk/Treasurer
- Maintenance Department
- Utilities Department
- Police Department
- Building Department
- Library
- 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 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 WLO.14: 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	No
	Emergency Operational Plan	Yes
	Natural Resources Protection Plan	No
	Open Space Preservation Plan	No
	Floodplain Management Plan	Yes
	Storm Water Management Plan	No
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes
	National Flood Insurance Program	Yes

Survey Components/Subcomponents		Existing (Yes/No)
	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	No
	Chief Building Official	Yes
	Civil Engineering	Yes
	Staff Who Can Assess Community's Vulnerability to Hazards	No
	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.	No
	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
	Natural Disaster or Safety related school programs	Yes
	StormReady Certification	No
	Firewise Communities Certification	No
	Public-private partnership initiatives addressing disaster-related issues	No
	Other (if any)	

PLANS, DOCUMENTS, AND INFORMATION USED

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

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

Source/Report/Regulation	Date Completed
Hazard Mitigation Plan	2011
Local Emergency Operations Plan (LEOP)	2015

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.

Waterloo 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 Waterloo, which was last updated in 2015, is an annex of Douglas 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.

Ongoing or New Mitigation Actions

Description	**Maintain Levee**
Analysis	Provide regular maintenance to levee to ensure proper flood protection
Goal/Objective	Goal 3/ Objective 3.6
Hazard(s) Addressed	Flood
Estimated Cost	Varies
Funding	Included in village budget
Timeline	Ongoing
Priority	High
Lead Agency	Village Maintenance
Status	Ongoing regular maintenance

Description	**Improve Interior Drainage**
Analysis	Improve drainage infrastructure within the village, including at Cedar Hollow Park and other areas throughout the village
Goal/Objective	Goal 3/ Objective 3.5
Hazard(s) Addressed	Flood
Estimated Cost	$15,000 minimum
Funding	80/20 Grant with the Papio-Missouri River NRD
Timeline	1 year
Priority	Medium
Lead Agency	Contracted with oversight and reporting by Village Clerk to Board
Status	Cedar Park is currently undergoing drainage improvements.

Description	**Maintain Water Supply**
Analysis	Maintain water supply
Goal/Objective	Goal 3/ Objective 3.4
Hazard(s) Addressed	All
Estimated Cost	Unknown
Funding	Included in village budget
Timeline	Ongoing
Priority	High
Lead Agency	Contracted to People Service

Description	**Maintain Water Supply**
Status	Ongoing

Description	**Emergency Power**
Analysis	Install back-up emergency power generation at critical facilities
Goal/Objective	Goal 2/ Objective 2.2
Hazard(s) Addressed	All
Estimated Cost	$50,000+/generator
Funding	Tax dollars, Possible grant funding
Timeline	2-5 years
Priority	High
Lead Agency	Village Clerk
Status	Library has generator. Village Office and Maintenance are prioritized next

Description	**Maintain NFIP Standing**
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	Staff time
Funding	Tax dollars
Timeline	Ongoing
Priority	Medium
Lead Agency	Village Clerk/Floodplain Administrator
Status	Ongoing

Description	**Tornado Shelters**
Analysis	Construct store shelters in areas of need
Goal/Objective	Goal 1/ Objective 1.2
Hazard(s) Addressed	Thunderstorm, High Wind, Hail, Tornado
Estimated Cost	$200-$300/sqft stand alone; $150-$200/sqft addition/retrofit
Funding	Grants and/or tax dollars
Timeline	5+ years
Priority	Medium
Lead Agency	Village Board/ Village Clerk
Status	Not started

Description	**Early Alert System**
Analysis	Install early alert system to warn residents of potential hazards
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	Unknown
Funding	Provided by county
Timeline	1 year
Priority	High
Lead Agency	Village Clerk
Status	Near completion. Working with Douglas County, which has a system for residents to use

Description	**Improve Disaster Recovery Time and Effectiveness**
Analysis	Improve disaster recovery time and effectiveness
Goal/Objective	Goal 3/ Objective 3.3

Description	Improve Disaster Recovery Time and Effectiveness
Hazard(s) Addressed	All
Estimated Cost	Unknown
Funding	Tax Dollars
Timeline	Ongoing
Priority	High
Lead Agency	Emergency Manager (also serves as Chief of Fire Department), Other Departments
Status	Working with Village Board to perform table top exercise

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 3.4
Hazard(s) Addressed	All hazards
Estimated Cost	$50,000-$75,000
Funding	Local taxes
Timeline	3-5 years
Priority	Medium
Lead Agency	Maintenance
Status	A newer, bigger truck is needed for the village.

Description	Drainage Ditches
Analysis	Deepen drainage ditches and clean out culverts.
Goal/Objective	Goal 3/ Objective 3.5
Hazard(s) Addressed	All hazards
Estimated Cost	$30,000
Funding	Local taxes, FMA, PDM
Timeline	2-4 years
Priority	Low
Lead Agency	Maintenance
Status	Not yet started

Removed Mitigation Actions

None

PARTICIPANT SECTION
FOR THE

MILLARD 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 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 Millard Public 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 MPS.1 provides the list of participating members that comprised the Millard 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 MPS.1: The Millard Public Schools Local Planning Team

Name	Title	Department / Jurisdiction
Kenneth Fossen	Associate Superintendent	Millard Public Schools
Bill Jelkin	Director of Student Services	Millard Public Schools
Chad Hayes	Student Services Facilitator	Millard Public Schools
Dr. Darin Kelberlau	Director of Assessments, Research and Eval.	Millard Public Schools
Kevin Chick	Executive Director of Human Resources	Millard Public Schools
Terri Connell	Coordinator of Grants, Community Service and Mentoring	Millard 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 MPS.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
September 15, 2015	Post Project Flyer	http://www.mpsomaha.org/
August 17, 2015	Passed Resolution of Participation	DSAC, MPS
December 22, 2015 – January 30, 2016	Participant Section available for public comment and review	http://jeo.com/papiohmp/

LOCATION AND SERVICES

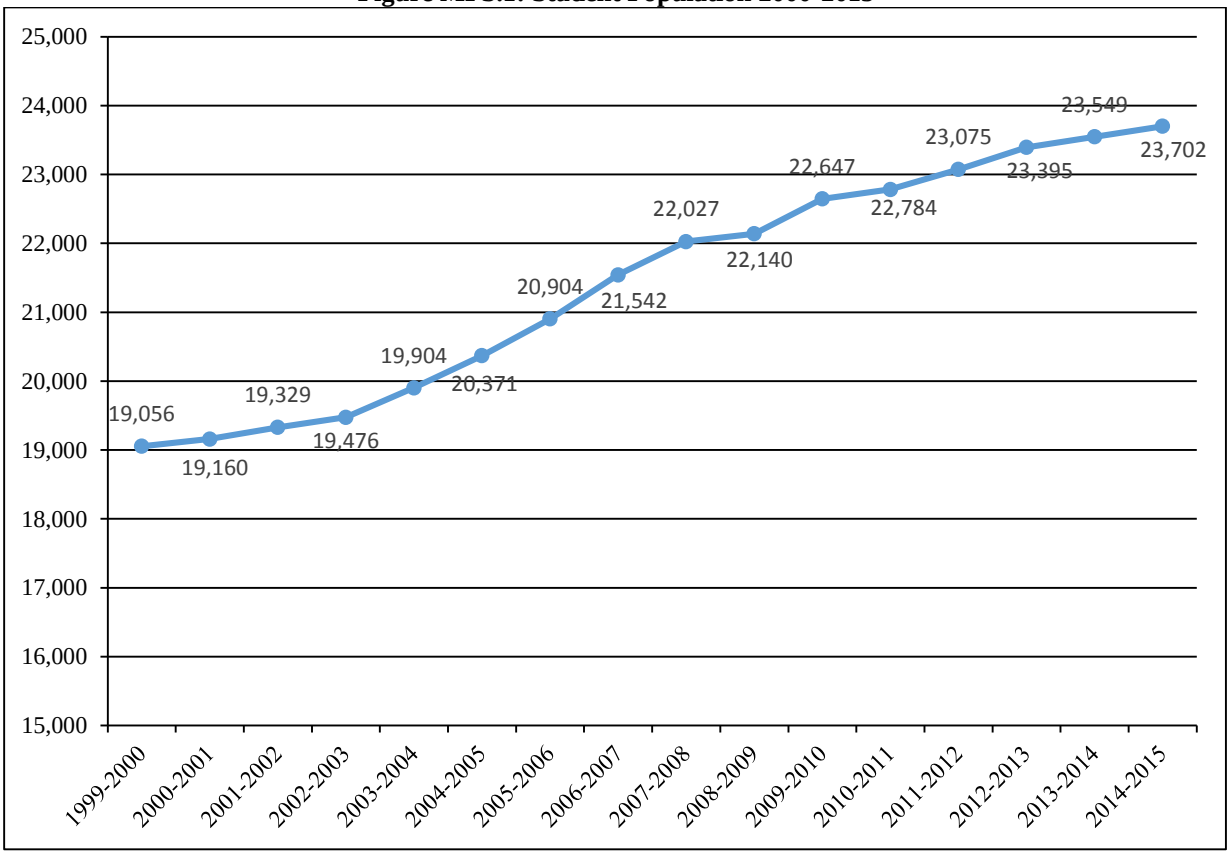
Millard Public Schools operates 36 schools with 25 elementary schools, 6 middle schools, 4 high schools, Don Stroh Administration Center, Support Services Center, and Ron Witt Support Services Center. The school district serves students living in western and southwestern Omaha, which includes portions of Douglas and Sarpy Counties.

Almost all Millard Public Schools buildings and grounds serve as meeting places for a variety of groups including churches, after-school clubs, scout activities, community college courses, and many sports practices and competitions.

DEMOGRAPHICS

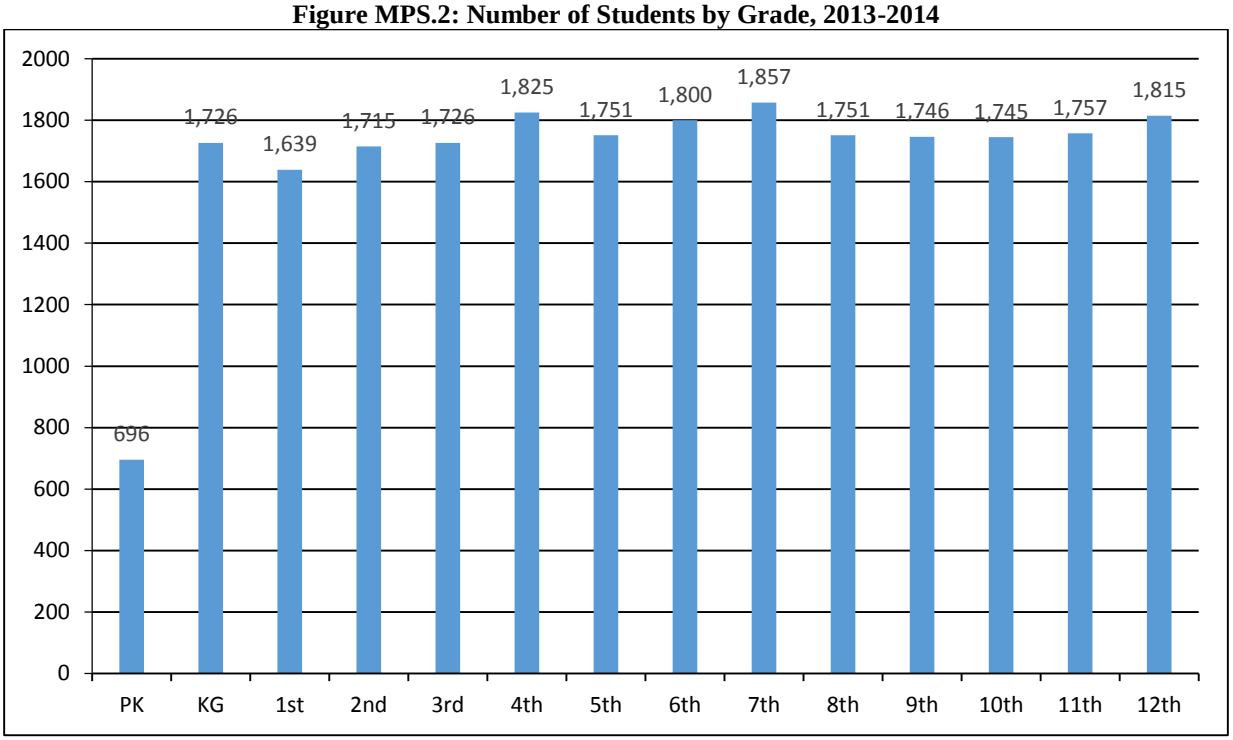
The following figure displays the historical student population trend starting with the 1999-2000 school year. It indicates that the student population has steadily increased since 1999. As of the 2014-2015 year, there were 23,702 students enrolled in Millard Public Schools. Millard Public Schools anticipates a slight short term increase in population with a flat long term population. Presently, the district employees 1,848 certified staff and 1,036 non-certified staff.

Figure MPS.1: Student Population 2000-2015



Source: Nebraska Department of Education

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



Source: Nebraska Department of Education

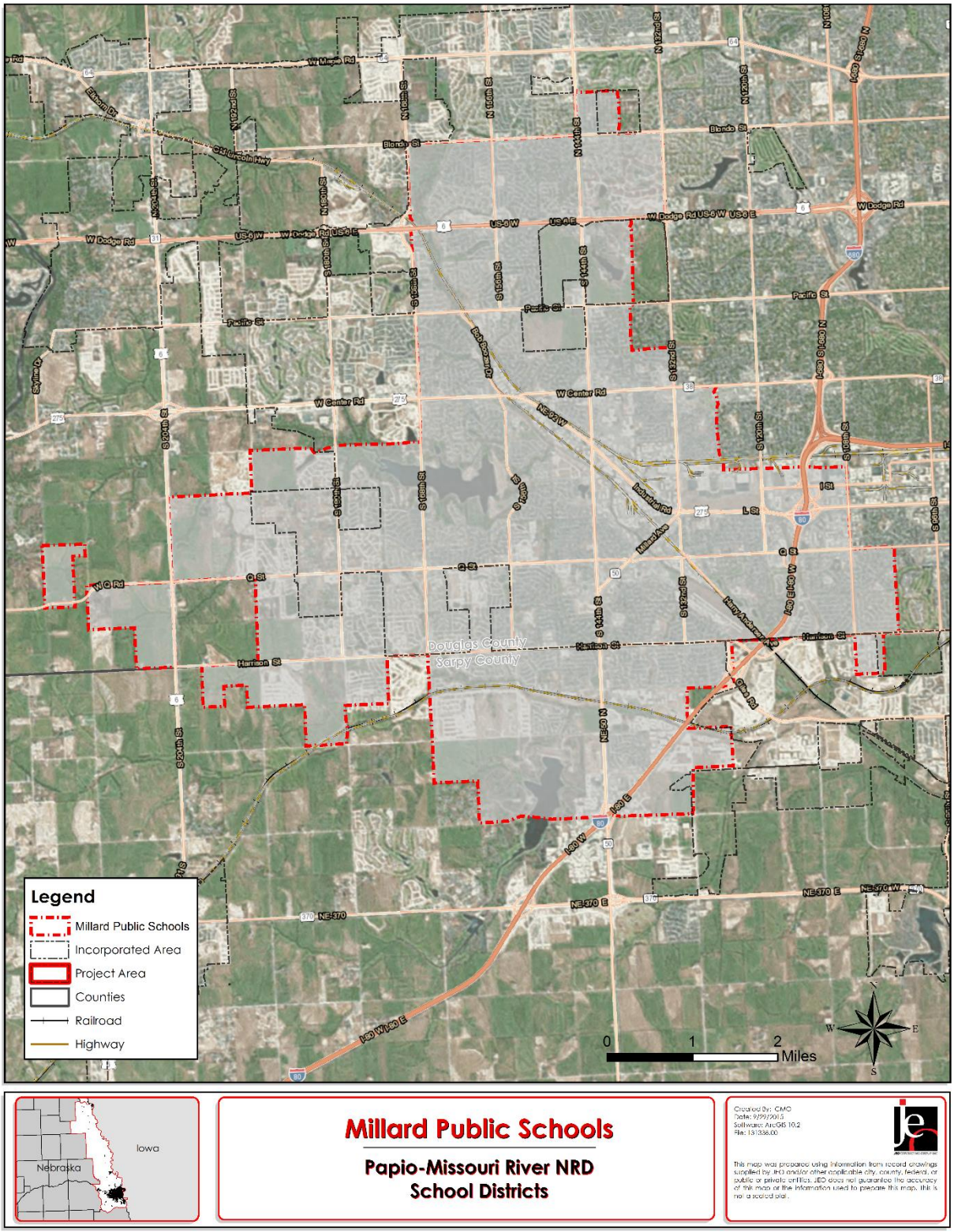
The figure above indicates that all of the grades except for pre-kindergarten have over 1,600 students enrolled. The highest population in is in the 7th grade with 1,857 students. According to the Nebraska Department of Education, nearly 19% of students receive either free or reduced priced meals at school. This is significantly lower than the state average at nearly 45%. Additionally, there are just one and half 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. Updated information from the 2014-15 school year will be made available October 14, 2015.

Table MPS.3: Student Statistics, 2013-2014

	Millard School District	State of Nebraska
Free/Reduced Priced Meals	18.70%	44.93%
School Mobility Rate	6.87%	12.10%
English Language Learners	1.56%	6.04%
Special Education Students	13.93%	15.74%

Source: Nebraska Department of Education

Figure MPS.3: School District Map



FUTURE DEVELOPMENT TRENDS

MPS does not anticipate additional development or additions over the next five years at this time. However, a $79.9 million bond issue approved by voters in 2013 allowed for updates to safety and security for most of the school facilities in the district and included many remodels and additions. Renovations included replacing roofs, HVAC systems, lighting, electrical, and mechanical updates. Capital projects also included drainage and erosion improvements, fire detection, and code compliance. The district was able to construct secure entries with buzzer systems in all 35 schools and converted open concept classrooms to individual classrooms with secure interior doors. Each building meets existing building codes and inspections at the time of construction or remodeling.

CRITICAL FACILITIES

The school district operates 39 facilities, 35 of which are schools. These facilities are listed below, along with information indicating the 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, no Millard Public Schools facilities have a FEMA approved safe room nor are any of the facilities located in the floodplain. Staff have identified in each building designated areas for shelter for students and staff in the event of a tornado.

Table MPS.4: Critical Facilities

CF #	Name	Address	Grades	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	Ackerman Elementary	5110 S. 156th St.	PK-5	443	46	N	N	Y	N
2	Aldrich Elementary	506 N. 162 Ave.	PK-5	489	42	N	N	Y	N
3	Beadle Middle School	18201 Jefferson St.	6-8	1,141	114	N	N	Y	N
4	Black Elk Elementary	6708 S. 161 Ave.	PK-5	460	46	N	N	Y	N
5	Bryan Elementary	5010 S. 144th St.	PK-5	423	48	N	N	N	N
6	Cody Elementary	3320 S. 127th St.	PK-5	348	63	N	N	N	N
7	Cottonwood Elementary	615 Piedmont Dr.	PK-5	309	33	N	N	N	N
8	Don Stroh Admin Center	5606 S. 147th St.	N/A	N/A	67	N	N	N	N
9	Ezra Millard Elementary	1411 Blondo St.	PK-5	418	45	N	N	N	N

CF #	Name	Address	Grades	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)
10	Grace Abbott Elementary	1313 N. 156th St.	PK-5	417	41	N	N	Y	N
11	Harry Andersen Middle School	15404 Adams St.	6-8	908	103	N	N	Y	N
12	Harvey Oaks Elementary	15228 Shirley St.	PK-5	263	37	N	N	N	N
13	Hitchcock Elementary	5809 S. 104th St.	PK-5	296	47	N	N	Y	N
14	Holling Heights Elementary	6565 S. 136th St.	PK-5	418	55	N	N	N	N
15	Horizon High School	5300 George B. Lake Parkway	9-12	Varies	137	N	N	Y	N
16	J Sterling Morton Elementary	1805 S. 160th St.	PK-5	296	37	N	N	N	N
17	Kiewit Middle School	15650 Howard St.	6-8	938	98	N	N	Y	N
18	Millard Central Middle School	12801 L St.	6-8	801	108	N	N	Y	N
19	Millard North High School	1010 S. 144th St.	9-12	2,521	233	Y	N	Y	N
20	Millard North Middle School	2828 S. 139th Plaza	6-8	775	96	N	N	Y	N
21	Millard South High School	14905 Q St.	9-12	2,147	221	Y	N	Y	N
22	Millard West High School	5710 S. 176 Ave.	9-12	2,448	237	Y	N	Y	N
23	Montclair Elementary	2405 S. 138th St.	PK-5	643	75	N	N	N	N
24	Neihardt Elementary	15130 Drexel	PK-5	631	58	N	N	N	N

CF #	Name	Address	Grades	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)
25	Norman Roackwell Elementary	6370 S. 140 Ave.	PK-5	325	72	N	N	N	N
26	Norris Elementary	12424 Weir St.	PK-5	428	48	N	N	N	N
27	Reagan Elementary	4440 S. 198 Ave.	PK-5	544	53	N	N	Y	N
28	Reeder Elementary	19202 Chandler St.	PK-5	629	58	N	N	Y	N
29	Rohwer Elementary	17701 F St.	PK-5	613	60	N	N	Y	N
30	Ron Witt Support Services Center	13737 Industrial Rd.	N/A	N/A	81	N	N	Y	N
31	Russell Middle School	5304 S. 172nd St.	6-8	877	97	N	N	Y	N
32	Sandoz Elementary	5959 Oak Hills Dr.	PK-5	381	55	N	N	N	N
33	Upchurch Elementary	8686 S. 165th St.	PK-5	641	56	N	N	Y	N
34	Walt Disney Elementary	5717 S. 112th St.	PK-5	309	47	N	N	N	N
35	Wheeler Elementary	6707 S. 178th St.	PK-5	596	72	N	N	N	N
36	Willa Cather Elementary	3030 S. 139th Plaza	PK-5	413	41	N	N	N	N
37	Willowdale Elementary	169001 P St.	PK-5	413	45	N	N	Y	N
38	Young Adult Program	12820 N Street	12th grade	35	19	N	N	N	N
39	Support Services Center	13906 F. St	NA	NA	57	N	N	N	N

Figure MPS.4: Critical Facilities

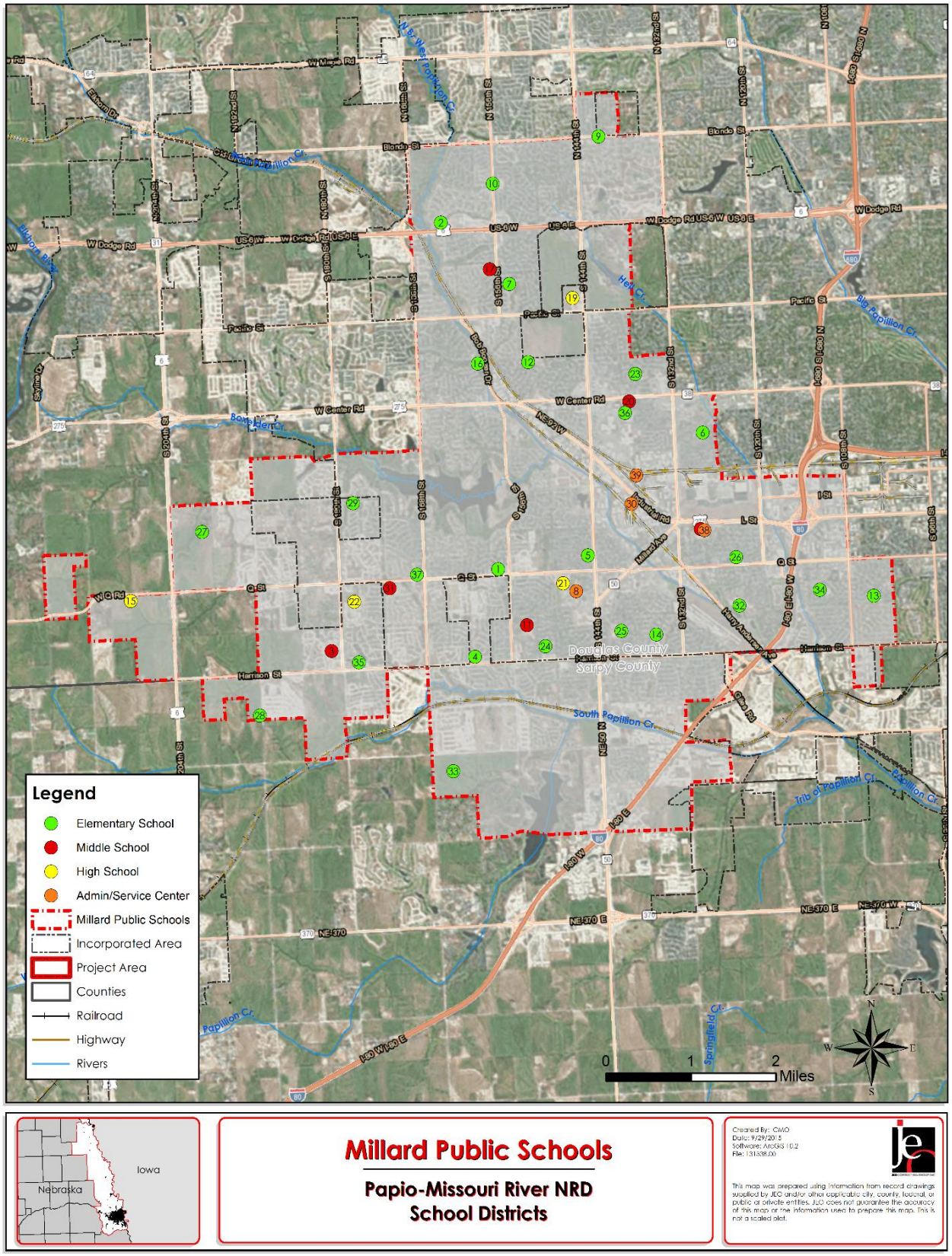
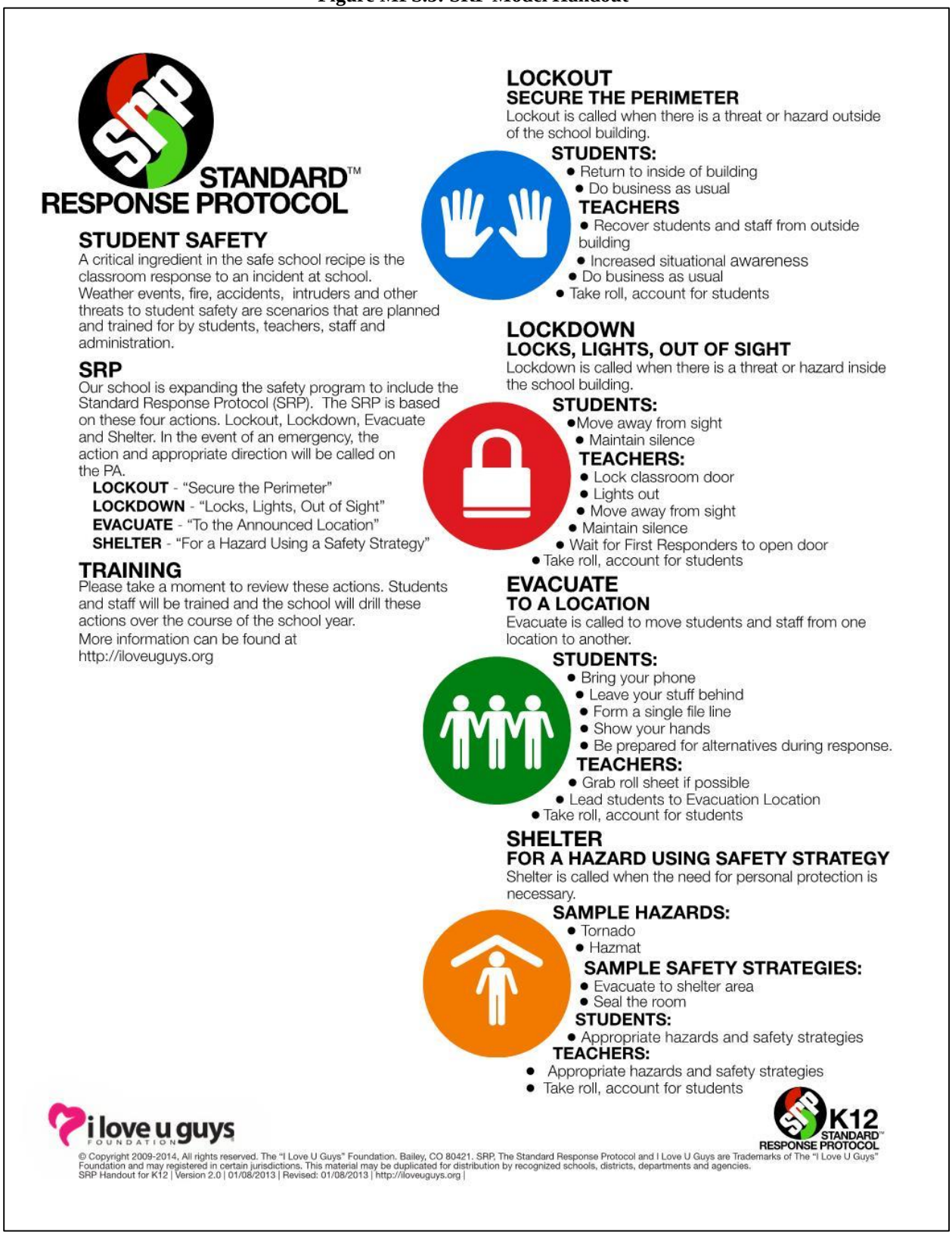


Figure MPS.5: SRP Model Handout



Source: The i love u guys Foundation (iloveuguys.org)

SCHOOL DRILLS AND STAFF TRAINING

MPS is proactive in its attempt to improve the safety of students and staff to many hazards. Fire drills are performed once a month and tornado drills twice a year in all MPS buildings. Other emergency drills include lockdown, lockouts, and bus safety and evacuations. MPS puts great emphasis on preparedness; policies and procedures are in place and implemented in all buildings. Parents and guardians are continually updated through school correspondence and social media, including:

- Millard Public School website
- Millard Phone App
- Emails
- Robo-Calls (for emergencies only)
- Twitter
- Facebook
- Infinite Campus Messenger

Furthermore, Millard Public Schools works with the community to educate students and staff on a variety of important issues. This varies by school and grade level and is not limited to: visiting weather personnel from local television stations, Fire Week activities with the local Fire Stations, and Police Department visits and safety demonstrations.

All staff members at each building attend a Standard Response Protocol (SRP) training on a yearly basis. Principals are trained at the district level and then train staff at their school. This training takes place twice a year. They are trained on: lockdown, lockout, evacuation, and shelter procedures. These procedures can be found in each building and are included in the building emergency handbooks. All staff members are required to carry SRP cards that outline the emergency procedures and flyers are posted in each building with the required procedures. Additionally, staff are trained annually in First Aid, CPR, AEDs, and safe restraint.

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 Omaha.

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 MPS.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)	Yes	Student and staff safety
Chemical Spills (Transportation)*	Yes	Student and staff safety

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	SPECIFIC CONCERNS IDENTIFIED
Civil Disorder	Yes	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	Yes	None
Levee Failure	Yes	None
Radiological Incident (Fixed Site)	No	None
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*	Yes	Student and staff safety; property damages; power outages
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.

Chemical Spills (Transportation)

The local planning team identified chemical transportation spills as a top concern for the district. Although there have not been any reported significant spills near the MPS buildings, two rail lines travel through the Millard School district, which are the Union Pacific Railroad and the BNSF Railroad. The local planning team reported that buildings have not been evacuated nor has a school been on lockdown as a result of a spill. The vulnerability of students and staff to chemicals spills along rail lines and highways are of concern. The district reports that each facility has internal portable radios for communication. In the fall of 2015, antennas were installed throughout the district, and new radios have been purchased, which will allow each school to communicate between buildings.

Procedures are in place if a school building needs to evacuate in the event of a spill or other hazard. If evacuation takes place, students and staff are trained to go to a nearby designated building off school grounds (e.g. church) for safety and to await further instructions. In the event of a shelter-in-place during a chemical spill, custodians are trained to turn off air-intake vents to reduce outside air from entering the buildings.

Implemented mitigation projects:

- Portable radios allow for internal building communication
- New antennas installed allow staff to communicate between buildings during a hazardous event

Identified mitigation projects:

- Portable radios or other emergency communication devices replaced or upgraded as needed

Hail

There have been many instances of hail impacting the Millard School District, and hail was identified as a top concern by the local planning team. The size of hail can range from smaller than an inch to over 3 inches. Larger hail stones in combination with high winds can cause significant damages to infrastructure and trees. During the 2011 and 2012 school year, most of the buildings in the district experienced hail damage, which totaled almost $4 million with most of it covered by insurance. Damages included broken windows, skylights, roofs, and damaged HVAC systems. There were also brief power outages as a result of the high winds from this severe thunderstorm. Hazardous trees or tree limbs are identified by staff and removed as needed. If a larger needs to be a removed, a contractor is hired to safely remove the hazardous tree. Additionally, most of the newer schools do have hail guards on the HVAC systems.

Implemented mitigation projects:

- Roofs replaced on MPS buildings as needed
- Hazardous trees are removed as needed
- HVAC systems have hail guards at newer schools

Identified mitigation projects:

- Replace weather radios as needed

Severe Thunderstorms

Severe thunderstorms are a common occurrence in the area, which can cause significant impacts due to the combination of lightning, high winds, hail, and heavy rain. The local planning team identified this hazard as a top concern for the district. A line of severe thunderstorms on June 24, 2013 caused heavy tree damage across the Omaha metro area and over 50,000 customers lost power according to the Omaha Public Power District. Wind speeds were measured between 60 and 70 mph. Damaging winds from another severe thunderstorm occurred on May 11, 2014. The top wind gust reported at the Millard Airport was 72 mph. Winds of this magnitude can cause tree damage, roof damage, and power outages. The local planning team reported that many of the schools in the district have experienced lightning strikes, which caused minor damages to electrical lines and devices. Sporadic and short duration power outages have also occurred from high winds during a severe thunderstorms.

Implemented mitigation projects:

- Weather radios available in each building

Identified mitigation projects:

- Obtain back-up power generators for Administration Center, Support Services, and other schools in need

Severe Winter Storms

Due to previous occurrences, the local planning team identified severe winter storms as a hazard of top concern for the school district. 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 alone 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 heavy snow causes the snow to drift, which makes snow removal difficult. MPS received aid from FEMA for snow removal in January 2010. Each school is responsible for removing snow from sidewalks and salting. District ground crews plow large areas including parking lots and puts down sand. Contractors are hired to help remove snow, especially for larger snow events. The school district experiences significant issues when a winter storm drops more than 10 inches of snow.

Implemented mitigation projects:

- Weather radios available in each building

Identified mitigation projects:

- Obtain back-up power generators for Administration Center, Support Services, and other schools in need
- Portable radios or other emergency communication devices replaced or upgraded as needed
- Replace weather radios as needed

Tornados and High Winds

Tornados and high winds were also identified as hazards of top concern for the school district. In the middle of the night on June 8, 2008, two tornados caused damage in southwest Omaha. The first tornado damaged or completely removed roofs to homes and impacted the Walmart, Sam's Club, and Home Depot shopping area on L Street. The path length for this tornado was 16 miles. The second tornado was shorter at nearly 3 miles and crossed the path of the first tornado. It caused similar damages to homes and many trees were snapped or blown over. Both tornados were rated EF-2. The Omaha Public Power District also reported nearly 14,000 customers lost power due to the storm. The local planning team reported that all of the schools have experienced wind damage within the last five years.

Implemented mitigation projects:

- Tornado drills are performed twice per year
- Weather radios available in each building

Identified mitigation projects:

- Construct or retrofit school buildings with safe rooms
- Obtain back-up power generators for Administration Center, Support Services, and other schools in need
- Portable radios or other emergency communication devices replaced or upgraded as needed
- Replace weather radios as needed

ADMINISTRATION/CAPABILITY ASSESSMENT

The school district has a superintendent, associate superintendent, 35 principals, 26 assistant principals, and several 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:

- Business Services
- Communications
- Food Services
- Human Resources
- Student Services
- Technology
- Transportation
- Educational Services
- Public Relations

The following district offices and staff would be involved in implementing any hazard mitigation projects: Student Services, General Administration, Project Managers, Business office, Ground and Maintenance, and Custodial Staff. Millard Public Schools has the authority to levy taxes for specific purposes. The total amount is limited by statutes and some require the vote of the community.

PLAN INTEGRATION

Each building in the school district has its own Emergency Management Procedures Handbook. It is maintained, reviewed, and updated each school year. The plan establishes the chain of command, roles and responsibilities, emergency communications, and procedures for response to hazards and emergencies. The handbook also provides checklists for different types of incidents and hazards, including but not limited to:

- Active Shooter
- Biological and Chemical Hazards
- Bomb Threat Procedures
- Catastrophic Event – Mass Casualty
- Earthquake
- Evacuation
- Power Outage
- Severe Weather/Extreme Temperatures

The district also maintains a Safety Curriculum Manual, which is broken down by class:

- Science Safety Manual
- Science Lab Safety Contracts
- Industrial Technology Safety Procedures Manual
- Family and Consumer Science Safety Procedures Manual
- K-12 Art Safety and Procedures Manual 2010
- Physical Education Safety Procedures Manual

The above handbook and manual indicates the efforts by the Millard Public School District to provide guidance in ways to reduce the risks to staff and students prior to and during hazard events.

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	Taxes, Bonds, HMGP, PDM
Timeline	5+ years
Priority	High
Lead Agency	Business Services
Status	Not started. Currently all schools need safe rooms.

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	$100,000/generator
Funding	Taxes, Bonds, HMGP, PDM
Timeline	2-5 years
Priority	Medium
Lead Agency	Business Services
Status	Generators needed for DSAC and SSC.

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	Taxes, Bonds, HMGP, PDM
Timeline	Ongoing
Priority	Medium
Lead Agency	Business Services
Status	Weather radios available in all buildings but replacements may be needed.

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	Taxes, Bonds, HMGP, PDM
Timeline	Ongoing
Priority	Medium
Lead Agency	Business Services
Status	Portable radios are available in all buildings. Replacements or upgrades may be needed in the future.

PARTICIPANT SECTION
FOR THE

OMAHA 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 and the Omaha Public School District (OPS) 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 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 OPS.1 provides the list of participating members that comprised the OPS 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 OPS.1: The OPS Local Planning Team

Name	Title	Department / Jurisdiction
Connie Telfeyan	Risk and Safety Manager	Risk and Safety Management
Jeremy Madson	Construction Manager	Buildings and Grounds
Shelley Bengtson	Environmental Specialist	Environmental Department
Merle J Stebbins	Maintenance Supervisor	Maintenance Department
Mark Rickley	Maintenance Manager	Maintenance Department
Roddie Miller	District Safety Administrator	School Safety Department
Kim Thompson	Supervisor of Schoolhouse Planning	Schoolhouse Planning Department
Melvin Miller	Tractor Operator	Buildings and Grounds
Fred R. Clough	Fire Safety Specialist	Risk and Safety Management
Mark Warneke	Director Buildings and Grounds	Buildings and Grounds
Jon Lucas	Supervisor of Operations	Buildings and Grounds

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 OPS.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
August 3, 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/

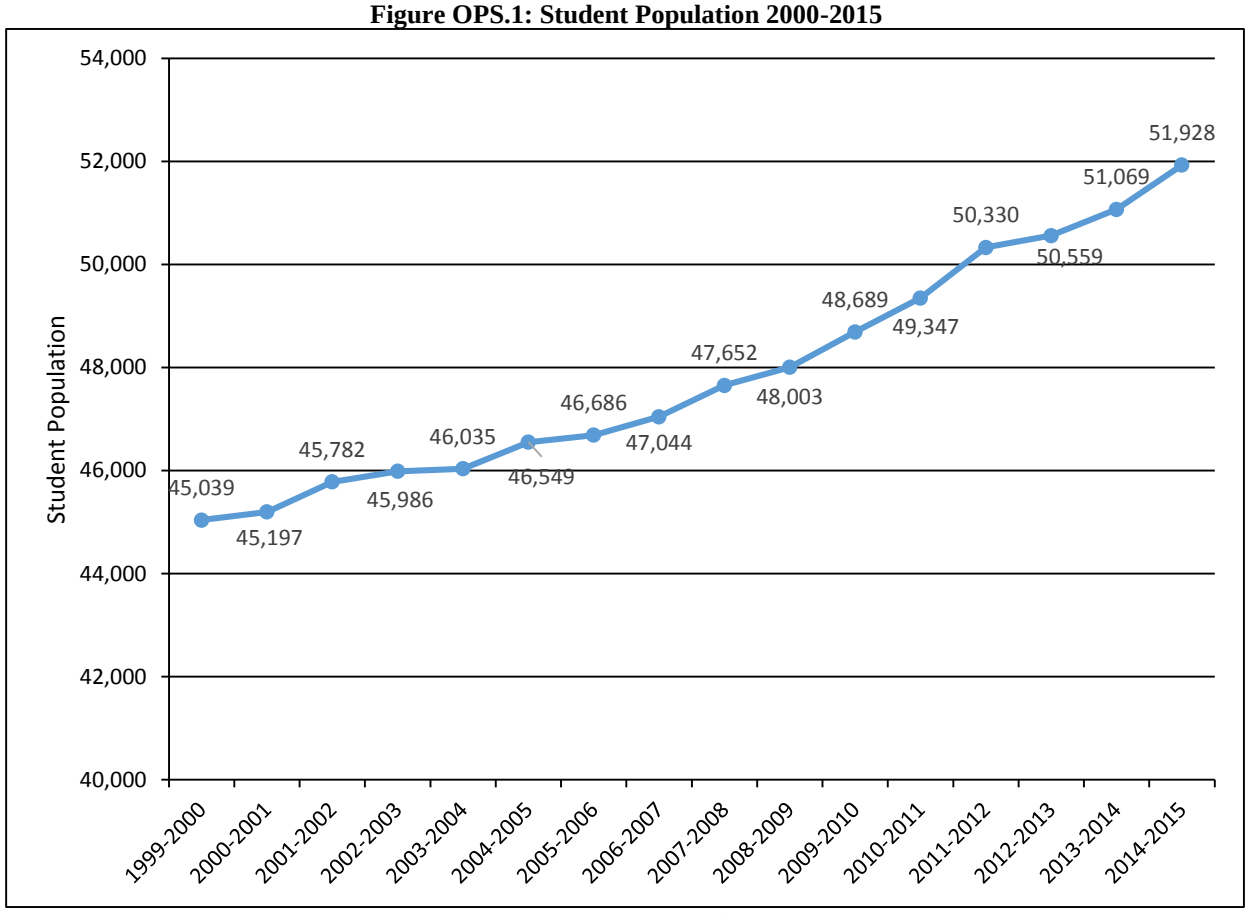
LOCATION AND SERVICES

OPS is the largest school district in the State of Nebraska, operating 90 elementary, middle, and high schools as well as Magnet and Alternative programs. The district serves students across the City of Omaha, the northern part of the City of Bellevue in Sarpy County, and portions of northeastern Douglas County.

DEMOGRAPHICS

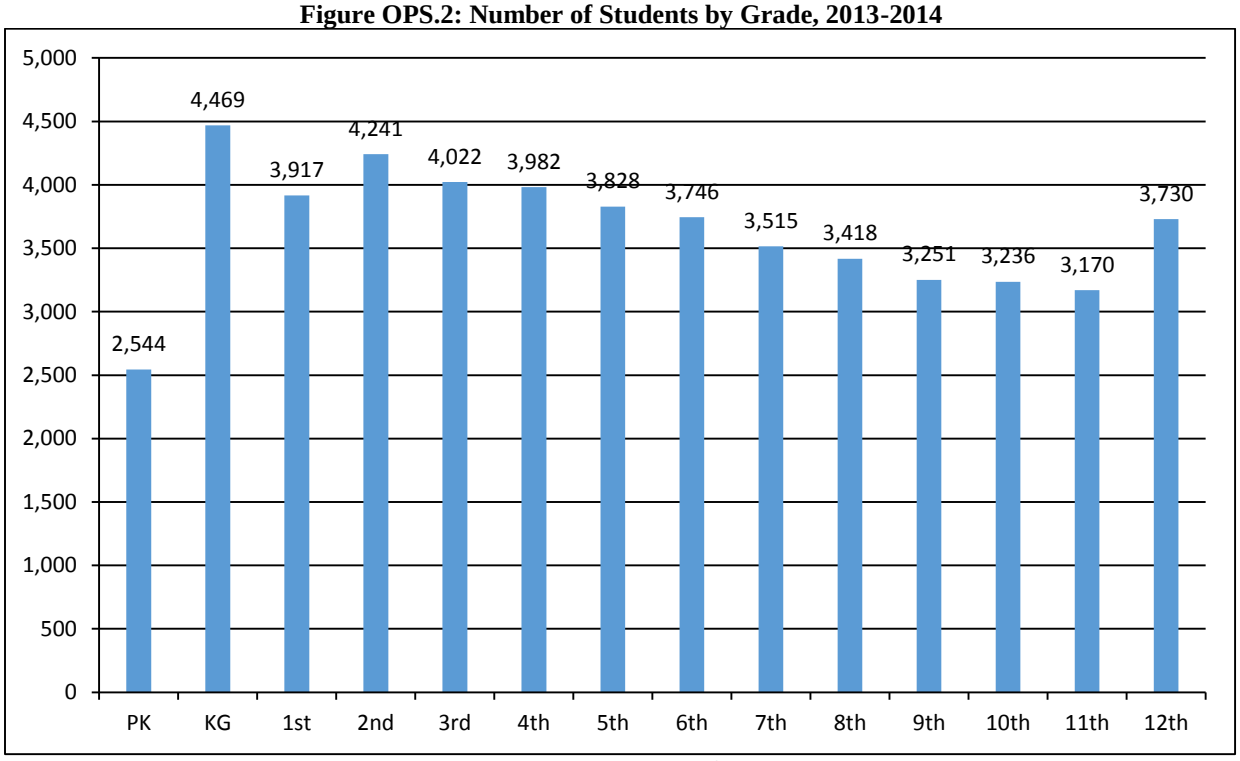
There are nearly 52,000 students enrolled in OPS as of the 2014-2015 school year. The school district also employs over 9,500 staff and personnel. The following figure indicates that the student population has been increasing since at least the 1999-2000 school year. The district anticipates that student population will continue to climb over the next few years.

Figure OPS.1: Student Population 2000-2015



Source: Nebraska Department of Education

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



Source: Nebraska Department of Education

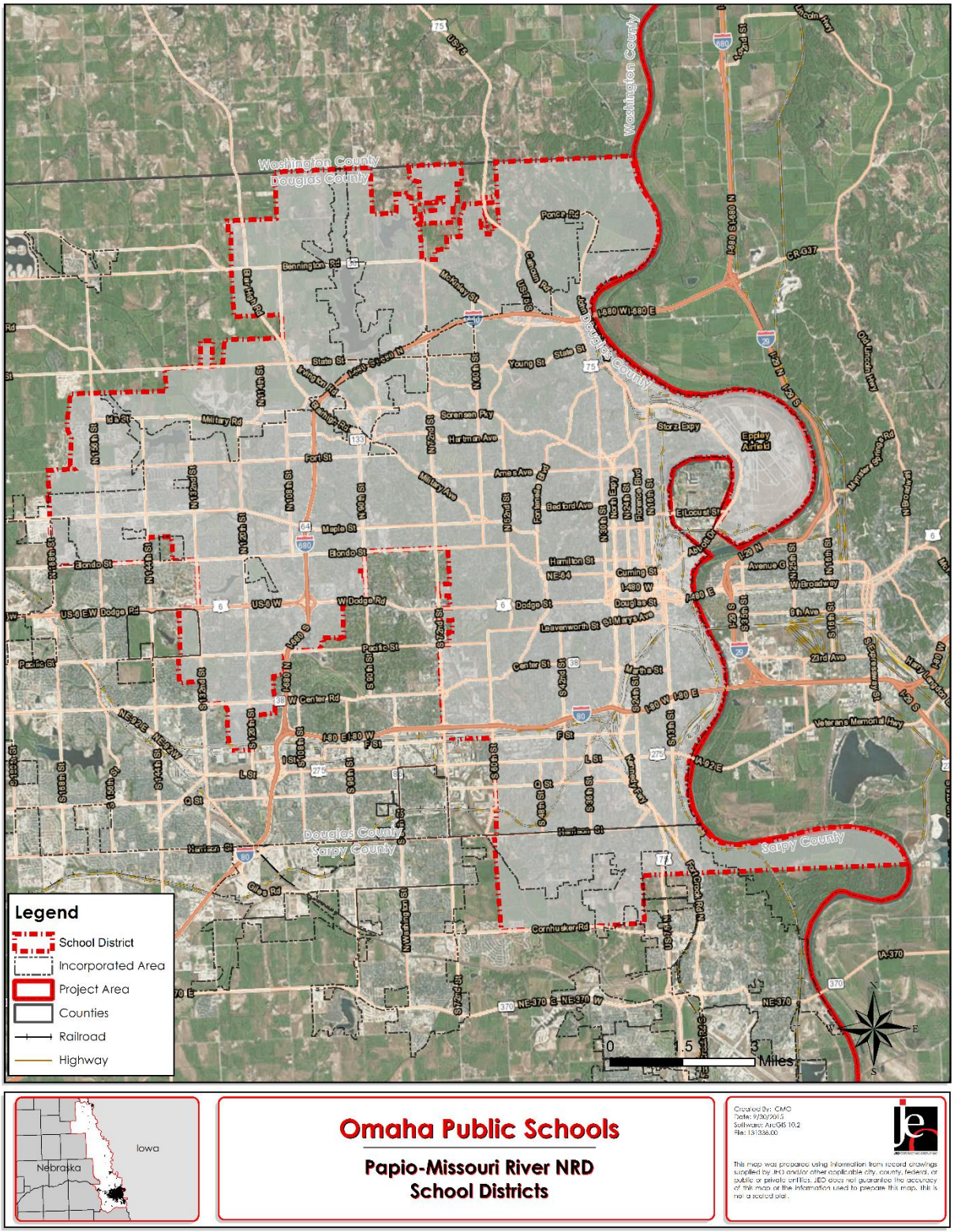
The figure above indicates that the largest number of students are in Kindergarten with 4,469 students. The lowest population of students are in 11th grade with 3,170 students (not including pre-kindergarten). According to the Nebraska Department of Education, over 73 percent of students receive either free or reduced priced meals at school, which is significantly higher than the state average at nearly 45 percent. Additionally, nearly 15 percent of students are enrolled in the English Language Learners Program, and about 18 percent of students in the district 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 OPS.3: Student Statistics, 2013-2014

	Omaha Schools	State of Nebraska
Free/Reduced Priced Meals	73.38%	44.93%
School Mobility Rate	17.09%	12.10%
English Language Learners	14.69%	6.04%
Special Education Students	18.08%	15.74%

Source: Nebraska Department of Education

Figure OPS.1: OPS District Map



FUTURE DEVELOPMENT TRENDS

In November 2014, voters in the Omaha Public School District approved Phase I, which is a $421 million bond program and is expected to be completed in 2019. Phase I of the Facilities Capital Plan will procure land for two 600-student elementary schools and one 1,500-student high school in the southern portion of the district. Land will also be procured in the western portion of the district one 1,500-student high school as well.

Renovations for facilities will include upgrades to fire, life safety, security, and technology. These improvements include fire detection and alarm system replacements, fire sprinkler system installations, safe area construction, door and hardware replacement that allow staff to lock their doors from the interior of the classroom, card access system installation, video intercom installation at main entry doors, paging and public address system upgrades, motion detection system replacements, and emergency and exit lighting.

Furthermore, four elementary schools will be replaced (Belle Ryan Elementary, Columbian Elementary, Western Hills, and Yates Elementary Schools), and also included are renovations and additions to nine elementary schools. Four middle schools will receive capital improvements and renovations two receiving classroom additions. Other renovations and capital improvements include roof replacement, exterior metal door replacement, window replacement, lighting replacement, and installation of or replacement/upgrades to energy management systems.

Phase II will be voted for approval in the fall of 2017, which aims to continue renovations, additions, and new construction of schools.

CRITICAL FACILITIES

The school district operates 99 facilities. These facilities are listed below, along with information indicating the facility's address, number of students and staff, if the facility is used as a Red Cross shelter during an emergency, and the presence of a FEMA designated storm shelter. The presence of back-up power generators and whether the facility is located in the 1 percent floodplain is also noted for each facility. The schools that are identified as a Red Cross Shelter are only available when school is not in session, which is generally between June 1 and August 10 every year.

Table OPS.4: OPS Critical Facilities

CF #	Name	Address	Number of Students	Number of Staff	Red Cross Shelter (Y/N)	FEMA Designated Storm Shelter (Y/N)	Back-up Power Generators (Y/N)	Located in Floodplain (Y/N)
1	OPS ADMIN. (TAC)	3215 Cuming St.	N/A	2,137	N	N	Y	N
2	OPS SERVICE CENTER	4041 N. 72nd St.	N/A	159	N	N	N	N
3	ACCELERE/BLACKBURN ALTERNATIVE	2606 Hamilton St.	155/107	71	N	Y	Y	N
4	ADAMS ELEM SCHOOL	3420 N. 78 St.	324	43	N	N	Y	N
5	ALFONZA W DAVIS MIDDLE SCHOOL	8050 N. 129 Ave.	620	85	N	Y	Y	N

CF #	Name	Address	Number of Students	Number of Staff	Red Cross Shelter (Y/N)	FEMA Designated Storm Shelter (Y/N)	Back-up Power Generators (Y/N)	Located in Floodplain (Y/N)
6	ALICE BUFFETT MAGNET (5-8)	14101 Larimore Ave.	1,205	93	N	Y	Y	N
7	ASHLAND PARK/ROBBINS ELEM SCH	5050 S. 51 St.	816	108	N	N	Y	N
8	BANCROFT ELEMENTARY	2724 Riverview Blvd	747	100	N	N	Y	N
9	BEALS ELEM SCHOOL	1720 S. 48th St.	444	47	N	Y	Y	N
10	BELLE RYAN ELEM SCHOOL	1807 S. 60 St.	324	41	N	N	N	N
11	BELVEDERE ELEMENTARY SCHOOL	3775 Curtis Ave.	536	67	N	Y	Y	N
12	BENSON MAGNET HIGH SCHOOL	5120 Maple St.	1,218	167	Y	N	Y	N
13	BENSON WEST ELEM SCHOOL	6652 Maple St.	626	76	N	N	Y	N
14	BEVERIDGE MAGNET MIDDLE SCHOOL	1616 S. 120 St.	714	94	Y	N	N	N
15	BOYD ELEM SCHOOL	8314 Boyd St.	533	60	N	N	N	N
16	BRYAN HIGH SCHOOL	4700 Giles Rd	1,767	179	Y	N	Y	N
17	BRYAN MIDDLE SCHOOL	8210 S. 42 St.	783	99	Y	N	N	N
18	BURKE HIGH SCHOOL	12200 Burke Blvd.	2,144	225	Y	N	Y	N
19	CASTELAR ELEMENTARY SCHOOL	2316 S. 18 St.	620	85	N	Y	Y	N
20	CATLIN MAGNET CENTER	12736 Marinda St.	249	37	N	N	N	N
21	CENTRAL HIGH SCHOOL	124 N. 20 St.	2,544	247	Y	N	Y	N
22	CENTRAL PARK ELEM SCHOOL	4904 N. 42 St.	450	63	N	Y	N	N
23	CHANDLER VIEW ELEM SCHOOL	7800 S. 25 St.	735	90	N	Y	Y	N
24	COLUMBIAN ELEM SCHOOL	330 S. 127 St.	347	36	N	N	Y	N
25	CONESTOGA MAGNET ELEM SCHOOL	2115 Burdette St.	396	59	N	N	N	N

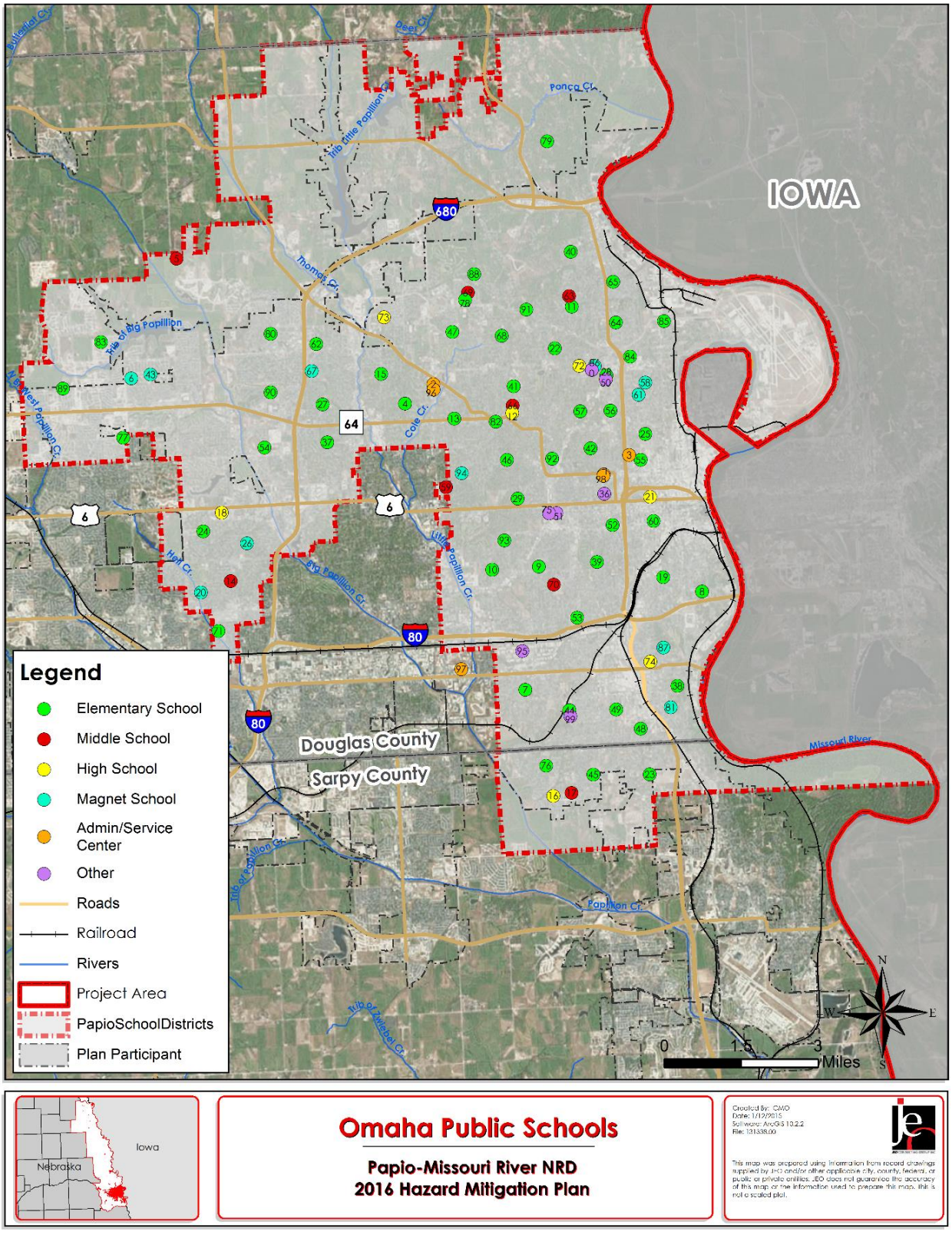
CF #	Name	Address	Number of Students	Number of Staff	Red Cross Shelter (Y/N)	FEMA Designated Storm Shelter (Y/N)	Back-up Power Generators (Y/N)	Located in Floodplain (Y/N)
26	CRESTRIDGE MAGNET CENTER	818 Crestridge Rd.	453	59	N	N	N	N
27	DODGE ELEM SCHOOL	3520 Maplewood Blvd.	382	49	N	N	N	N
28	DRUID HILL ELEMENTARY SCHOOL	4020 N. 30 St.	369	61	N	Y	Y	N
29	DUNDEE ELEM SCHOOL	310 N. 51 St.	560	56	N	Y	Y	N
36	EARLY CHILDHOOD CENTER AT YATES	3260 Davenport St.	63	15	N	N	N	N
37	EDISON ELEM SCHOOL	2303 N. 97 St.	440	51	N	N	N	N
38	EDWARD BABE GOMEZ HERITAGE ELEM	5101 S. 17 St.	865	127	N	Y	Y	N
39	FIELD CLUB ELEM SCHOOL	3512 Walnut St.	672	90	N	N	Y	N
40	FLORENCE ELEM SCHOOL	7902 N. 36 St.	317	36	N	N	N	N
41	FONTENELLE ELEM SCHOOL	3905 N. 52 St.	657	89	N	Y	Y	N
42	FRANKLIN ELEM SCHOOL	3506 Franklin St.	318	46	N	N	Y	N
43	FULLERTON MAGNET CENTER	4711 N. 138 St.	570	62	N	Y	Y	N
44	GATEWAY ELEMENTARY	5610 S. 42 St.	851	118	N	Y	Y	N
45	GILDER ELEM SCHOOL	3705 Chandler Rd.	433	59	N	N	N	N
46	HARRISON ELEM SCHOOL	5304 Hamilton St.	376	43	N	Y	Y	N
47	HARTMAN ELEM SCHOOL	5530 N. 66 St.	494	66	N	N	N	N
48	HIGHLAND ELEM SCHOOL	2625 Jefferson St.	453	63	N	N	Y	N
49	INDIAN HILL ELEM SCHOOL	3121 U St.	815	95	Y	N	N	N
50	INTEGRATED LEARNING PROGRAM (K-12)	3030 Spaulding St.	N/A	72	N	N	N	N
51	J P LORD PROGRAM (K-12)	330 S. 44 St.	68	39	N	N	N	N

CF #	Name	Address	Number of Students	Number of Staff	Red Cross Shelter (Y/N)	FEMA Designated Storm Shelter (Y/N)	Back-up Power Generators (Y/N)	Located in Floodplain (Y/N)
52	JACKSON ELEMENTARY SCHOOL	620 S. 31 St.	239	39	N	Y	Y	N
53	JEFFERSON ELEM SCHOOL	4065 Vinton St.	543	74	N	Y	Y	N
54	JOSLYN ELEM SCHOOL	11220 Blondo St.	438	53	N	N	N	N
55	KELLOM ELEMENTARY SCHOOL	1311 N. 24 St.	577	75	N	N	N	N
56	KENNEDY ELEM SCHOOL	2906 N. 30 St.	308	70	N	Y	Y	N
57	KING ELEMENTARY SCHOOL	3706 Maple St.	363	52	Y	N	N	N
58	KING SCIENCE/TECH MAGNET (5-8)	3720 Florence Blvd.	539	85	Y	Y	Y	N
59	LEWIS & CLARK MIDDLE SCHOOL	6901 Burt St.	718	93	Y	N	Y	N
60	LIBERTY ELEMENTARY SCHOOL	2021 St. Mary's Ave.	731	104	N	Y	Y	N
61	LOTHROP MAGNET CENTER	3300 N. 22 St.	317	50	N	N	N	N
62	MASTERS ELEM SCHOOL	5505 N. 99 St.	341	42	N	N	N	N
63	MC MILLAN MAGNET MIDDLE SCHOOL	3802 Redick Ave.	441	70	Y	Y	Y	N
64	MILLER PARK ELEM SCHOOL	5625 N. 28 Ave.	431	53	N	Y	Y	N
65	MINNE LUSA ELEM SCHOOL	2728 Ida St.	407	58	N	Y	Y	N
66	MONROE MIDDLE SCHOOL	5105 Bedford Ave.	600	87	Y	Y	Y	N
67	MORTON MAGNET (5-8)	4606 Terrace Dr.	635	99	Y	N	N	N
68	MOUNT VIEW ELEM SCHOOL	5322 N. 52 St.	414	58	N	Y	Y	N
69	NATHAN HALE MAGNET MIDDLE SCHOOL	6143 Whitmore St.	342	34	Y	N	N	N
70	NORRIS MIDDLE SCHOOL	2235 S. 46 St.	1,088	123	Y	N	N	N
71	OAK VALLEY ELEM SCHOOL	3109 Pedersen Dr.	285	46	N	N	N	N

CF #	Name	Address	Number of Students	Number of Staff	Red Cross Shelter (Y/N)	FEMA Designated Storm Shelter (Y/N)	Back-up Power Generators (Y/N)	Located in Floodplain (Y/N)
72	OMAHA NORTH MAGNET HIGH SCHOOL	4410 N. 36 St.	1,753	177	Y	N	Y	N
73	OMAHA NORTHWEST MAGNET HIGH SCHOOL	8204 Crown Point Ave.	1,634	182	Y	N	Y	N
74	OMAHA SOUTH MAGNET HIGH SCHOOL	4519 S. 24 St.	2,560	267	Y	N	Y	N
75	PARRISH PROGRAM (7-12)	4469 Farnam St.	10	3	N	N	N	N
76	PAWNEE ELEM SCHOOL	7310 S. 48 St.	440	62	N	N	N	N
77	PICOTTE ELEMENTARY SCHOOL	14506 Ohio St.	407	45	N	Y	Y	N
78	PINEWOOD ELEM SCHOOL	6717 N. 63 St.	247	39	N	N	N	N
79	PONCA ELEM SCHOOL	11300 N. Post Rd.	144	23	N	N	N	N
80	PRAIRIE WIND ELEM SCHOOL	10908 Ellison Ave.	712	72	N	Y	Y	N
81	R M MARRS MAGNET (5-8)	5619 S. 19 St.	1,262	141	Y	Y	Y	N
82	ROSE HILL ELEM SCHOOL	5605 Corby St.	314	45	N	Y	Y	N
83	SADDLEBROOK ELEMENTARY SCHOOL	14850 Laurel Ave.	486	52	N	Y	Y	N
84	SARATOGA ELEM SCHOOL	2504 Meredith Ave.	229	39	N	Y	Y	N
85	SHERMAN ELEM SCHOOL	5618 N. 14 Ave.	223	36	N	Y	Y	N
86	SKINNER MAGNET CENTER	4304 N. 33 St.	429	71	N	Y	Y	N
87	SPRING LAKE MAGNET CENTER	4215 S. 20 St.	821	121	N	N	N	N
88	SPRINGVILLE ELEM SCHOOL	7400 N. 60 St.	434	38	N	Y	Y	N
89	STANDING BEAR ELEMENTARY SCH	15860 Taylor St.	562	64	N	Y	Y	N
90	SUNNY SLOPE ELEM SCHOOL	10828 Old Maple Rd.	492	57	N	N	N	N

CF #	Name	Address	Number of Students	Number of Staff	Red Cross Shelter (Y/N)	FEMA Designated Storm Shelter (Y/N)	Back-up Power Generators (Y/N)	Located in Floodplain (Y/N)
91	WAKONDA ELEM SCHOOL	4845 Curtis Ave.	405	64	N	Y	Y	N
92	WALNUT HILL ELEM SCHOOL	4355 Charles St.	464	58	N	Y	Y	N
93	WASHINGTON ELEM SCHOOL	5519 Mayberry St.	325	44	N	Y	Y	N
94	WESTERN HILLS MAGNET CENTER	6523 Western Ave.	389	47	N	N	N	N
95	WILSON FOCUS SCHOOL	5141 F St.	209	28	N	Y	Y	N
96	STUDENT TRANSPORTATION CENTER	3833 N. 72nd St.	N/A	477	N	N	Y	N
97	SUPPLY-INVENTORY CENTER	4515 S. 68th St.	N/A	19	N	N	N	N
98	CAREER CENTER	3230 Burt St.	680	49	N	N	N	N
99	EARLY LEARNING CENTER AT GATEWAY ELEM.	5801 S. 42nd St.	164	65	N	Y	N	N
100	EARLY LEARNING CENTER AT SKINNER ELEM.	4201 N. 34TH St.	153	63	N	Y	N	N

Figure OPS.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 and staff participate in monthly fire drills, tornado drills twice per year, active shooter drill once per year, and a bus evacuation drill once per year. Furthermore, staff are trained annually in how to respond to certain hazard events including lockdowns, lockouts, shelter in place, and evacuations. Staff members in the Environmental Department are trained in how to respond to chemical spills, provided personal protective equipment, and spend a minimum of 40 hours in chemical spill training.

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 Omaha.

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 OPS.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)	Yes	Student and staff safety
Chemical Spills (Transportation)	Yes	Student and staff safety
Civil Disorder	Yes	Vandalism; gang activity; drive-by shootings
Dam Failure	No	None
Drought	Yes	Foundation issues
Earthquakes	No	None
Extreme Heat	Yes	Power outages
Flooding*	Yes	Property damages; closed facilities; erosion
Grass/Wildfires	No	Property damages
Hail*	Yes	Property damages
High Wind*	Yes	Property damages; power outages; tree damages
Landslides	Yes	None
Levee Failure	Yes	None
Radiological Incident (Fixed Site)	No	None
Radiological Incident (Transportation)	No	None
Severe Thunderstorms*	Yes	Power outages; property damages; student, staff and visitor safety; tree damages
Severe Winter Storms*	Yes	Roof collapse; power outages; safe sidewalks and parking areas; sufficient equipment
Terrorism	No	Gang activity; threats

HAZARD TYPE	PREVIOUS OCCURRENCE Yes/No	SPECIFIC CONCERNS IDENTIFIED
Tornados*	Yes	Student and staff safety; property damages; power outages
Urban Fire*	Yes	Portable classrooms, staff safety; property damages

**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

The local planning team identified flooding as a hazard of top concern for the school district. Persistent heavy rain, snow melt upstream on the Missouri River, and record releases from Gavins Point Dam upstream on the Missouri River all contributed to flooding along the river during the summer of 2011. Sherman Elementary School was closed during the flooding due to its proximity to the river; however, Eppley Airport pumped water out of the area to keep the airport open helped keep Sherman Elementary dry. Ponding of water on some of the school property has occurred in the past, and erosion around a hill at Gomez Heritage Elementary School has also been an issue.

Implemented mitigation projects:

- Address erosion and ponding issues where possible
- Identified area needs for facility flood proofing

Identified mitigation projects:

- Waterproof Sherman and King Science Schools to reduce flooding and property damage
- Provide alert notification devices for communication during an event

Hail

Hail is a common occurrence across the region, and due to damages that can be sustained from larger hail, the local planning team identified hail as a top concern for the district. The size of hail can range from smaller than an inch to over 3 inches. Larger hail, especially in combination with higher winds, can cause significant damages to buildings, windows, roofs, vehicles, and trees. On August 18, 2011 a thunderstorm produced hail up to 4.25 inches across the area. Hail of this magnitude breaks windows, roofs, and exterior lights. In the past, district buildings have had air conditioning units damaged including the coils and venting. Roof damage has also occurred.

Implemented mitigation projects:

- Tree mitigation program to remove hazardous trees and tree limbs
- Hail guards installed on some facility air conditioning units

Identified mitigation projects:

- Conduct a survey to assess which facilities need hail guards
- Install security film over glass to prevent shattering

High Winds

The local planning team identified high winds as hazard of top concern. High winds can cause tree damage, power outages, and property damages. District buildings have experienced damages from high winds including damages to: roofs, air conditioning units, and fallen limbs breaking fences. The district hires a contractor to remove larger trees or severely damaged trees when necessary. Otherwise, the grounds crew manages tree limb removal after a school makes a request and have sufficient equipment to handle the small to moderate tree jobs.

Implemented mitigation projects:

- Back-up power generator available at many schools
- Emergency Response Plan is in place and staff are trained annually

Identified mitigation projects:

- Install security film over glass to prevent shattering

Severe Thunderstorms

Severe thunderstorms are a common occurrence in the area, which can cause significant impacts due to the combination of lightning, high winds, hail, and heavy rain. The local planning team identified this hazard as a top concern for the district. A line of severe thunderstorms called a bow echo moved through the district in June 2008. The bow echo brought straight-line damaging winds between 70 and 100 mph across the area. According to OPPD, 125,000 customers were without power, and at the time, OPPD said it was one of the worst storms in its history. Many of the trees were damaged, and roofs and air conditioning units were also damaged on district buildings. On average, power outages at the schools from severe thunderstorms can occur a couple of times a year, especially in the eastern portions of the district according to the local planning team. The district works with Omaha Public Power District during outages to restore power.

Implemented mitigation projects:

- Back-up power generator available at many schools
- Emergency Response Plan is in place and staff are trained annually

Identified mitigation projects:

- Intercom system replacement needed at 5 district buildings
- Obtain back-up power generators for facilities in need

Severe Winter Storms

Due to previous occurrences, the local planning team identified severe winter storms as a hazard of top concern for the school district. 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. The school buildings across the district experienced power outages, burst pipes, and a roof on the warehouse collapsed causing damage. The district also had to hire outside contractors to remove the heavy snow loads on roofs of many school buildings.

Several additional snow storms occurred between 2011 and 2015. One event on December 19, 2012 started as light rain before changing over to snow and very high winds up to 52 mph across the district. This storm dropped 8-10 inches of snow, which caused areas of power outages.

OPS currently has 30 trucks and two tractors with buckets that are used for snow removal across the district. In recent years, it's been difficult for the district to obtain sufficient salt and/or sand from the City of Omaha.

To be more efficient in maintaining safe parking lots and sidewalks around the district during the winter, the district is looking to purchase equipment to use brining solution.

Implemented mitigation projects:
- Snow fences are used around the district
- Back-up power generator available at many schools
- Emergency Response Plan is in place and staff are trained annually
- Remove accumulated snow and ice from roofs as needed

Identified mitigation projects:
- Obtain back-up power generator for facilities in need
- Purchase brining solution equipment and other equipment to improve snow removal
- Shoring up roofs at vulnerable district buildings

Tornados
The local planning team identified tornados as a top hazard of concern for the school district. According to NCDC, the district has not had any reported tornados since June 8, 2008 when an EF-2 moved northeast from Sarpy County and dissipated over extreme southwest portions of OPS district. The local planning team did not report any damage from this event, but most of the damages from this tornado were in the Millard area, southwest of Omaha.

Implemented mitigation projects:
- Back-up power generator available at many schools
- Tornado drills conducted twice per year
- Emergency Response Plan is in place and staff are trained annually
- New weather siren installed at the TAC facility

Identified mitigation projects:
- Obtain back-up power generators for facilities in need
- Include storm shelters in new school buildings and retrofit older facilities
- Install emergency lighting at district buildings

Urban Fire
Urban fire was identified as hazard of concern for the school district. A portable classroom caught fire after a transient broke into the facility during winter break and started a fire. The fire department was notified quickly and damages were limited to the portable building.

Implemented mitigation projects:
- Fire drills conducted once a month
- Emergency Response Plan is in place and staff are trained annually

Identified mitigation projects:
- Install fire alarm system voice activation at facilities
- Replace school walkie-talkies

ADMINISTRATION/CAPABILITY ASSESSMENT
The school district has a superintendent, 163 principals and assistant principals, and several support staff. The school board is made up of a nine member panel. The district also has a number of additional departments and staff that may be available to implement hazard mitigation initiatives. They include:

- Buildings and Grounds Department
- Environmental Department
- Finance and Administration
- Human Resources
- Information Management Services
- Maintenance Department
- District Operational Services
- Risk and Safety Management
- Nutrition Services
- School House Planning

The district's District Operational Services and Division of Buildings and Grounds would oversee and delegate the implementation of mitigation projects in school facilities, and the district does have the authority to levy taxes and school bonds for specific purposes. OPS currently does a number of education and outreach programs. These programs include

PLAN INTEGRATION

Omaha Public Schools maintain, review, and update their Emergency Response Plan (ERP) annually. The ERP is also known as the Crisis Plan. The plan establishes the chain of command, roles and responsibilities, and procedures for response to hazards and emergencies with the goal to protect lives and property. The ERP establishes a Crisis Response Plan for each situation including:

- Abduction/Missing Student
- Active Shooter
- Bomb Threat
- Dangerous Intruder
- Earthquake
- Hazardous Materials/Radiological Incidents
- Fire
- Reverse Evacuation
- Severe Weather: Tornado, Thunderstorm, and Winter Storm
- Stadium Plans: Civil Unrest, Exterior Hazardous Material Release, Fire, Weather
- Student with Weapon
- Suspicious Object

The school district also has a Security Assessment, which each school completes. The assessment helps identify areas of improvement so that the district can prioritize the needs and areas of improvements for more secure and safe schools.

MITIGATION STRATEGY

Completed Mitigation Actions

Description	Weather Siren for Teacher Administration Center (TAC)
Analysis	Install new weather siren at TAC
Goal/Objective	Goal 1/Objective 1.3
Hazard(s) Addressed	Severe Thunderstorms, Tornados, High Winds, and Hail
Location	TAC building

Description	Weather Siren for Teacher Administration Center (TAC)
Funding	Unknown
Year Completed	2014

Ongoing and New Mitigation Actions

Description	Intercom System Replacements at 5 OPS Buildings
Analysis	New intercom systems are critical in communicating with staff and students during a hazardous event.
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	Varies ($20,000 to $100,000)
Funding	Bonds
Timeline	Ongoing
Priority	High
Lead Agency	Maintenance
Status	Not started

Description	Alert Notification/Mass Communication
Analysis	Install or provide communication devices for all staff, maintenance, nutritional services, etc. to quickly contact district staff and personal prior and during hazardous events
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	$7,650,000
Funding	Bonds
Timeline	Ongoing
Priority	High
Lead Agency	Building and Grounds, School Safety, Information Management Services
Status	District is able to communicate with parents and schools. Next step is to acquire communication devices for staff and personal to reach staff and grounds crew.

Description	Replace School Walkie-Talkies
Analysis	Update and replace communication devices such as walkie-talkies for clear and efficient communication between agencies or departments
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	$260/radio
Funding	Budget
Timeline	Ongoing
Priority	High
Lead Agency	School Safety and Information Management Services
Status	It is a district standard to continuously maintain, upgrade, and replace walkie-talkies

Description	Fire Alarm System Voice Activation
Analysis	Install a voice alert fire/multi-use alarm system for all schools and facilities
Goal/Objective	Goal 1/Objective 1.4
Hazard(s) Addressed	All
Estimated Cost	Unknown
Funding	Bonds
Timeline	Ongoing
Priority	High
Lead Agency	Building and Grounds, Maintenance
Status	Ongoing

Description	Generators for District Buildings in Need of Back-Up Power
Analysis	Install a stationary source of back-up power to schools and district facilities.
Goal/Objective	Goal 2/Objective 2.2
Hazard(s) Addressed	Severe Winter Storms, Thunderstorms, High Winds, Hail, Tornado, Earthquake
Estimated Cost	$66,000 each
Funding	Bonds, HMGP
Timeline	Ongoing
Priority	Medium
Lead Agency	Building and Grounds, Maintenance
Status	Lewis & Clark and Highland Schools are prioritized for generators. Additional facilities as listed in Table OPS.4 have been identified.

Description	Emergency Lighting at District Buildings
Analysis	Install emergency lighting at schools and facilities especially in corridors, stairwells, and safe rooms.
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	All
Estimated Cost	Varies ($2,000 - $24,000 per building)
Funding	Bonds
Timeline	Ongoing
Priority	High
Lead Agency	Building and Grounds, Maintenance
Status	Locations within facilities have been identified needing lighting.

Description	Improve Snow Removal
Analysis	Purchase snow removal equipment to efficiently remove snow at district facilities including Bobcats and brining solution equipment, trailers, etc.
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	$27,500 to $40,000
Funding	Bonds, PDM, HMGP
Timeline	2-5 years
Priority	High
Lead Agency	Transportation, Operations
Status	Early stages of research for types of equipment

Description	Shoring Up Roofs at Vulnerable District Buildings
Analysis	Shoring up roofs to prevent cave-ins and damage during heavy snow events. Hail resistant materials can also be used to reduce damage during hail events
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	Severe Winter Storms, Severe Thunderstorms, High Winds, Hail, Tornados
Estimated Cost	Varies ($100,000 to $150,000 per building)
Funding	Budget
Timeline	Ongoing
Priority	High
Lead Agency	Maintenance and Construction
Status	Ongoing

Description	Install Snow Fencing
Analysis	Purchase and/or replace snow fencing and install at district buildings to reduce blowing and drifting snow
Goal/Objective	Goal 3/Objective 3.4

Description	**Install Snow Fencing**
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	$11,000
Funding	Budget
Timeline	Ongoing
Priority	High
Lead Agency	Building and Grounds
Status	Facilities requiring snow fences each season have been identified. Replacements are purchased as needed.

Description	**Roof Snow and Ice Accumulation Preventative Measures**
Analysis	Reduce snow and ice accumulation on roofs to reduce roof damage, cave-ins, and ice or snow falling off roofs.
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	Severe Winter Storms
Estimated Cost	$30,000
Funding	Bonds
Timeline	2-5 years
Priority	Medium
Lead Agency	Buildings and Grounds
Status	Ongoing. Locations have been identified.

Description	**Flood proofing of floodprone district buildings**
Analysis	Waterproof Sherman and King Science Schools to reduce flooding and property damage
Goal/Objective	Goal 2/Objective 2.4
Hazard(s) Addressed	Flooding
Estimated Cost	$4,000 per building
Funding	Bonds, HMGP, PDM, FMA
Timeline	2-5 years
Priority	High
Lead Agency	Buildings and Grounds
Status	Ongoing.

Description	**Tree Mitigation Program**
Analysis	Identify and remove hazardous limbs and/or trees
Goal/Objective	Goal 3/Objective 3.7
Hazard(s) Addressed	Severe Winter Storms, Severe Thunderstorms, High Winds, Hail, Tornado
Estimated Cost	$52,500
Funding	Budget, Arbor Day Foundation
Timeline	Ongoing
Priority	Medium
Lead Agency	Operations
Status	Ongoing

Description	**Access Control Systems**
Analysis	Install electronic exterior and possibly interior badge access system for staff to gain access to facilities and provide security to buildings
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	All
Estimated Cost	$15 million for the entire district
Funding	Bonds, Homeland Security Funds
Timeline	Ongoing
Priority	Medium

Description	**Access Control Systems**
Lead Agency	Buildings and Grounds, IMS
Status	Facilities needing card access have been identified.

Description	**Safety Improvements**
Analysis	Purchase safety equipment such as gloves, protective eyewear, and harnesses and install or improve other identified needed safety improvements such as adding numbers to exterior doors, placing reflective tape in mechanical rooms, etc.
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	All
Estimated Cost	$50,000
Funding	Budget
Timeline	3-5 years
Priority	High
Lead Agency	Division of School Safety, Building and Grounds
Status	Not started

Description	**Storm Shelters at District Buildings**
Analysis	Assess, design, and construct storm shelters at district buildings
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Hail, Tornado
Estimated Cost	$1,250,000
Funding	Bonds, HMGP, PDM
Timeline	Ongoing
Priority	High
Lead Agency	Building and Grounds, Risk and Safety Management
Status	All new constructed buildings will include storm shelters. Older facilities are being retrofitted.

Description	**Security Film over Glass**
Analysis	Install security film on glass windows to prevent shattering for interior and exterior windows.
Goal/Objective	Goal 3/Objective 3.4
Hazard(s) Addressed	Severe Winter Storms, Severe Thunderstorms, High Winds, Hail, Tornado, Earthquake, Civil Disorder, Terrorism
Estimated Cost	$2,020,000
Funding	Budget
Timeline	Ongoing
Priority	High
Lead Agency	District Operational Services
Status	Critical areas have been completed. TAC building is next on priority list.

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	Budget, HMGP, PDM
Timeline	1 year
Priority	High
Lead Agency	District Operational Services
Status	Ongoing

Description	**Install Classroom and Exterior Doors with Lockdown**
Analysis	Install interior and exterior doors with the capability to quickly lockdown all door locks at once.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	Terrorism
Estimated Cost	$2,500/door
Funding	Bonds, Homeland Security
Timeline	5 years
Priority	High
Lead Agency	Building and Grounds
Status	Not yet started

Description	**Visitor Management**
Analysis	Install an Envoy System (or IdentiKid) to efficiently handle visitors and complete a background check of visitors to school facilities.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	Terrorism
Estimated Cost	$500,000
Funding	Homeland Security
Timeline	3-5 years
Priority	High
Lead Agency	Risk and Safety Management, IMS
Status	Not yet started

Removed Mitigation Actions

None

PARTICIPANT SECTION
FOR THE

WESTSIDE 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 Westside 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 WCS.1 provides the list of participating members that comprised the Westside 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 WCS.1: The Westside Community Schools Local Planning Team

Name	Title	Department / Jurisdiction
Bob Zagozda	Chief Financial Officer	Westside Community Schools
Richard Avard	Director of Safety, Transportation, and Special Projects	Westside Community Schools
Alan Bone	Student Services Coordinator	Westside 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 WCS.2: Public Notification Efforts

Date	Notification	Location
February 17, 2015	Project Website	http://jeo.com/papiohmp/
October 15, 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/

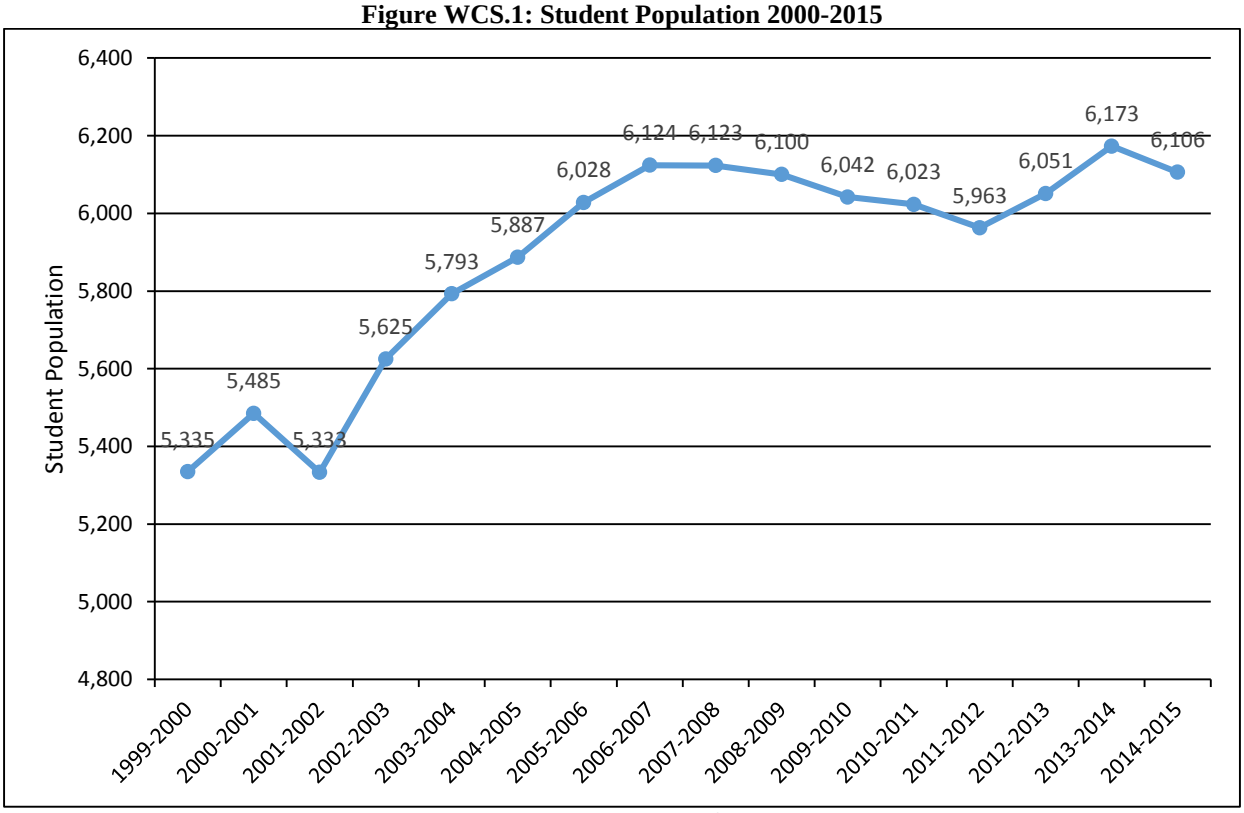
LOCATION AND SERVICES

Westside Community Schools has an enrollment of 6,106 students across one high school (grades 9-12), one middle school (grades 7-8), one secondary Career Center (grades 10-12) and 10 elementary schools (grades PK-6). These schools serve the residents living in central Omaha. Ten facilities operate a before and after school age program, which ends by 6pm. Six of those ten facilities operate preschool and extended learning, full-day care for children three to five years old. Two of the six full-day care facilities operate toddler programs for ages 18 months to three years old. Almost 800 students are enrolled in the school-age child care program and nearly 400 children are enrolled in the early childhood program.

DEMOGRAPHICS

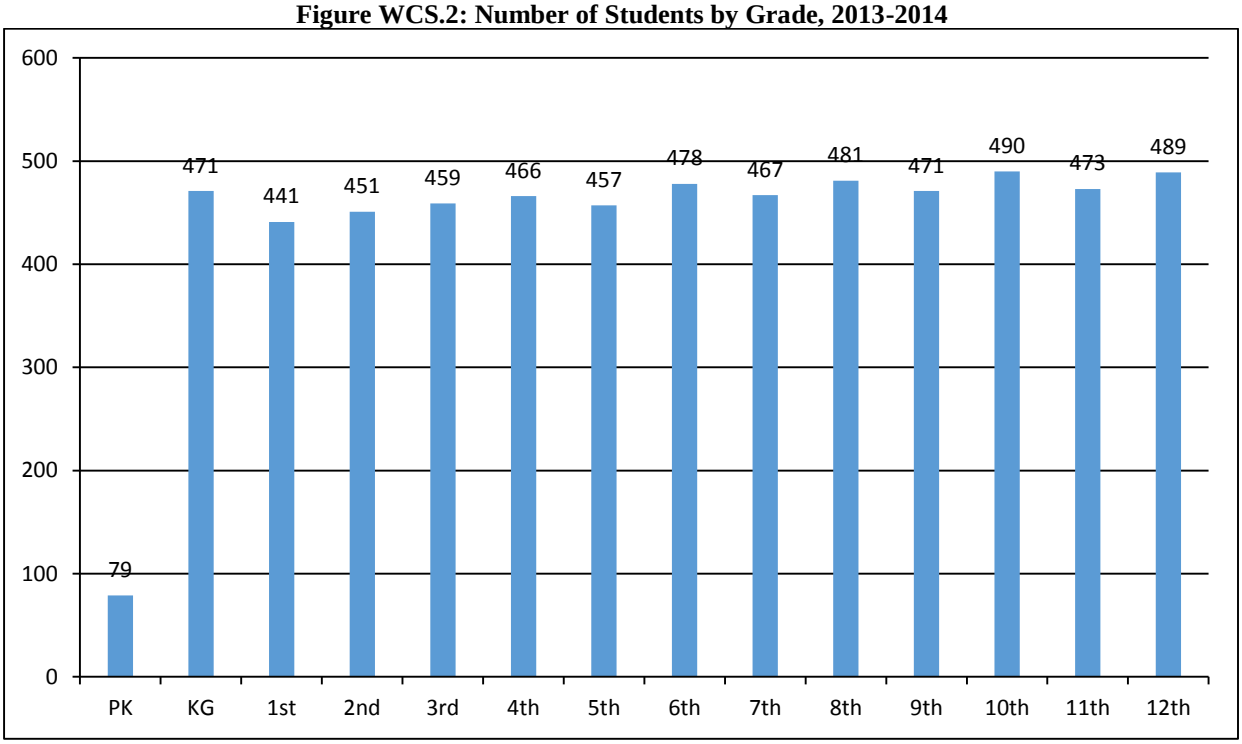
The following figure displays the historical student population trend starting with the 1999-2000 school year and ending with the 2014-2015 year. It indicates that the student population increased between 2001 and 2006 and again between 2011 and 2013, but has recently decreased to 6,106 students enrolled in Westside Community Schools. The school district also employs 540 certified staff and 250 educational assistants. The school district anticipates that enrollment will hold steady over the next several years.

Figure WCS.1: Student Population 2000-2015



Source: Nebraska Department of Education

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



Source: Nebraska Department of Education

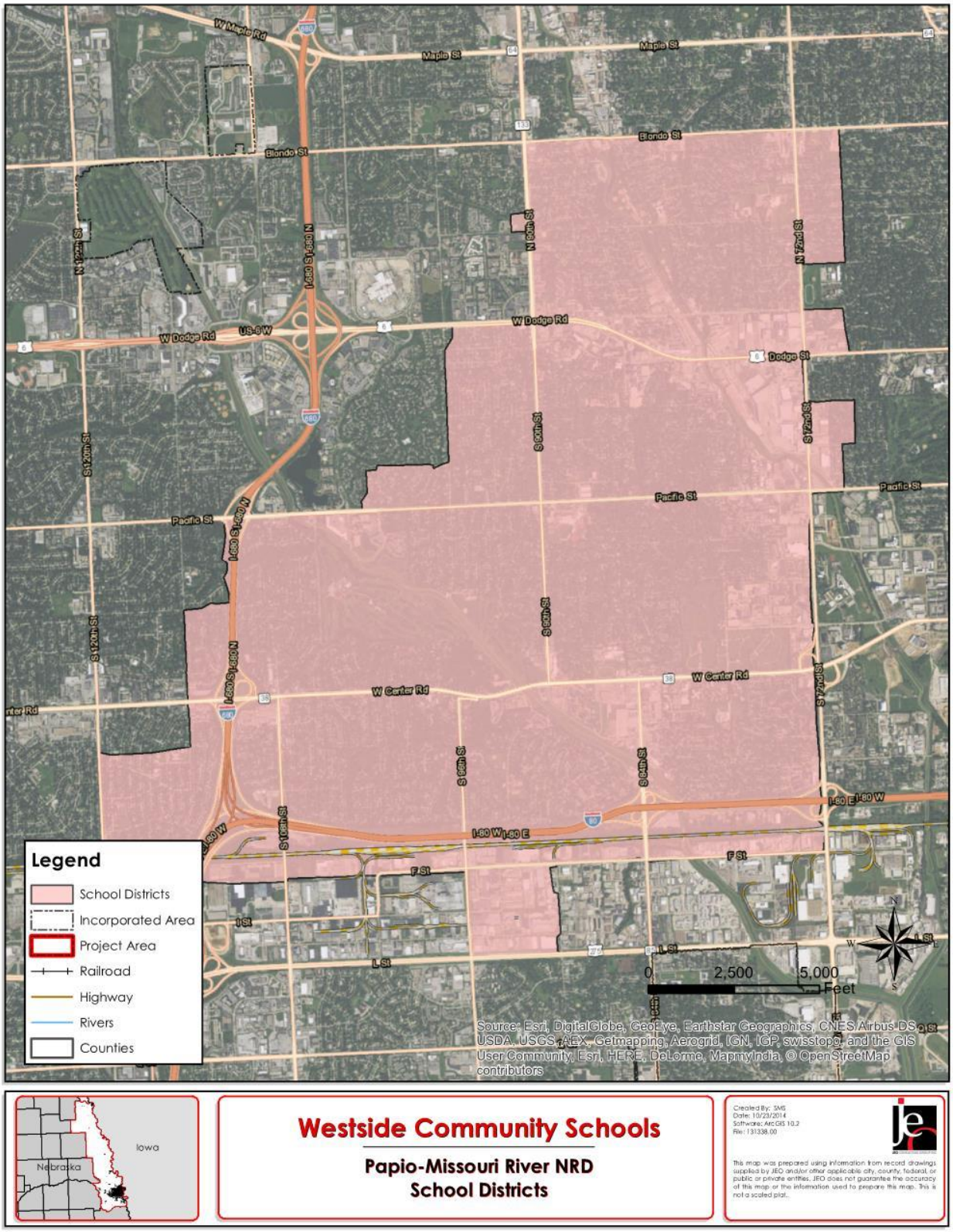
The figure above indicates that from grade level to grade level, the student population is relatively steady between 441 to 490 students. The largest number of students is in the 10th grade, and the smallest number enrolled are in the 1st grade (not counting pre-kindergarten). According to the Nebraska Department of Education, over 31 percent of students receive either free or reduced priced meals at school. This is significantly lower than the state average at nearly 45 percent. Additionally, over two percent of students are enrolled in the English Language Learners Program, and according to the district's 2014 report, the language spoken at home for these students is: Spanish (27%), Chinese (11%), Somali (10%), and Nepali (8%). About 16 percent of students in the district 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 WCS.3: Student Statistics, 2013-2014

	Westside Schools	State of Nebraska
Free/Reduced Priced Meals	31.09%	44.93%
School Mobility Rate	6.25%	12.10%
English Language Learners	2.35%	6.04%
Special Education Students	16.15%	15.74%

Source: Nebraska Department of Education

Figure WCS.3: School District Map



FUTURE DEVELOPMENT TRENDS

In May 2015, voters in the Westside Community School District approved Phase I, which is a $79.9 million bond referendum and will be completed between 2015 and 2021. According to the Facilities Master Plan, funds from Phase I will be used to address immediate needs at K-8 schools; complete renovations and additions at Prairie Lane Elementary; construct new buildings at Swanson Elementary, Sunset Hills Elementary, and Oakdale Elementary; complete renovations and additions at Westside Middle School and create provisions to acquire land for future projects.

Renovations for many of the buildings will include replacing HVAC, plumbing, roofing, and building envelope. Beyond addressing infrastructure issues, the bond will provide:

- Security improvements such as video surveillance, controlled access, and building lock down
- Areas of refuge in the facilities for storm events
- Improve safety and efficiency for student drop-off and pick-up
- Storm shelters will be included in all new constructed facilities

Phase II of building renovations and new construction is recommended to begin in 2023.

CRITICAL FACILITIES

The school district operates 15 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), and the presence of a tornado safe room.

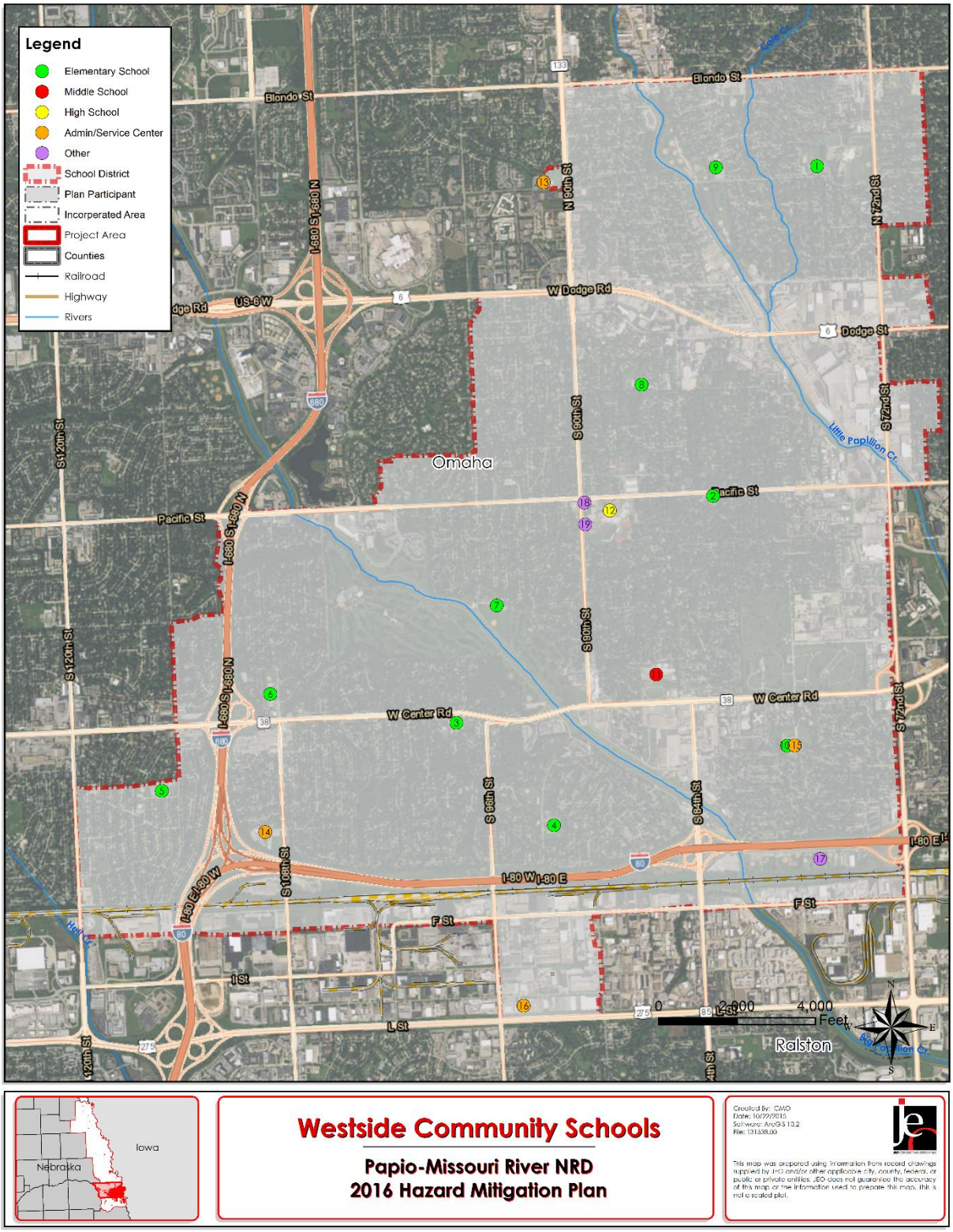
Table WCS.4: Critical Facilities

CF Number	Name	Address	Number of Students	Number of Staff*	Red Cross Shelter (Y/N)	Safe Room (Y/N)	Located in Floodplain (Y/N)
1	Hillside Elementary School	7500 Western Ave, Omaha	412	40	N	N	N
2	Loveland Elementary School	8201 Pacific St, Omaha	294	30	N	N	N
3	Oakdale Elementary School	9801 W. Center Rd, Omaha	328	33	N	N	N
4	Paddock Road Elementary School	3535 Paddock Rd, Omaha	268	33	N	N	N
5	Prairie Lane Elementary School	11444 Hascall, Omaha	303	28	N	N	N
6	Rockbrook Elementary School	2514 S. 108th St, Omaha	310	29	N	N	N
7	Sunset Hills Elementary School	9503 Walnut St, Omaha	155	20	N	N	N
8	Swanson Elementary School	8601 Harney St, Omaha	318	32	N	N	N
9	Westbrook Elementary School	1312 Robertson Dr, Omaha	509	39	N	N	N
10	Westgate Elementary School	7802 Hascall, Omaha	306	32	N	Y	N
11	Westside Middle School	8601 Arbor St, Omaha	961	76	N	N	N
12	Westside High School+	8701 Pacific St, Omaha	1,942	156	N	N	N

CF Number	Name	Address	Number of Students	Number of Staff*	Red Cross Shelter (Y/N)	Safe Room (Y/N)	Located in Floodplain (Y/N)
13	Underwood Hills Early Childhood Learning Center	9030 Western Ave, Omaha	Varies	13	N	N	N
14	Westside Career Center	3534 S. 108th St, Omaha	70	11	N	N	N
15	Administration Building	909 S. 76th St, Omaha	N/A	Varies	N	N	N
16	Service Center/Equipment Warehouse	9437 J Street, Omaha	N/A	18	N/A	N	N
17	Central Kitchen Facility	7667 D Street, Omaha	N/A	15	N/A	N	N
18	Alumni House	1101 S. 90th Street, Omaha	N/A	N/A	N	N	N
19	1305 House	1305 S. 90th Street, Omaha	N/A	3	N	N	N

**Includes teachers, administrators, and professionals*
+Back-up power generator available

Figure WCS.4: Critical Facilities

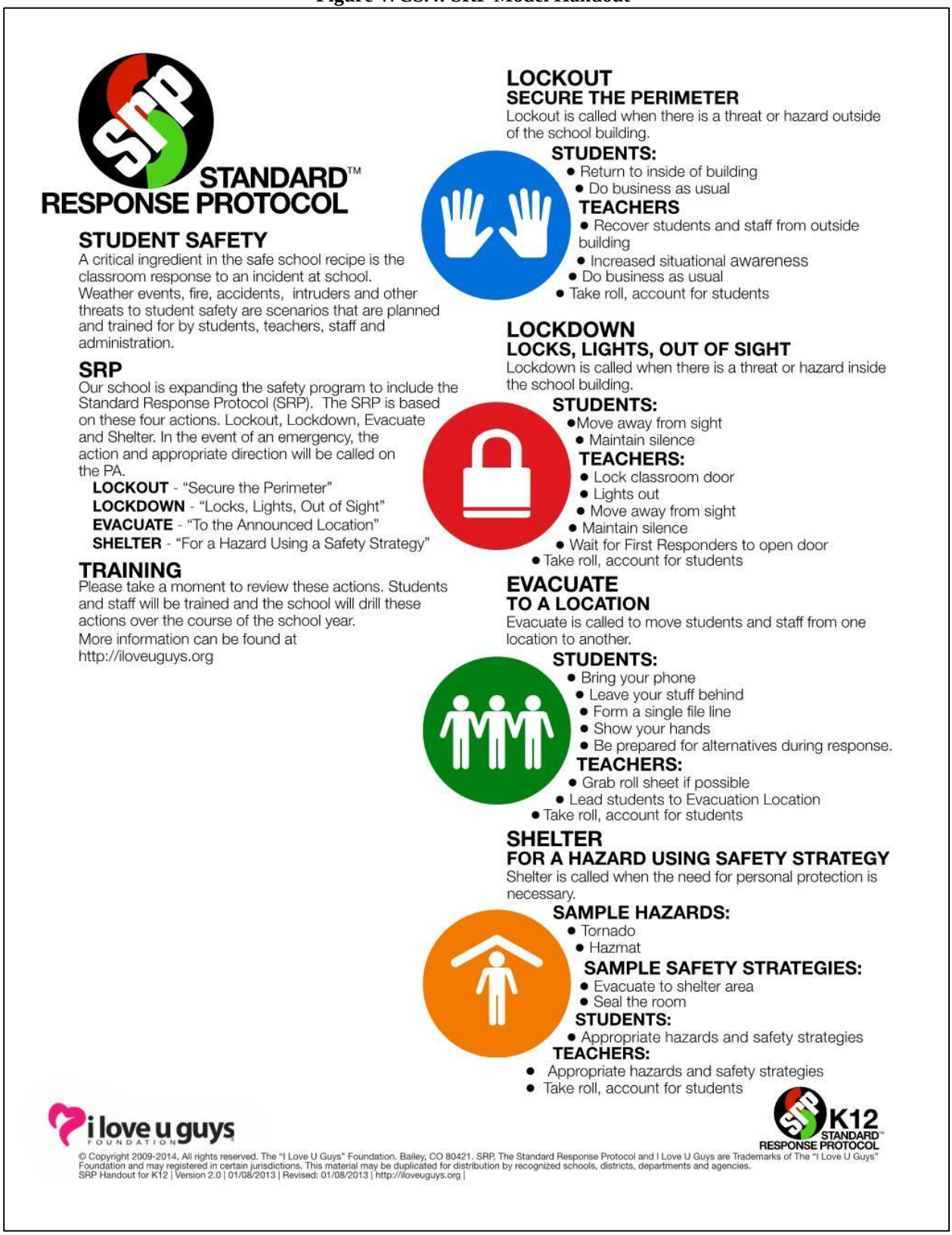


SCHOOL DRILLS AND STAFF TRAINING

The school district by law is required to conduct a number of drills throughout the year. Students and staff participate in: fire drills once every quarter, tornado drills once every semester, lockdown scenario once per year, and bus safety and evacuation once per year. Many of the staff are trained in CPR and the use of defibrillators, which are available in all of the schools. Batteries in the defibrillators are checked and replaced regularly.

Each school in the district has an Emergency Response Team with staff members being trained annually in the Standard Response Protocol (SRP) model. SRP utilizes four primary actions to respond to all situations including: weather events, fires, accidents, intruders, and other threats. The four actions are Lockout, Lockdown, Evacuate, and Shelter. The district has also met with the local police department to ensure that communication and organization is agreed upon prior to a hazard occurring in the district.

Figure WCS.4: SRP Model Handout



Source: The i love u guys Foundation (iloveuguys.org)

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 Omaha.

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 WCS.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)	Yes	Student and staff safety
Chemical Spills (Transportation)	Yes	Student and staff safety
Civil Disorder*	Yes	Vandalism to property
Dam Failure	No	None
Drought	Yes	None
Earthquakes	No	None
Extreme Heat	Yes	Power outages
Flooding	Yes	Property damage
Grass/Wildfires	No	None
Hail*	Yes	Property and tree damage
High Wind	Yes	Property and tree damage; 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 and tree damage
Severe Winter Storms*	Yes	Power outages; property damage; cancelled classes
Terrorism*	No	Security; student and staff safety
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.

Civil Disorder

The local planning team identified civil disorder has a hazard of concern. For the district, civil disorder tends to manifest itself in vandalism to schools. Loveland Elementary and West High Schools were both spray painted with obscenities, racial slurs, and swastikas in February 2012. The district estimates that the damages amounted to thousands of dollars with staff spending weekend hours cleaning the vandalism. The following September brought another round of vandalism to Hillside Elementary School. Three rooftop air conditioning units were tipped over and destroyed as well as a classroom window and outside lights were broken. Damages were estimated at $15,000.

Implemented mitigation projects:

- Communication devices available and replaced regularly
- Emergency operations plan is in place
- Utilize the Standard Response Protocol for student and staff safety
- Students and staff conduct drills annually

Identified mitigation projects:

- Upgrade and/or replace communication devices

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 Thunderstorms

Severe thunderstorms was identified as a top concern for the district by the local planning team. The combination of high winds, heavy rain, lightning, and hail can and have caused significant damages to district property. On the morning of August 18, 2015, a round of severe thunderstorms brought heavy rain to Omaha, which impacted Westside High School. A roof leak allowed the heavy rain to enter the building damaging ceiling tiles, baseboards, and soaking the carpet. Classes were cancelled for two days due to the damage. Many of the other buildings across the district have newer roofs, although none of them were built using hail resistant materials.

Implemented mitigation projects:

- Building Services maintains trees and removes any hazardous branches or trees. Larger tree removals are contracted out.
- Westgate Elementary School has hail guards installed on air conditioning units.

Identified mitigation projects:

- Hazardous tree removal program
- Obtain back-up power generators for facilities

Severe Winter Storms

Due to previous occurrences, the local planning team identified severe winter storms as a hazard of top concern for the school district. 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 buildings across the district experienced power outages, and a roof caved in from the heavy snow on the Westside High School gym.

On January 31 through February 1, 2015 a severe winter storm brought 6-9 inches of heavy snow across the school district and was also accompanied by blowing winds, which caused drifting snow. Classes were cancelled as a result of this storm.

Implemented mitigation projects:

- Newer roofs installed on school buildings
- Back-up power generator available at Westside High School
- Hazardous tree removal
- Snow removal equipment is sufficient

Identified mitigation projects:

- Obtain back-up power generator for each school

Terrorism

The local planning team for the district identified terrorism as a hazard of top concern. Although there have not been previous acts of terrorism in the district, a student shot and killed an assistant principal at a neighboring school district. The district has multiple ways of communicating with parents of students in the event of a lockdown, including voice recorded calls, texts, and emails. Radios and other communication devices have been identified as an ongoing mitigation project as they are replaced or upgraded on a regular basis.

Implemented mitigation projects:

- Communication devices available and replaced regularly
- Emergency operations plan is in place
- Utilize the Standard Response Protocol for student and staff safety
- Students and staff conduct drills regularly

Identified mitigation projects:

- Upgrade and/or replace communication devices

Tornados

The local planning team identified tornados as a top concern for the district. On May 6, 1975 an F-4 tornado tore through the Westside Community Schools District, heavily damaging the Westgate Elementary School. Fortunately, classes had dismissed for the day so there were no fatalities or injuries as a result. The school has since been rebuilt. The school district used an independent service to identify the safest storm shelter areas in each school. None of the schools currently have a FEMA certified safe room, however, as the school district builds new facilities, storm shelters will be included in the construction.

Implemented mitigation projects:

- Tornado drills are performed twice a year
- Back-up power generator available at Westside High School

Identified mitigation projects:

- Obtain back-up power generator for each school
- Construct tornado safe rooms for schools
- Develop a continuity plan

ADMINISTRATION/CAPABILITY ASSESSMENT

The school district has a superintendent, an assistant superintendent, 13 principals, two assistant principals, and several 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:

- Student Services Coordinator
- Crisis Response Team
- Special Education Director
- Staff Development
- Program Coordinator
- Technology Coordinator
- Nutrition Services
- Human Resources
- Communications Director
- Chief Financial Officer
- Building Services Director
- Supervisor of Custodial Services

The district's Building Services Director would oversee and delegate the implementation of mitigation projects in school facilities, and the district does have the authority to levy taxes and school bonds for specific purposes that maybe involve mitigation projects. Westside Community Schools currently does a number of education and outreach programs. These programs include natural disaster and safety related programs as well as ongoing public education and information programs.

PLAN INTEGRATION

Westside Community Schools maintain and review annually their emergency operations plan. The plan outlines the chain of command for crisis situations, communication procedures during an emergency, crisis management procedures, safety and emergency precautions and preparedness, and building security. As discussed earlier, the district utilizes the SRP model for training and responding to hazards. And a Facilities Master Plan was completed in March 2015, which outlines and recommends the three phases for renovation and new construction to address facility needs across the district over the next 15 years. Many of the needs identified will improve the safety and security of staff and students for many hazards including: tornados, high wind, severe thunderstorms and winter storms, civil disorder, and terrorism. It is anticipated that work will commence during the summer of 2016.

MITIGATION STRATEGY

New Mitigation Actions

Description	Weather Radios
Analysis	Conduct an inventory of weather radios at schools and 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	General budget, HMGP
Timeline	Ongoing
Priority	High
Lead Agency	Building Services
Status	Ongoing.

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	Building Services
Status	Service Center needs a generator.

Description	Hazardous Tree Removal
Analysis	Identify and remove hazardous limbs and/or trees.
Goal/Objective	Goal 3/ Objective 3.7
Hazard(s) Addressed	Severe Thunderstorms, High Winds, Tornados
Estimated Cost	$5,000+
Funding	General budget, Arbor Day Foundation
Timeline	Ongoing
Priority	High
Lead Agency	Building Services
Status	Removes trees as needed

Description	Tornado Shelters/Safe Rooms
Analysis	Design and construct fully supplied safe rooms in school facilities
Goal/Objective	Goal 1/Objective 1.2
Hazard(s) Addressed	Tornado
Estimated Cost	$200-$300/sqft stand alone; $150-$200/sqft addition/retrofit
Funding	Bonds, HMGP, PDM
Timeline	Ongoing
Priority	High
Lead Agency	CFO
Status	Elementary Schools are prioritized

Description	Public Awareness and Education
Analysis	Educate staff, students, and parents about hazard vulnerability and mitigation measures.
Goal/Objective	Goal 1/ Objective 1.5

Description	**Public Awareness and Education**
Hazard(s) Addressed	All hazards
Estimated Cost	$1,000+
Funding	General budget
Timeline	Ongoing
Priority	Medium
Lead Agency	Communications
Status	Ongoing

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.
Goal/Objective	Goal 1/ Objective 1.4
Hazard(s) Addressed	All hazards
Estimated Cost	Varies
Funding	General budget, Homeland Security
Timeline	Ongoing
Priority	High
Lead Agency	Building Services
Status	Ongoing

Description	**School Continuity Plan**
Analysis	Develop continuity plans for critical services including business and IT services in order to increase resiliency after a hazardous event.
Goal/Objective	Goal 3/ Objective 3.1
Hazard(s) Addressed	All hazards
Estimated Cost	$10,000
Funding	General budget
Timeline	2-5 years
Priority	Medium
Lead Agency	CFO, IT
Status	Not yet started