Section Three: Community Profile and Capability Assessment

Summary of Changes

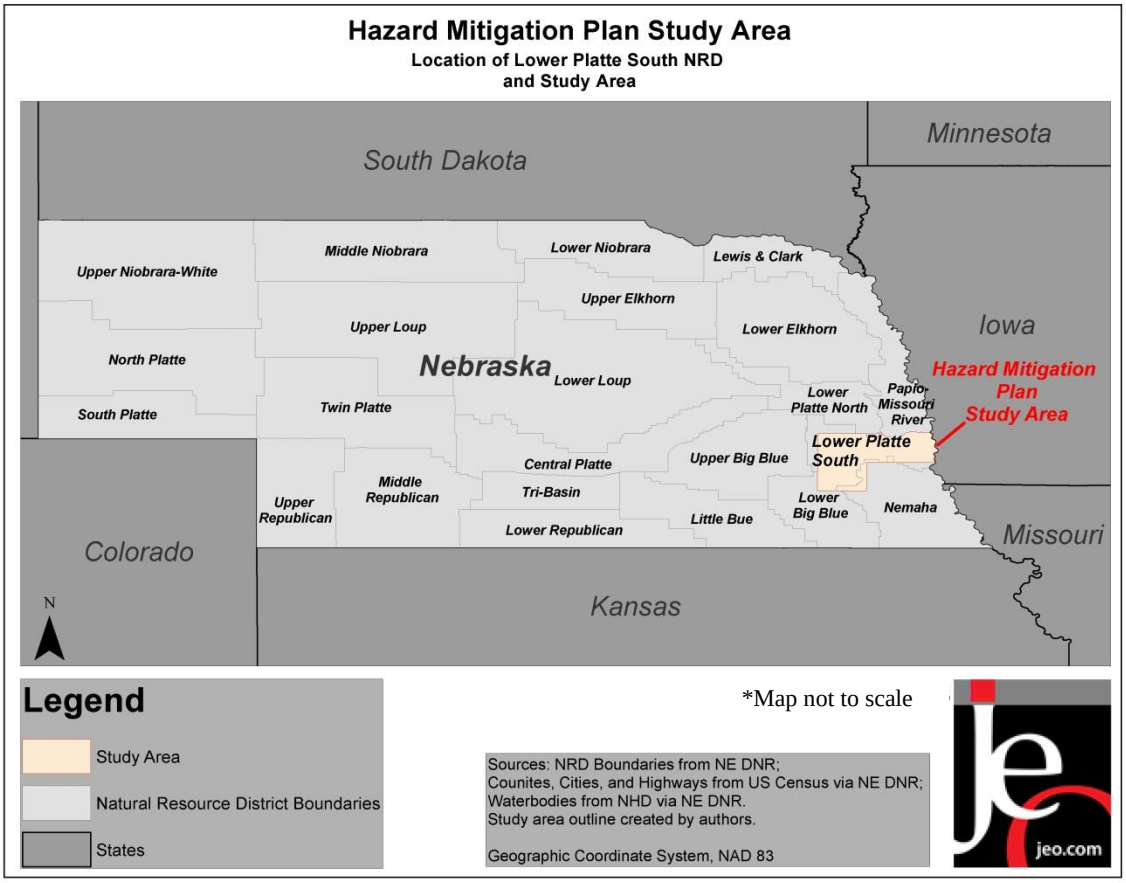
- Changes to the profile (expanded analysis)
- The majority of participating jurisdictions completed a Capability Assessment to determine their ability to implement mitigation strategies/projects in their community.

Planning area Geographic Summary

The LPSNRD is located in southeastern Nebraska and is made up of the majority of Lancaster and Cass counties as well as portions of Seward, Saunders, Otoe, and Butler counties. This region lies in a topographic region of 'rolling hills'. Rolling hills are elevated land with moderate to steep slopes and rounded ridge crests. In southeastern Nebraska, the rolling hills are mostly glacial till that has been eroded and mantled by loess.

The District consists of the Salt Creek Watershed and the Weeping Water Creek Watershed. The Salt Creek Watershed is comprised of a series of sub-basins such as; Antelope Creek, Beal Slough, Cardwell Branch, Deadman's Run, Callahan, Dee, Haines Branch, Little Salt Creek, Lynn Creek, Middle Creek, Oak Creek, Southeast Upper Salt Creek (SEUSC), and Stevens Creek basins. The District mostly drains into the Platte River along with the Missouri River to the east. As described by its name, the area is considered the southern portion of the Lower Platte River watershed.

Figure 3: Location of LPSNRD



The LPSNRD owns and maintains eight public access lakes, three recreational trails, and saline wetlands, located in Lincoln and Lancaster County. Saline wetlands are classified as such by the levels of salinity found in the soil. The saline wetlands are one of the earth's most rare ecosystems; only 4,000 acres of the estimated 20,000 that originally existed, remain today. The LPSNRD's wetlands are home to two endangered species, thus it is especially important to make thorough efforts to conserve these wetlands.

Demographics and Assets Summary

Demographic and asset information can be used to determine differing levels of vulnerability by analyzing data on population and housing, structural inventories and valuations, CFs, and highly vulnerable areas and populations for each participating jurisdiction.

POPULATION AND HOUSING

Table 4 to Table 8 below summarize various population and housing characteristics such as population trends; population by age; housing occupancy and tenure; and age of structures. Table 8 highlights selected demographic characteristics including housing units lacking complete facilities; mobile home housing units; and population 65 and older with a disability.

Table 4 provides a summary of population changes from 2000 to 2010. The percent of change was then used to project the population for 2020. This is a relatively simple method to predict population change and it does not account for predominant age cohorts in the community, birth and death rates, or in and out migration which will likely impact the rate of growth or decline.

As populations change, either growing or declining, the vulnerability of the community is impacted. If a community grows quickly it may lack resources to provide services for all members of the community in a reasonable timeframe, this could include issues like snow removal, emergency storm shelters, repairs to damaged infrastructure, or even tracking the location of vulnerable populations. Communities experiencing population decline may be more vulnerable to hazards as a result of vacant and/or dilapidated structures, an inability to properly maintain CFs and/or infrastructure, and higher levels of unemployment and population living in poverty. It is important for communities to monitor their population changes and ensure that those issues be incorporated into HMPs, as well as other planning mechanisms within the community.

Table 4: Population Trends 2000-2010

Jurisdiction	2000 Population	2010 Population	Change	2020 Projected Population
Alvo	142	132	-7.04%	123
Avoca	270	242	-10.37%	217
Cedar Creek	396	390	-1.52%	384
Eagle	1,105	1,024	-7.33%	949
Elmwood	668	634	-5.09%	602
Greenwood	544	568	4.41%	593
Louisville	1,046	1,106	5.74%	1,169
Manley	191	178	-6.81%	166
Murdock	269	236	-12.27%	207
Murray	481	463	-3.74%	446
Nehawka	232	204	-12.07%	179
Plattsmouth	6,887	6,502	-5.59%	6,139
South Bend	86	99	15.12%	114
Union	260	233	-10.38%	209

Jurisdiction	2000 Population	2010 Population	Change	2020 Projected Population
Weeping Water	1,103	1,050	-4.81%	999
Cass County	24,334	25,241	3.73%	26,182
Bennet	570	719	26.14%	907
Davey	153	154	0.65%	155
Denton	189	190	0.53%	191
Firth	564	590	4.61%	617
Hallam*	(2010)* 213	(2012)* 216	1.4%*	220*
Hickman	1,111	1,657	49.14%	2,471
Lincoln	225,581	258,379	14.54%	295,947
Malcolm	413	382	-7.51%	353
Panama	253	256	1.19%	259
Raymond	186	167	-10.22%	150
Roca	220	220	0.00%	220
Sprague	146	142	-2.74%	138
Waverly	2,448	3,277	33.86%	4,387
Lancaster County	250,291	285,407	14.03%	325,449
Ashland	2,262	2,453	8.44%	2,744
Brainard	351	330	-5.98%	310
Ceresco	920	889	-3.37%	859
Valparaiso	563	570	1.24%	577
LPSNRD	**278,721**	**314,890**	**12.98%**	**356,121**

Source: United States Census Bureau – 2000, 2010

**The village of Hallam was significantly impacted by a tornado in 2004, as a result the population of the community has decreased significantly from 2000 (population of 304) to 2010 (population of 213). For the purpose of the population projections Hallam's population change from 2010 to 2012 was used to project the 2020 population. It should be noted that this projection is based on a very narrow timeframe and provides a very rough estimate for population change.*

Overall, the planning area's population was 278,721 persons in 2000 and 314,890 persons in 2010. This is an increase of 36,169 people, or 12.98%, in ten years. The rural population was 24,739 persons in 2000 which increased to 26,499 persons in 2010, an increase of 2,260 people, or 9.14%. The urban population was 253,982 persons in 2000 and 288,391 persons in 2010, an increase of 34,409 people, or 13.55%. While this appears to be significant growth throughout the planning area, most growth occurred in a select number of communities. Communities with a population of 500 or less (18 communities) experienced a decline during this ten year period of over 6%. Communities with a population between 500 and 1,000 (six communities), with the exception of the city of Bennett, experienced a very slight population decline from 2000 to 2010, less than 1% decline. Communities with a population of over 1,000 and fewer than 7,000 (seven communities) experienced a population increase of nearly 7%. Again, growth in these communities was focused primarily in a small number of communities. The cities of Hickman, Ashland, and Waverly accounted for most of the population increase within these communities.

The most significant growth in the planning area is occurring in communities along Interstate 80 between Lincoln and Omaha and in communities southeast of Lincoln. These growth patterns present some concerns from a risk management perspective. Chemical, radiological, and other traffic incidents can have real and significant impacts on these communities. Communities along major transportation corridors, like Interstate 80, should develop and/or update planning mechanisms to ensure their population is insulated as much as possible

from potential impacts. The Lancaster County Emergency Management Agency has developed protocols to address the concerns posed by the major transportation routes. The Local Emergency Operations Plan addresses this threat and Lancaster Couth EMA has conducted a table top exercise in 2014 to simulate a chemical release during transportation incident. Additionally, severe winter storms can significantly impact these communities.

Communities with decreasing population are located primarily in more rural areas, away from metropolitan centers and major transportation corridors. As these communities experience population decline, they become more vulnerable to the impacts from natural and manmade hazards. Declining populations often result in higher rates of empty or vacant properties, declining or poorly maintained infrastructure, and reduced response and recovery capabilities.

Table 5: Population by Age

Jurisdiction	< 5 - 9	10 - 19	20 - 34	35 - 54	55 - 64	65 - 84	> 85	Median	Total
Alvo	26	16	32	32	13	12	1	30.7	**132**
	20%	12%	24%	24%	10%	9%	1%		**100%**
Avoca	33	42	37	72	26	27	5	37.3	**242**
	14%	17%	15%	30%	11%	11%	2%		**100%**
Cedar Creek	43	43	32	112	62	90	8	50.3	**390**
	11%	11%	8%	29%	16%	23%	2%		**100%**
Eagle	188	124	230	291	111	70	10	32.7	**1,024**
	18%	12%	22%	28%	11%	7%	1%		**100%**
Elmwood	98	110	97	170	66	76	17	36.7	**634**
	15%	17%	15%	27%	10%	12%	3%		**100%**
Greenwood	67	75	105	178	74	61	8	40.7	**568**
	12%	13%	18%	31%	13%	11%	1%		**100%**
Louisville	159	136	222	296	123	130	40	37.4	**1,106**
	14%	12%	20%	27%	11%	12%	4%		**100%**
Manley	22	31	24	55	23	23	0	43.5	**178**
	12%	17%	13%	31%	13%	13%	0%		**100%**
Murdock	23	20	49	62	42	35	5	44	**236**
	10%	8%	21%	26%	18%	15%	2%		**100%**
Murray	58	65	70	128	59	71	12	41.4	**463**
	13%	14%	15%	28%	13%	15%	3%		**100%**
Nehawka	28	27	34	49	33	31	2	41.6	**204**
	14%	13%	17%	24%	16%	15%	1%		**100%**
Plattsmouth	972	932	1199	1743	701	761	194	36.5	**6,502**
	15%	14%	18%	27%	11%	12%	3%		**100%**
South Bend	8	12	17	30	13	18	1	44.8	**99**
	8%	12%	17%	30%	13%	18%	1%		**100%**
Union	41	24	45	75	24	21	3	36.1	**233**
	18%	10%	19%	32%	10%	9%	1%		**100%**

Jurisdiction	< 5 - 9	10 - 19	20 - 34	35 - 54	55 - 64	65 - 84	> 85	Median	Total
Weeping Water	141	155	193	301	124	119	17	38	**1,050**
	13%	15%	18%	29%	12%	11%	2%		**100%**
Cass County	3,385	3,577	3,750	7,410	3,516	3,072	531	41	**25,241**
	13%	14%	15%	29%	14%	12%	2%		**100%**
Bennet	121	79	185	186	65	79	4	32.9	**719**
	17%	11%	26%	26%	9%	11%	1%		**100%**
Davey	19	26	23	44	18	21	3	39.6	**154**
	12%	17%	15%	29%	12%	14%	2%		**100%**
Denton	33	17	39	51	22	26	2	37.6	**190**
	17%	9%	21%	27%	12%	14%	1%		**100%**
Firth	95	105	108	141	33	83	25	34.2	**590**
	16%	18%	18%	24%	6%	14%	4%		**100%**
Hallam	42	21	43	68	24	13	2	35.1	**213**
	20%	10%	20%	32%	11%	6%	1%		**100%**
Hickman	332	253	346	435	163	96	32	31.8	**1,657**
	20%	15%	21%	26%	10%	6%	2%		**100%**
Lincoln	35494	33692	71330	62906	27224	23238	4495	31.8	**258,379**
	14%	13%	28%	24%	11%	9%	2%		**100%**
Malcolm	56	57	60	121	59	28	1	38.7	**382**
	15%	15%	16%	32%	15%	7%	0%		**100%**
Panama	41	46	35	72	33	26	3	38	**256**
	16%	18%	14%	28%	13%	10%	1%		**100%**
Raymond	12	28	26	60	27	12	2	45.2	**167**
	7%	17%	16%	36%	16%	7%	1%		**100%**
Roca	33	35	45	74	21	11	1	34.5	**220**
	15%	16%	20%	34%	10%	5%	0%		**100%**
Sprague	17	16	30	39	17	17	6	39	**142**
	12%	11%	21%	27%	12%	12%	4%		**100%**
Waverly	633	518	626	918	281	265	36	32.8	**3,277**
	19%	16%	19%	28%	9%	8%	1%		**100%**
Lancaster County	39078	37905	74780	71283	31260	26298	4803	32.6	**285,407**
	14%	13%	26%	25%	11%	9%	2%		**100%**
Ashland	355	341	463	672	232	317	73	37	**2,453**
	14%	14%	19%	27%	9%	13%	3%		**100%**
Brainard	35	47	37	94	52	60	5	45.5	**330**
	11%	14%	11%	28%	16%	18%	2%		**100%**

Jurisdiction	< 5 - 9	10 - 19	20 - 34	35 - 54	55 - 64	65 - 84	> 85	Median	Total
Ceresco	147	124	162	262	106	80	8	35.6	**889**
	17%	14%	18%	29%	12%	9%	1%		**100%**
Valparaiso	72	83	88	164	72	82	9	41.4	**570**
	13%	15%	15%	29%	13%	14%	2%		**100%**
Lower Platte North NRD	43,072	42,077	79,280	79,885	35,238	29,909	5429		**314,890**
	14%	13%	25%	25%	11%	9%	2%		**100%**

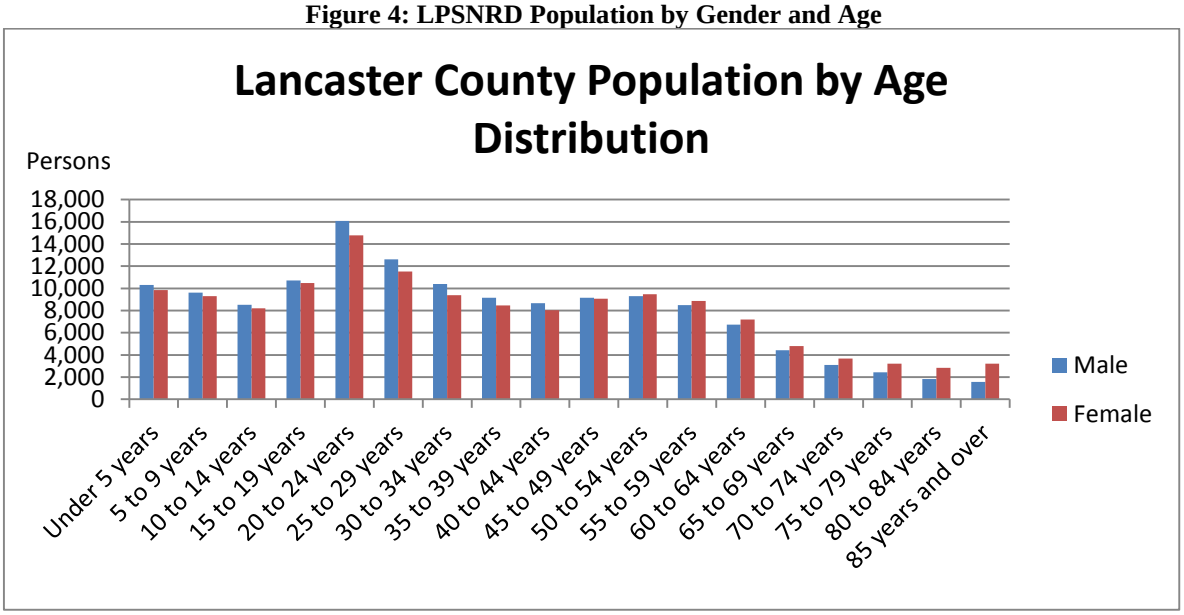
Source: United States Census Bureau – 2010

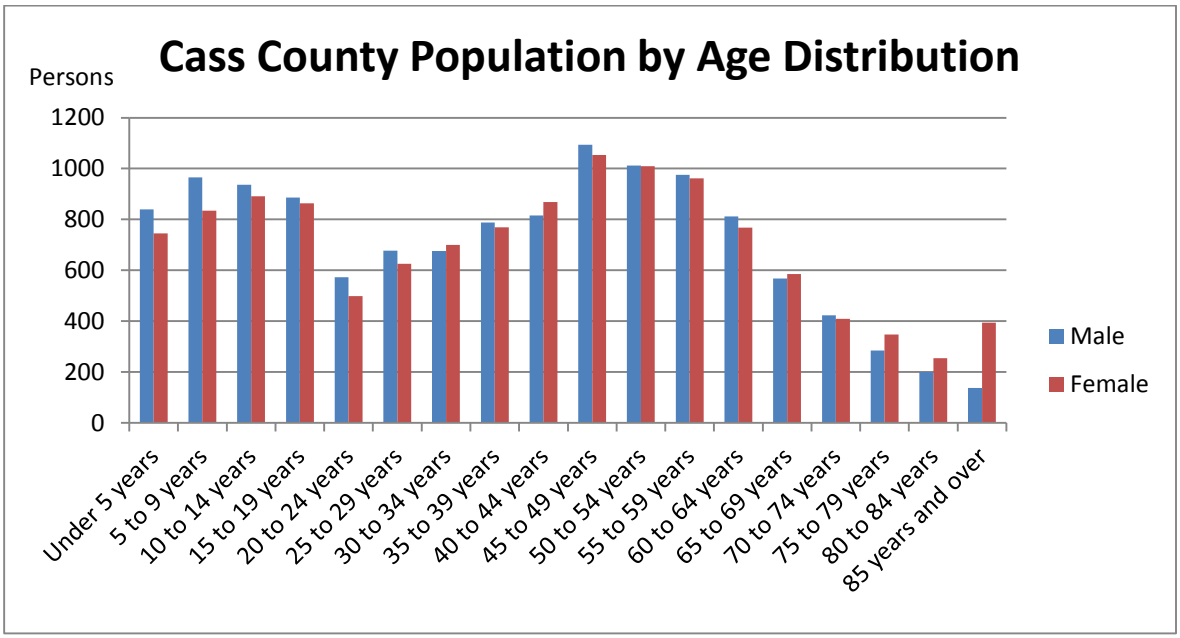
The largest age cohort of 35-54 represents 25.4% of the total population, or 79,885 persons. The smallest age cohort of 85 and older represents 2%, or 5,429 persons. Cedar Creek (25%), Brainard (20%), South Bend (19%), Firth (18%), and Murray (18%) are well above the planning area average of 11% of the population 65 and older.

The age cohorts that represent the highest levels of vulnerability, general, are those of people under the age of 19 and over the age of 65. For the planning area, more than 27%of the population is under the age of 19. This group is vulnerable to a wide range of hazards including: severe winter storms, tornado, and extreme heat. Most individuals under the age of 19 are reliant on others for transportation. Events that require evacuation or relocation (such as moving to a tornado shelter) would require transportation that may or may not be available, as they are dependent on others in the area. This demographic group is more likely to be clustered together especially during daytime hours when they are in school. An event like a tornado that impacts a school building during school hours could result in a much higher injury and/or fatality count than if this group was dispersed throughout the community. According to the American Association of Pediatricians, children of all ages are much more vulnerable to the effect of extreme heat due to a decreased ability to regulate their body temperature.

Individuals over the age of 65 constitute more than 11%of the planning area population. This demographic group also experiences higher risks related to a number of natural hazards which include: severe winter storms, tornados, severe thunder storms, and extreme heat. A 2011 study conducted by the Center for Injury Research and Policy found that on average there are 11,500 injuries and 100 deaths annually related to snow removal. People, especially males, over the age of 55 are 4.25 times more likely to experience cardiac symptoms during snow removal. Community members over the over the age of 65 have a higher rate of decreased mobility directly impacting their ability to seek shelter during extreme weather events such as severe thunderstorms or tornados. Power outages during severe thunderstorms and severe winter storms may also result in prolonged power outages resulting in negative outcomes for community members dependent on medical equipment.

Figure 4: LPSNRD Population by Gender and Age





Source: United States Census Bureau – 2010

Table 6: Housing Occupancy and Tenure

Jurisdiction	Total Housing Units				Occupied Housing Units			
	Occupied		Vacant		Owner		Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Alvo	52	86.7%	8	13.3%	46	88.5%	6	11.5%
Avoca	94	87.9%	13	12.1%	80	85.1%	14	14.9%
Cedar Creek	170	54.5%	142	45.5%	153	90.0%	17	10.0%
Eagle	384	91.9%	34	8.1%	327	85.2%	57	14.8%
Elmwood	243	91.7%	22	8.3%	186	76.5%	57	23.5%
Greenwood	150	96.8%	5	3.2%	140	93.3%	10	6.7%
Louisville	477	92.6%	38	7.4%	331	69.4%	146	30.6%
Manley	66	98.5%	1	1.5%	51	77.3%	15	22.7%
Murdock	109	92.4%	9	7.6%	91	83.5%	18	16.5%
Murray	187	89.0%	23	11.0%	163	87.2%	24	12.8%
Nehawka	83	84.7%	15	15.3%	74	89.2%	9	10.8%
Plattsmouth	2525	88.2%	338	11.8%	1645	65.1%	880	34.9%
South Bend	41	87.2%	6	12.8%	31	75.6%	10	24.4%
Union	91	86.7%	14	13.3%	71	78.0%	20	22.0%
Weeping Water	427	91.6%	39	8.4%	330	77.3%	97	22.7%
Cass County	9,698	87.3%	1,419	12.7%	7,839	80.8%	1,859	19.2%
Bennet	286	93.5%	20	6.5%	243	85.0%	43	15.0%
Davey	61	92.4%	5	7.6%	52	85.2%	9	14.8%
Denton	82	95.3%	4	4.7%	59	72.0%	23	28.0%
Firth	204	93.6%	14	6.4%	141	69.1%	63	30.9%
Hallam	78	96.3%	3	3.7%	68	87.2%	10	12.8%
Hickman	587	96.4%	22	3.6%	473	80.6%	114	19.4%
Lincoln	103546	93.7%	7000	6.3%	60664	58.6%	42882	41.4%
Malcolm	143	87.2%	21	12.8%	114	79.7%	29	20.3%
Panama	90	90.0%	10	10.0%	76	84.4%	14	15.6%
Raymond	71	93.4%	5	6.6%	63	88.7%	8	11.3%
Roca	81	97.6%	2	2.4%	70	86.4%	11	13.6%
Sprague	61	96.8%	2	3.2%	51	83.6%	10	16.4%
Waverly	1113	96.6%	39	3.4%	910	81.8%	203	18.2%
Lancaster County	113,373	93.8%	7,502	6.2%	69,309	61.1%	44,064	38.9%
Ashland	951	89.7%	109	10.3%	640	67.3%	311	32.7%
Brainard	152	87.4%	22	12.6%	118	77.6%	34	22.4%
Ceresco	333	95.1%	17	4.9%	273	82.0%	60	18.0%
Valparaiso	241	87.3%	35	12.7%	196	81.3%	45	18.7%
LPSNRD	124,748	93.2%	9,104	6.8%	78,375	62.8%	46,375	37.2%

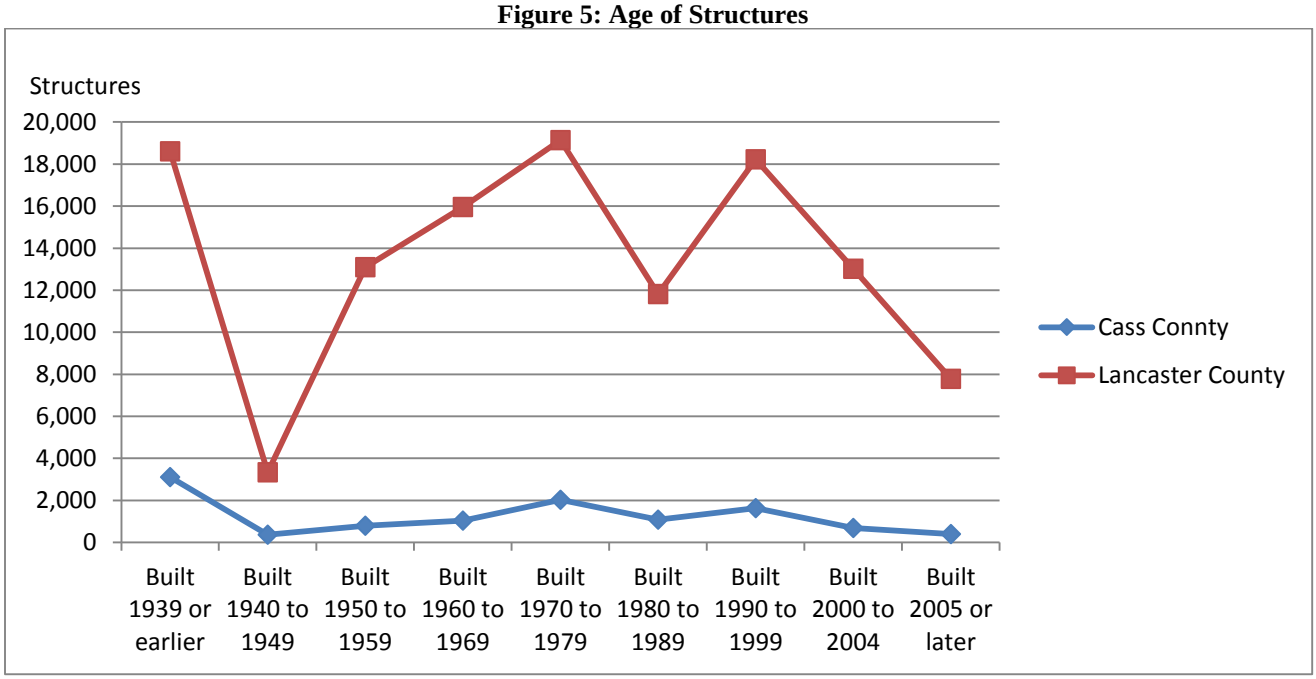
Source: United States Census Bureau, 2010

According to the US Census there are 133,852 housing units in the planning area. Nearly 45% of housing units in the planning area were constructed prior to 1970 (making the age of these units more than 40 years old). According to the Department of Housing and Urban Development (HUD), homes of this vintage are at greater risk of poor repair and dilapidation resulting in blighted or substandard properties. This is significant in assessing hazard vulnerability because these housing units may result in living quarters that are prone to higher damages during disaster events which include high winds, tornados, hail, severe thunderstorms, and severe winter storms.

For the planning area nearly 7% of housing units are vacant. Vacant housing units in a community add to vulnerability by creating structures that are poorly maintained and more likely to be derelict. During disaster events like tornados or high winds, these structures may fail and result in debris which can impact other structures as well as humans, resulting in higher damage totals and injuries or fatalities. Vacant housing units can also be a haven for criminal activity. This often results in deteriorating neighborhoods and communities. Some of the participating communities in this planning process have already identified the concern related to older building stock and revitalization efforts. Some of the participating jurisdictions have completed blight studies to help define their needs and an approach to address the concerns.

Of the occupied housing units, more than 37% are renter occupied. Renter occupied housing units often do not receive many of the updates and retrofits that are need to make them resilient to disaster impacts. Communities may consider enacting landlord outreach programs aimed at educating property owners about the threats in their area and what they can do to help reduce the vulnerability of the tenants living in their housing units. It should be noted that Lancaster County has a significantly higher percentage of renter occupied housing units than Cass County. Renter occupied housing units in Lancaster County account for 39% of housing units, while Cass County renter occupied units only comprise 19% of the housing stock. The City of Lincoln, the largest community in the planning area, has more than 40% of housing stock occupied by renters.

Figure 5: Age of Structures



Source: U.S. Census Bureau, 2010

Table 7: Selected Demographic Characteristics, Cass County

Cass County Selected Characteristics

Occupied housing units	9,770	% of Total
Lacking complete plumbing facilities	46	0.50%
Lacking complete kitchen facilities	80	0.80%
No telephone service available	132	1.40%
Mobile Homes	698	6.30%
Housing Unit with No vehicles available	356	3.60%
Population 65+ (Disability)	1,024	29.80%

Sources: United States Census Bureau – 2006-2010 American Community Survey 5-year Estimate, 2010 Census Data

Table 8: Selected Demographic Characteristics, Lancaster County

Lancaster County Selected Characteristics		
Occupied housing units	114,649	% of Total
Lacking complete plumbing facilities	207	0.20%
Lacking complete kitchen facilities	863	0.80%
No telephone service available	2,467	2.20%
Mobile Homes	2,442	2.00%
Housing Unit with No vehicles available	7,159	6.20%
Population 65+ (Disability)	10,202	33.70%

Sources: United States Census Bureau – 2006-2010 American Community Survey 5-year Estimate, 2010 Census Data

The selected housing characteristics include housing units that lack complete plumbing or kitchen facilities, have no telephone service, or are mobile homes. Overall, less than 1% of the housing units in the planning area lack plumbing or kitchen facilities. The lack of these facilities may result in increased vulnerability if efforts to accommodate these deficiencies result in unsafe and/or dangerous living conditions such as cooking on hotplates or over open fires. These types of activities could result in urban fires in some situations. Approximately 2% of housing units lack access to landline telephone service. This does not necessarily indicate there is not phone in the housing unit, as cellular telephones are increasingly a primary form of telephone service. However, this lack of access to landline telephone service does represent a population at increased risk to disaster impacts. Reverse 911 systems are designed to contact households via landline services and as a result, some homes in hazard prone areas may not receive notification of potential impacts in time to take protective actions. Nearly 2.5% of housing units in the planning area are mobile homes. Mobile homes are at a higher risk of sustaining damages during high wind events, tornados, severe thunderstorms, and severe winter storms. Mobile homes that are either not anchored or are anchored incorrectly can be overturned by 60 mph winds. Many of the zoning regulations addressed the anchoring of mobile homes. A thunderstorm is classified as severe when wind speeds exceed 58mph, placing improperly anchored mobile homes at risk.

Tables 7 and 8 also show the disability status of the civilian non-institutionalized population of age 65 and older. This information, along with the low to moderate income percentage of the planning area (38%), conveys the vulnerabilities of this jurisdiction to the effects of all hazards listed in the plan. These demographic groups can be more vulnerable to hazard events due to decreased mobility and few resources and options for implementing mitigation strategies.

RURAL WATER DISTRICTS

There are many sparsely populated rural areas in Nebraska. Many residents in these areas are served by Rural Water Districts (RWDs) for their water supply. These special districts own, operate, and maintain complex 'long pipe' distribution systems. For the 2014 LPSNRD HMP, two RWDs opted to participate in the planning

process. Table 9 shows the percent change in these districts measured by number of meters (the most appropriate method per management at the RWDs). Both the RWDs in Cass County experienced an increase in total number of meters from 2008 to 2013 while the RWD in Lancaster County experienced a slight decline in meters.

Table 9: Growth Trends in the Rural Water Districts

Jurisdiction	2008 Population by Meter	2013 Population by Meter	% Change
Cass County Rural Water District #1	1,200	1,228	2.33%
Jurisdiction	**2008 Population by Meter**	**2013 Population by Meter**	**% Change**
Cass County Rural Water District #2	653	735	12.56%
Lancaster County Rural Water District #1	1,500	1,450	-3.33%

Source: Rural Water Districts

NATIONAL HISTORIC REGISTRY

According to the National Register of Historic Places, below is a summary list of the historic sites located within the planning area.

Table 10: National Historic Registry

County	Building	District	Site	Structure
Butler (Brainard)	0	0	1	0
Cass	14	4	5	1
Lancaster	83	8	4	5
Saunders (Ashland, Ceresco, Valparaiso)	5	1	0	1

Source: Nebraska National Register

FEDERAL AND/OR STATE PROPERTIES

There are a considerable number of state and federal agencies located within the planning area due to the Nebraska state capital being located in the LPSNRD. Many of these agencies are located in the Centennial Mall building. In total there are 24 state and federal buildings located in the planning area. Many of these facilities also have plans in place related to specific risks and hazards that they face.

In addition to the regular governmental buildings located in the planning area, the city of Lincoln is also home to the University of Nebraska's main campus. The University of Nebraska – Lincoln was established in 1869. Currently the University has an enrollment of 24,445. The university has set a goal of increasing enrollment to 30,000 by 2017.

The campus for the University of Nebraska – Lincoln is divided between the "city campus" and "east campus". The city campus is more active than east campus, with more structures and a higher concentration of students, staff, and faculty. The University of Nebraska participated in the planning process and was represented on the planning team by the Emergency Preparedness Coordinator. The University has more than 130 structures in the planning area, but did not provide a specific inventory or evaluation for those structures for the purpose of this plan. The following maps were taken from the Master Plan for the University of Nebraska – Lincoln, which was adopted in 2013. These maps show buildings by use, as well as buildings on the city campus located in the floodplain. Currently the University has one dorm, one dining hall, printing services, landscape services, and the Devaney Center all located in the 1% annual flood risk area. Recently work was completed on the Antelope Valley Parkway which reduced some of the flooding threat for these structures.

Figure 6: University of Nebraska City Campus

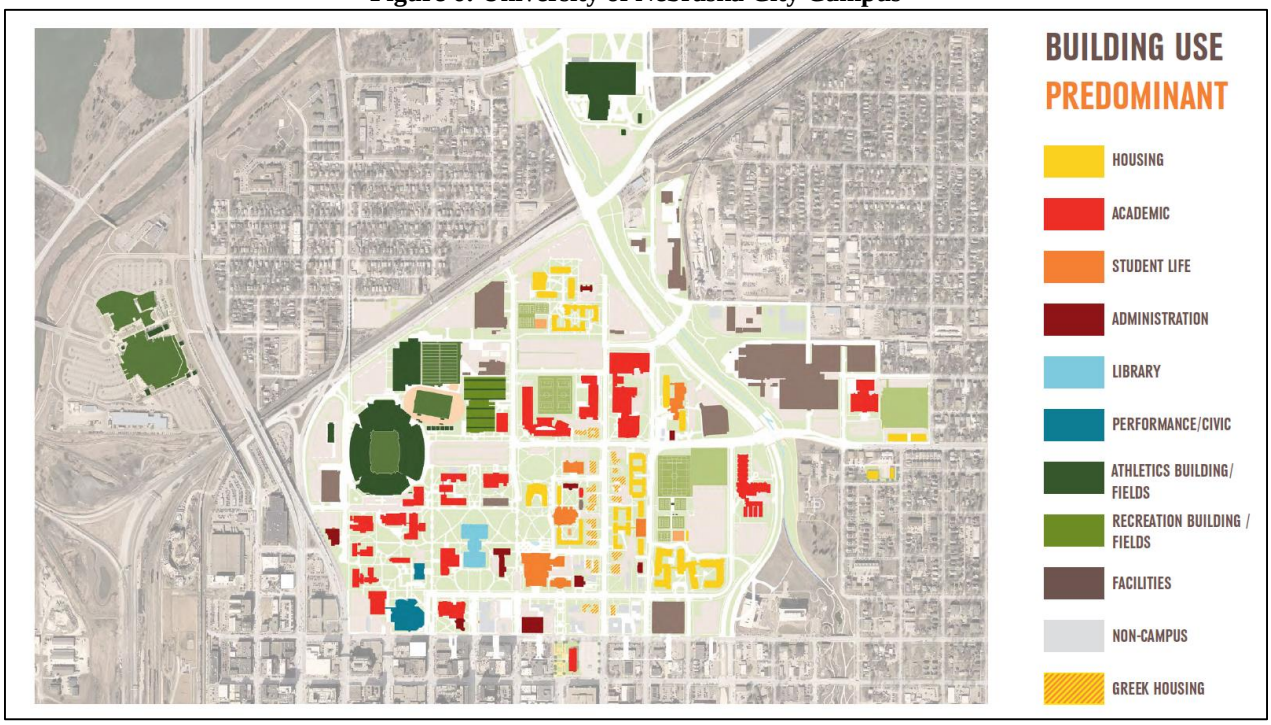


Figure 7: University of Nebraska City Campus Floodplain

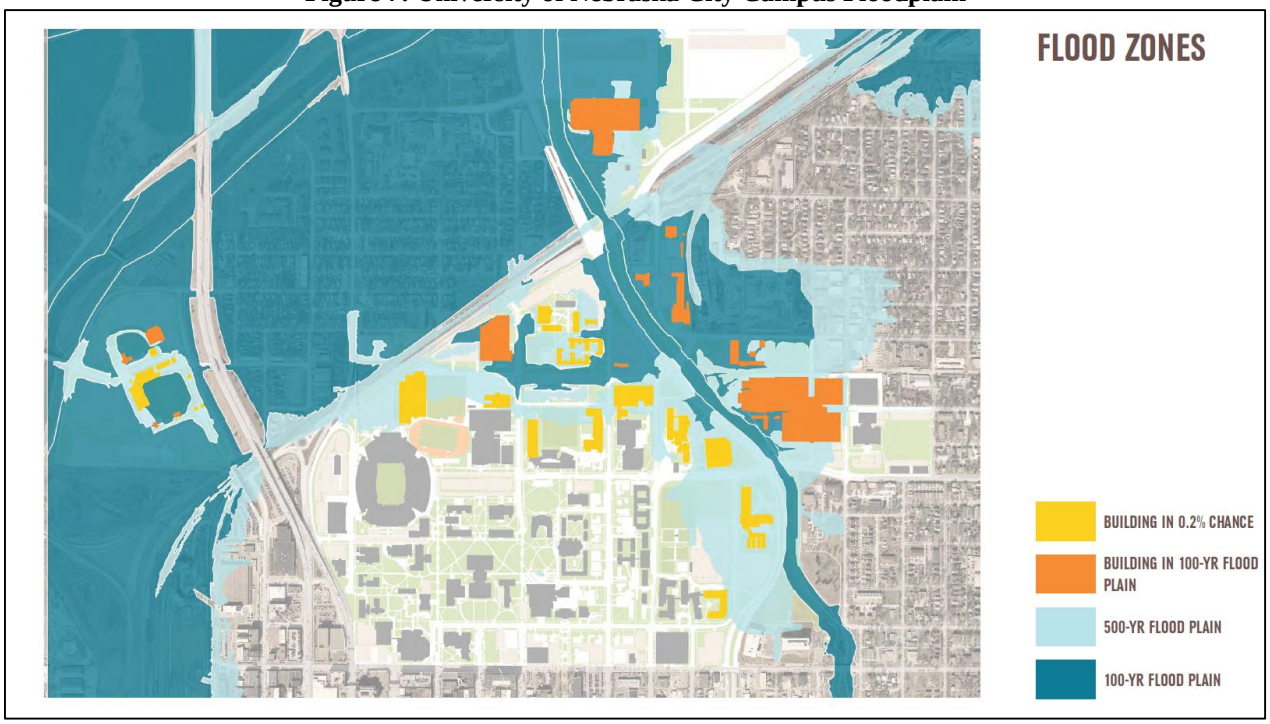
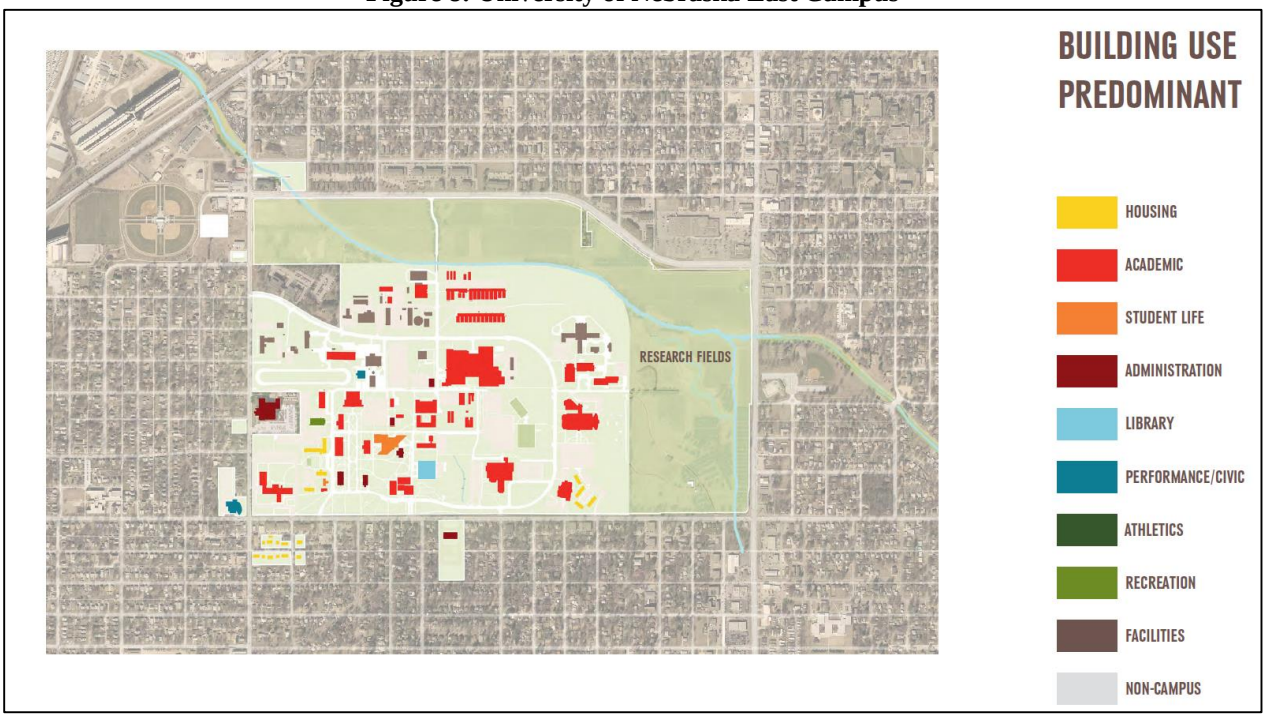


Figure 8: University of Nebraska East Campus



Source: University of Nebraska Master Plan

CRITICAL INFRASTRUCTURE AND KEY RESOURCES (CIKR)

DHS defined critical infrastructure as "assets, systems, and networks, whether physical or virtual, so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof".

According to FEMA, "A critical facility is a structure that, if flooded [or damaged], would present an immediate threat to life, public health, and safety." Examples of CFs include hospitals, Emergency Operation Center (EOC), schools, wells, and sanitary sewer lift stations, etc.

Each participating jurisdiction identified CFs vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster. CFs were updated at the 'mitigation alternative' public meetings through the meeting worksheets (refer to *Appendix C*). Table 11 is a summary of law enforcement, fire departments, and emergency management facilities for the entire planning area.

Table 11: Critical Facilities

Law Enforcement, Fire Departments, and Emergency Management Facilities			
Community	**Law Enforcement**	**Fire Department**	**Emergency Management**
Alvo	0	1	0
Avoca	0	1	0
Cedar Creek	0	1	0
Eagle	0	1	0
Elmwood	0	1	0

Community	Law Enforcement	Fire Department	Emergency Management
Greenwood	0	1	0
Louisville	0	1	0
Manley	0	1	0
Murdock	0	1	0
Murray	0	1	0
Nehawka	0	1	0
Plattsmouth	2	1	1
Union	0	1	0
Weeping Water	0	1	1
Cass County	2	14	2
Bennet	0	1	0
Firth	0	1	0
Hallam	0	1	0
Hickman	0	1	0
Lincoln	3	18	1
Malcolm	0	1	0
Raymond	0	1	0
Waverly	0	1	0
Lancaster County	3	25	1
Ashland	1	1	0
Brainard	0	1	0
Ceresco	0	1	0
Valparaiso	0	1	0
LPSNRD	5	43	3

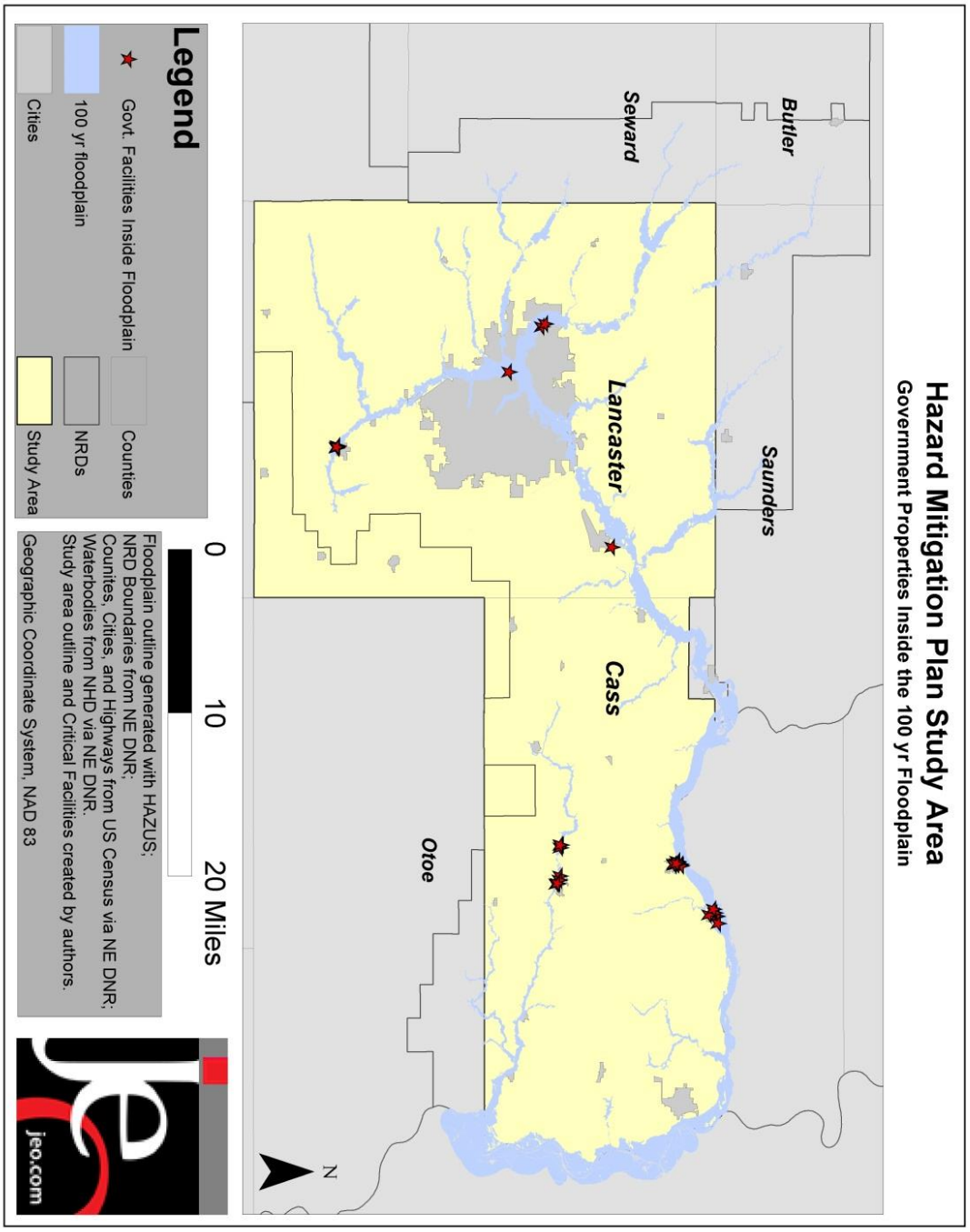
Table 12 shows the CFs summary for the whole planning area; for a list and map of CFs for participating jurisdictions please refer to *Section Seven: Participant Sections.*

Table 12: LPSNRD Critical Facilities Summary

CF (Infrastructure)	# Identified	CF (Facility)	# Identified
Municipal Well	31	Church	73
Water Tower	22	Fire Hall/Station	43
Lift Station	12	Educational	48
Pump House	7	Hospital/Clinic	10
Water Plant/Lagoon	27	Maintenance Building	22
CF (Facility)	**# Identified**	Nursing Home/Child Care Center & Homes/Preschool	583
Public Power District	10	Emergency Siren	5
American Legion	10	Gas Station	1
Storage Building	12	COOP	2
County/City Building	15	Jail/911 Center/Police	13
Utility Department	12	Community Center/Hall	34

CF (Facility)	# Identified	CF (Facility)	# Identified
Communication/Cell Tower	5	Major Employer	19
Substation	1	Pool	4
Dam/Levee	3	Park/Ball Field	28
Shelter	5	Post Office	6

Figure 9: Government Properties inside the 100-Year Floodplain



Structural Inventory

A structural inventory was completed for the corporate limits of each incorporated jurisdiction in the planning area. Structural inventories were completed in order to determine the types and numbers of structures within each jurisdiction. This inventory provided valuable information on the vulnerability and potential losses to each plan participant.

Structural inventory data was collected from county assessors who were able to provide a data set which includes location of property, zoning for properties (in Cass and Lancaster Counties only), parcel value, and value for improvements (structures). This information was used for assessing risk to structures related to hazards with known geographic locations such as flooding.

Structures are categorized into the following classifications:

- **Residential**, including all residential structures: single-family dwellings, multi-family dwellings (duplexes, townhomes, and apartments), trailer homes, and retirement villages. High-Density Residential buildings, such as apartment buildings, were also identified. In this process, these were treated as residential structures.
- **Commercial/Industrial**, including all structures associated with commercial or industrial uses, such as motels, restaurants, gas stations, storage facilities, hair salons, manufacturing facilities, grain elevators, etc.
- **Public/Quasi Public**, including structures that are a part of any government facility, religious facility, non-profit organization, or community facility, such as post offices, county buildings, courthouses, city halls, fire stations, schools, churches, water treatment facilities, park facilities, etc.
- **Agricultural**, including buildings used solely for agricultural purposes in which the use is exclusively in connection with the production, harvesting, storage, drying, or raising of agricultural commodities, including the raising of livestock.
- **Others**, including those structures which are on the property but cannot be classified as all previous types of structures; these structures may include but are not limit to detached garages, storage sheds, swimming pools, and retaining walls.

HAZUS-MH

HAZUS-MH is a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes. It uses Geographic Information Systems (GIS) technology to estimate physical, economic, and social impacts of disasters.

HAZUS is used for mitigation and recovery as well as preparedness and response. The software has been widely applied by governments in the U.S. as well as emergency management organizations worldwide. Based on the hazard risk assessment and information available for analysis, only 1% flood events were simulated in the region using HAZUS-MH to predict potential losses. Refer to Flood in *Section Four: Risk Assessment* for further information regarding HAZUS-MH analysis.

STRUCTURAL INVENTORY AND VALUATION SUMMARY

Table 13 displays the structural inventory and evaluation summaries for both the cities and counties in the planning area.

Table 13: Structural Inventory and Valuation Summary

Jurisdiction	Commercial/ Industrial		Agricultural		Residential		Other		Total	
	#	Value	#	Value	#	Value	#	Value	#	Value
Cass County	988	$187,462,530	1,683	$46,211,850	6,613	$1,577,158,213	5,223	$8,143,524	14,507	$1,818,976,117
Lancaster County	6,932	$5,106,610,580	7,327	$39,870,300	79,303	$13,598,816,168	43,260	$20,434,113	136,822	$18,765,731,161
LPSNRD	7,920	$5,197,494,004	9,010	$1,022,173,653	85,916	$9,703,901,941	48,483	$8,376,430,402	151,329	$24,300,000,000

Source: Lancaster & Cass County Assessor Data
**Denotes communities located in Butler and Saunders Counties. The county assessor's offices for these jurisdictions do not differentiate different uses (i.e. residential, agricultural, commercial, etc.). As a result the structural inventory does not provide a break down by use.*

Climate Summary

Located on the Great Plains far from the moderating influence of mountains or large bodies of water, the planning area possesses a highly variable four-season humid continental climate: winters are cold, but relatively dry; springs are generally warm with a regular wind; summers are hot and humid; and fall is generally pleasant but can produce an early season snow event. With little precipitation falling during winter, precipitation is concentrated in the warmer months, when thunderstorms frequently roll in, often producing tornados. Snow tends to fall in light amounts, though blizzards are possible. Snow cover is not very reliable due to both the low precipitation and the frequent thaws during winter.

The monthly daily average temperature ranges from 24.6 °F (−4.1 °C) in January to 77.6 °F (25.3 °C) in July. However, the planning area is subject both to episodes of bitter cold in winter and heat waves during summer, with 11.4 nights of sub-0 °F (−18 °C) lows, 41 days of 90 °F (32 °C)+ highs, and 4.6 days of 100 °F (38 °C)+ highs. The planning area straddles the boundary of USDA Plant Hardiness Zones 5b and 6a, indicating an annual minimum temperature of around −10 °F (−23 °C). Temperature extremes have ranged from −33 °F (−36 °C) on January 12, 1974 up to 115 °F (46 °C) on July 25, 1936.

FARM SERVICE AGENCY: SBA DECLARED DISASTERS

The U.S. SBA was created in 1953 as an independent agency of the federal government to aid, counsel, assist, and protect the interests of small business concerns, to preserve free competitive enterprise, and maintain and strengthen the overall economy of our nation. A program of the SBA includes disaster assistance for those affected by major natural disasters. Table 14 summarizes the SBA Disasters involving the planning area.

Table 14: Farm Service Agency SBA Disasters

Declared	Disaster Number	Description and Documents	Primary Counties	Contiguous Counties
4/10/2013	NE-00053	Drought	Multiple (Butler, Lancaster, Otoe, Saunders)	Multiple
1/9/2013	MO-00060	Drought	Multiple	Multiple (Otoe)
8/22/2012	NE-00052	Drought, Excessive Heat, and High Winds	Multiple	Multiple (Lancaster, Otoe)
8/8/2012	NE-00050	Drought	Multiple (Saunders)	Multiple (Cass, Lancaster)

Source: United States SBA

PRESIDENTIAL DISASTER DECLARATIONS

The presidential disaster declarations involving the planning area up until May 2014 are summarized in Table 15. Declarations prior to 1962 are available on the FEMA website, but do not list designated counties.

Table 15: Presidential Disaster Declarations in the Last Decade

Disaster Declaration Number	Declaration Date	Disaster Type	Total Individual Assistance	Public Assistance Counties	Total Public Assistance Grants
DR-4013	Aug 12, 2011	Flooding	$4,311,497	Multiple (Cass, Otoe)	$84,907,462
DR-1945	Oct 21, 2010	Storms, flooding, Tornado, and Straight-line Winds	$0.00	Multiple (Cass, Otoe, Saunders)	$2,132,220
DR-1924	Jul 15, 2010	Severe Storms, Flooding, and Tornados	$0.00	Multiple (Cass, Otoe)	$50,535,460
DR-1902	Apr 21, 2010	Severe Storms, Ice Jams, and Flooding	$0.00	Multiple (Cass, Lancaster, Otoe)	$3,145,009

Disaster Declaration Number	Declaration Date	Disaster Type	Total Individual Assistance	Public Assistance Counties	Total Public Assistance Grants
DR-1878	25-Feb-10	Severe Winter Storms and Snowstorm	$0.00	Multiple (Cass, Lancaster, Otoe, Saunders)	$6,500,912
DR-1770	20-Jun-08	Severe Storms, Tornados, and Flooding	$1,560,229	Multiple (Cass, Lancaster, Otoe, Saunders)	$36,258,650
DR-1706	6-Jun-07	Severe Storms, Flooding, and Tornados	$0.00	Multiple (Cass, Otoe, Saunders)	$6,109,252
DR-1517	25-May-04	Severe Storms, Tornados, and Flooding	$829,908	Multiple (Cass, Lancaster, Otoe)	$13,351,657

Source: FEMA

Capability Assessment

The capability assessment for the LPSNRD plays a significant role in the overall planning process and lays part of the foundation for developing effective and implementable hazard mitigation strategies. The capability assessment utilized for this update assisted in the identification of what resources are currently available within participating jurisdictions. Areas considered include: administrative; funding and grant experience; planning and regulatory; and education and community involvement.

This section examines the capabilities at the regional, state, and federal level that significantly contribute to mitigating the impacts of natural and man-made hazards. Specific information for each jurisdiction is later demonstrated in *Section Seven: Participant Sections*.

REGIONAL (NATURAL RESOURCE DISTRICT (NRD)) CAPABILITY

Nebraska's system of local natural resources management is unique in the United States. Unlike the county-wide districts found in most states, Nebraska's NRDs are based on river basin boundaries, enabling them to approach natural resources management on a watershed basis. Like the other 22 NRDs in Nebraska, LPSNRD is autonomous, governed by a locally–elected Board of Directors. While NRDs share a common set of responsibilities, each district sets its own priorities and develops its own programs to serve local needs. In general, NRDs are charged under state law with 12 areas of responsibility:

- Erosion prevention and control
- Prevention of damages from flood water and sediment
- Flood prevention and control
- Soil conservation
- Water supply for any beneficial uses
- Development, management, utilization, and conservation of groundwater and surface water
- Pollution control
- Solid waste disposal and drainage
- Drainage improvement and channel rectification
- Development and management of fish and wildlife habitat
- Development and management of recreational and park facilities
- Forestry and range management

LPSNRD takes the lead on a variety of projects that fulfill the responsibilities required by the state law. The most recently completed projects include Bank Stabilization, Salt Creek Levee Project, Flood Control Watershed Project Dams, Antelope Valley Flood Control Project, Flood Control Non-Watershed Project Dams, Stream Interventions, and Trails/Conservation Corridors. The NRD also offers educational programs, cost-shares with landowners to conserve, and establishes many other programs for the protection of natural resources.

In addition to taking the lead in hazard mitigation planning, the NRD also developed plans for water resources, stormwater management, and emergency actions. Selected plans that are related to hazard mitigation are briefly described below, with more information available at the LPSNRD official website (www.lpsnrd.org).

LPSNRD Master Plan & Long Range Implementation Plan
The Master Plan, which was updated in 2009, will be in effect for a period not to exceed ten years. It serves as a broad framework for district activities. The Long Range Implementation Plan, which was updated in 2013, serves as an implementation tool of the Master Plan. It lists annual programs enacted to achieve the current visions, desired outcomes and objectives of the Master Plan. Components of this plan which relate to hazard mitigation include: Sustainable Water Resources, Low Impact Developments, Minimal Flood Threat and Damage, and Protection of Natural and Unique Resource Areas.

LPSNRD Integrated Management Plan
This plan is in progress, and is intended to develop a comprehensive inventory of all available ground and surface water supplies and all current water uses, a projection of future water use needs and identification of potential sources, and desired management of conservation programs.

Emergency Action Plans
Emergency action plans for certain dams in the District in case of flooding, earthquakes, or other similar hazards are kept and administered by the NRD as required by Federal regulations.

STATE CAPABILITY
NEMA
NEMA is a small agency with less than 40 full and part-time employees and is a part of the Military Department in the State of Nebraska. NEMA is responsible for emergency management, which is usually divided into four phases: preparedness, response, recovery, and mitigation.

NEMA's role related to mitigation includes (but is not limited to) developing the state hazard mitigation plan, this plan serves as a comprehensive set of guidelines for hazard response across the state. The state hazard mitigation plan frames the discussion that will be conducted at the local level related to relevant hazards and needs across the state. The state hazard mitigation officer and other mitigation staff members play an active role in assisting in the development of local hazard mitigation plans. Representatives from the state hazard mitigation program serve as a technical guide to local planning teams and regularly participate in local mitigation planning meetings. The state hazard mitigation program also oversees the Hazard Mitigation Grant Program (HMGP) and works with the Governor's taskforce to prioritize projects requesting funding assistance through the HMGP.

The main objective in NEMA's preparedness process is to develop plans and procedures to help facilitate any response that may need to occur during a hazard event. NEMA assists communities in the development of county or city/village planning documents; assists with the development of exercises for existing plans and procedures; conducts trainings for communities officials, assist emergency management related groups (Citizen Emergency Response Teams, Citizen Corps, Medical Reserve Corps, Fire Corps, and other interest groups); and provide technical resources and expertise throughout the state.

NEMA's role during a response is to assist communities in responding to hazard events when the need for assistance exceeds the local capabilities and resources. This includes facilitating and tracking grants, coordinating local needs, providing state and federal level assistance through activation of EOC, Mass Critical Shelters, Emergency Alert Systems (EAS) and providing technical, logistical, and administrative resources and expertise before, during, and after incidents. The main purpose of the recovery phase is to perform actions that allow the return of normal living, or better conditions, which may include vital life saving measures. The secondary role of the recovery phase is grant administration and tracking, project monitoring, damage assessment, collaborating with communities on effective recovery options and opportunities, serving as liaison

between federal level entities and local representatives, and serving as a technical resource throughout the recovery process.

For more information regarding the plans and NEMA's responsibilities as well as their ongoing projects, please go to http://www.nema.ne.gov.

NDNR

The NDNR is committed to providing Nebraska's citizens and leaders with the data and analyses they need to make appropriate natural resource decisions for the benefit of all Nebraskans both now and in the future. The state agency is responsible in the area of surface water, groundwater, floodplain management, dam safety, natural resource planning, integrated water management, storage of natural resources and related data, and administration of state funds.

NDNR plays a significant role in protecting and conserving water resources through the oversight of surface and groundwater status and integrated water management. The NDNR is also responsible for a non-structural program of floodplain management, coordination and assistance with the NFIP as well as the FMA, reviewing and approving engineering plans for new dams, rehabilitating old dams, and high hazard dam emergency preparedness plans. NDNR was very active throughout the hazard planning process and provided extensive resources and technical support for hazard risk and vulnerability analysis such as flood and dam failure. NDNR also works with communities in many capacities including assisting in the completion of Benefit Cost Analysis (BCA).

For more information regarding NDNR's responsibilities as well as their ongoing projects, please go to http://dnr.ne.gov/

CARC

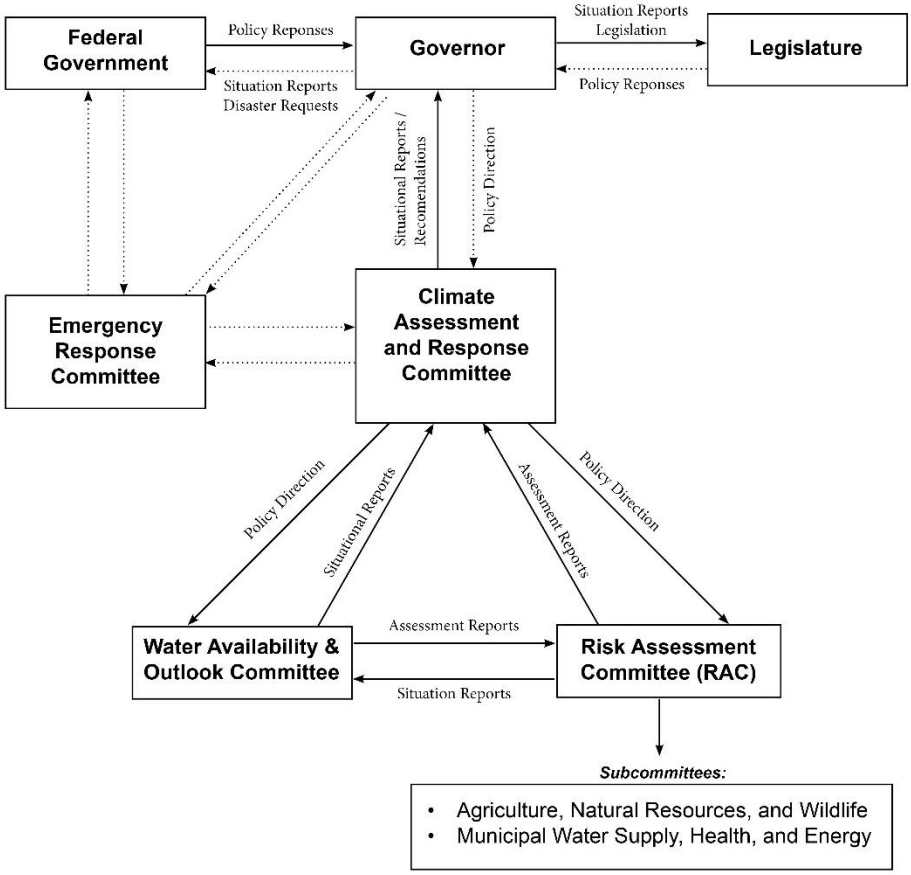
Nebraska's Climate Assessment and Response Committee (CARC) was established by the Nebraska Legislature in 1991 and serves as the major drought planning and response committee in state. The committee's duties are:

- To provide timely and systematic data collection, analysis, and dissemination of information about drought and other severe climate occurrences to the Governor and to other interested persons.
- To provide the Governor and other interested persons with information and advice relevant to requests for federal disaster declarations and to the use of funds and other types of assistance available to the state because of such declarations.
- To establish criteria for startup and shutdown of various assessment and response activities by state and federal agencies during drought and other climate-related emergencies.
- To provide an organizational structure that assures information flow and defines the duties and responsibilities of all agencies during times of drought and climate-related emergencies.
- To maintain a current inventory of state and federal agency responsibilities in assessing and responding to drought and other climate-related emergencies.
- To provide a mechanism for the improvement of methods of assessing impacts of drought on agriculture and industry.
- To provide such other coordination and communication among federal and state agencies as is deemed appropriate by such committee.
- To perform such other climate-related assessment and response functions as are desired by the Governor.

CARC also coordinated with other state and federal agencies to develop a State Drought Mitigation and Response Plan. The committee serves as a steering role for the state's drought plan and other climate-related activities. As shown in Figure 10, the other principal committees associated with CARC are the Water Availability and Outlook Committee (WAOC) and the Risk Assessment Committee (RAC). To avoid any overlap of duties, originally considered as a formal arm of CARC, Emergency Response Committee (ERC) was

revised in June 2000 and its role was folded into the NEMA organization and separated from the official CARC structure.

Figure 10: Organizational Components of Nebraska's CARC



Source: http://carc.nebraska.gov/

Other Key Agencies

Other agencies that play an active role in hazard mitigation planning and contribute to the overall planning process at the state level are shown in Table 16. Members from these agencies were designated as the Governors' Task Force for Disaster Recover (GTFDR) and served as the planning team responsible for coordinating the development of the 2011 Nebraska HMP[1].

Table 16: Other Key Agencies in the State of Nebraska

Agency	Official Website Link
Nebraska Department of Agriculture (NDA)	http://www.nda.nebraska.gov/
Nebraska State Patrol	https://statepatrol.nebraska.gov/
Nebraska Department of Economic Development	http://www.neded.org/
Nebraska Department of Environmental Quality (NDEQ)	http://www.deq.state.ne.us/
Nebraska Game and Parks Commission	http://outdoornebraska.ne.gov/
Nebraska Historical Society	http://www.nebraskahistory.org/
Nebraska Department of Administrative Services	http://das.nebraska.gov/
Nebraska Department of Revenue	http://www.revenue.ne.gov/

[1] The State of Nebraska Hazard Mitigation Plan (2014) is now available, but it was not available at the time of the planning process.

Nebraska Department of Health and Human Services	http://dhhs.ne.gov
Nebraska Forest Service	http://nfs.unl.edu/
Nebraska Public Health Laboratory – UNMC	http://www.unmc.edu/pathology/
University of Nebraska – School of Natural Resources	http://snr.unl.edu/

The Silver Jackets program is also worth mentioning for their extensive role in providing a formal and consistent strategy for an interagency approach to planning and implementing measures to reduce the risks associated with flooding and other natural hazards. It brings together multiple state, federal, and sometimes tribal and local agencies to learn from one another and apply their knowledge to reduce risk. Currently the Silver Jackets are working with communities in Cass County, reviewing nonstructural flood protection options. The report is expected to be completed in 2014 and should be included in future updates for this plan. Please go to http://www.nfrmp.us/state/ for details about the Silver Jackets and the work they are doing in Nebraska.

FEDERAL ASSISTANCE

The federal government and its sub-agencies have provided a variety of assistance for state and local governments in hazard mitigation planning and emergency response. The table below lists the major federal agencies and summarizes their major types of assistance. For more information regarding funding opportunities, please refer to Table 17.

Table 17: Major Federal Assistant Agencies

Agency	Type of Assistance	Official Website Link
DHS/ FEMA	Administrative, Political, Funding, Educational, and Technical	http://www.fema.gov/
NOAA	Educational and Technical	http://www.noaa.gov
U.S. Department of Agriculture	Funding, Educational, and Technical	http://www.usda.gov
U.S. Geological Survey	Educational and Technical	http://www.usgs.gov
U.S. Environmental Protection Agency	Educational and Technical	http://www.epa.gov
U.S. HUD	Administrative, Educational, and Technical	http://portal.hud.gov
U.S. SBA	Funding	http://www.sba.gov
U.S. Department of Transportation	Funding, Educational, and Technical	http://www.dot.gov/
U.S. Department of Health and Human Services	Funding, Educational, and Technical	http://www.hhs.gov