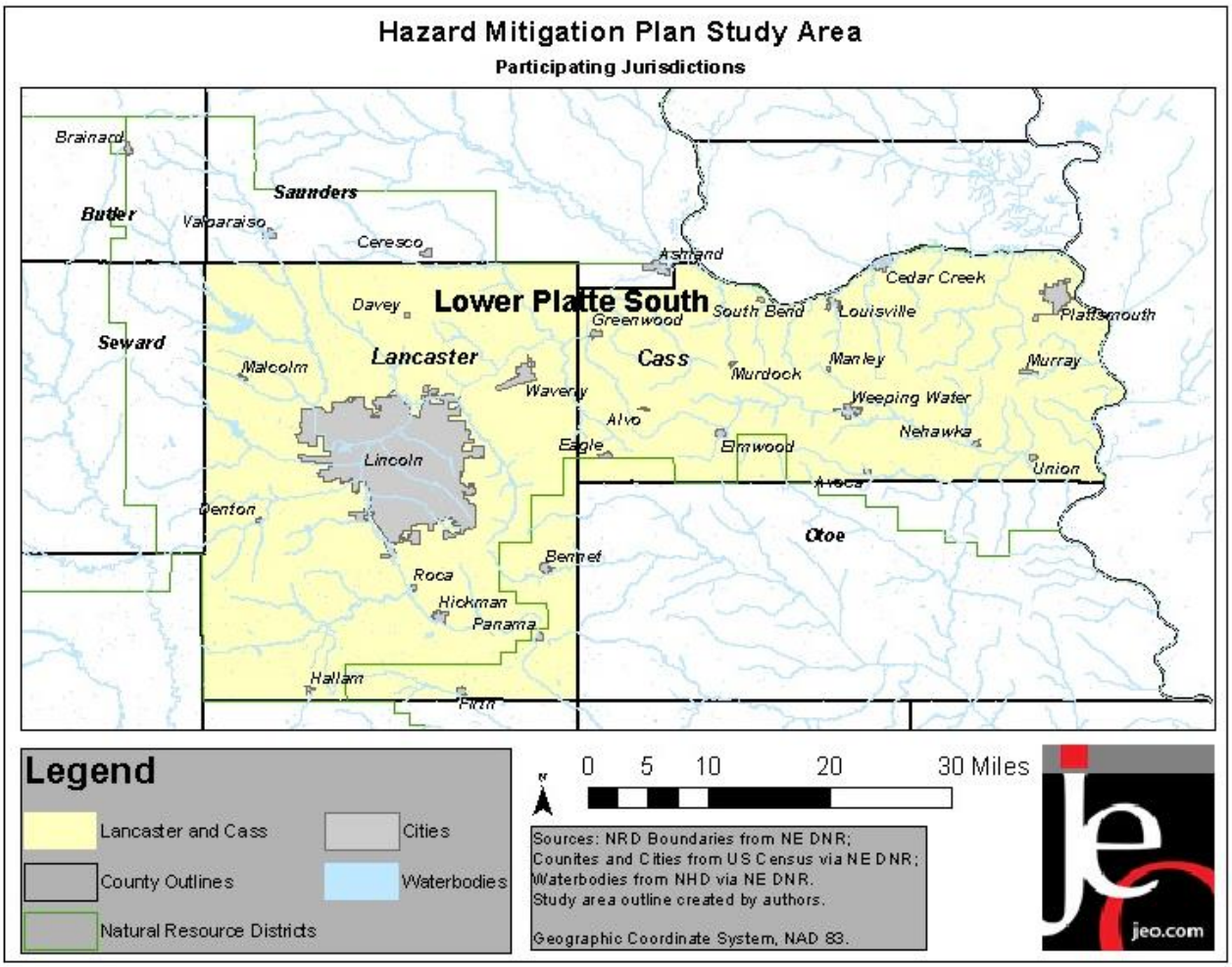
Executive Summary

In April, 2012, the Lower Platte South Natural Resources District (LPSNRD) decided to update their hazard mitigation plan (HMP) in compliance with the 5-year update requirement established by the Disaster Mitigation Act of 2000 (DMA2000). This updated plan was prepared in order to reduce the participating communities' vulnerability to natural hazards and maintain their eligibility for the Federal Emergency Management Agency (FEMA) pre-disaster grant opportunities. This LPSNRD Advanced Hazard Mitigation Plan Update is a multi-jurisdictional plan which covers the following local governments that participated in the planning process.

Figure 1: Participating Jurisdictions



Participating Counties, Cities, & Villages		
Cass County	Village of Cedar Creek	Village of Malcolm
Lancaster County	Village of Ceresco	Village of Manley
City of Ashland	Village of Davey	Village of Murdock
City of Lincoln	Village of Denton	Village of Murray
City of Louisville	Village of Eagle	Village of Brainard
City of Plattsmouth	Village of Elmwood	Village of Panama
City of Waverly	Village of Firth	Village of Roca

Participating Counties, Cities, & Villages		
City of Weeping Water	Village of Greenwood	Village of South Bend
Village of Avoca	Village of Hallam	Village of Union
Village of Bennet	Village of Hickman	Village of Valparaiso
Other Participating Districts		
Contestoga Public Schools	Cass Rural Water District #2	Cass County SID 5
Weeping Water Public Schools	Cass County Rural Water District #1	Cass County SID #1 (Lake WanConDa)
Lower Platte South Natural Resources District		

The purpose of this plan update is to identify hazards; assess the vulnerability of each participant to the various hazards; determine potential losses associated with the hazards; examine the capabilities in place and develop sound mitigation alternatives to reduce these vulnerabilities. The potential for substantial damages as a result of natural or manmade disasters presents a large likelihood for impacts to the health, safety, and welfare of all citizens in the planning area. The risk assessment process led to the development of specific goals and objectives which helped to identify a wide range of mitigation strategies and projects for participating jurisdictions. This update builds upon the prior HMP developed by LPSNRD in 2009, some of the most significant changes in this update are: the inclusion of manmade hazards based on the threats addressed in the State of Nebraska's HMP; greater efforts to reach out to and include stakeholder groups; an expanded risk assessment for both the entire planning area as well as for each participating jurisdiction; and, the inclusion of both generalized mitigation strategies as well as specific projects that will help build stronger, more resilient communities.

This update also works to unify the various planning mechanisms in place throughout the planning area to ensure that the goals and objectives identified in those planning mechanisms are consistent with what is identified in this plan. To achieve this, the "Safe Growth Audit" developed by FEMA and the American Planning Association (APA) was employed to evaluate the documents currently in place and to guide the growth of participating jurisdictions in the future. This plan identifies specific goals and objectives based on the risk assessment process. These goals are to:

Goal 1: Protect the Health and Safety of Residents

Objective 1.1: Reduce or prevent damage to property or prevent loss of life or serious injury (overall intent of the plan).

Goal 2: Reduce Future Losses from Hazard Events

Objective 2.1: Provide protection for existing structures, future development, critical facilities (CF), services, utilities, and trees to the extent possible.

Objective 2.2: Develop hazard specific plans, conduct studies or assessments, and retrofit buildings and facilities to mitigate for hazards and minimize their impact.

Objective 2.3: Minimize and control the impact of hazard events through enacting or updating ordinances, permits, laws, or regulations.

Goal 3: Increase Public Awareness and Education Regarding Vulnerabilities to Hazards

Objective 3.1: Develop and provide information to residents and businesses about the types of hazards they are exposed to, what the effects may be, where they occur, and what they can do to be better prepared.

Goal 4: Improve Emergency Management Capabilities

Objective 4.1: Develop or improve Emergency Response Plans and procedures and abilities.

Objective 4.2: Develop or improve Evacuation Plans and procedures.

Objective 4.3: Improve warning systems and ability to communicate to residents and businesses during and following a disaster or emergency.

Goal 5: Pursue Multi-Objective Opportunities (whenever possible)

Objective 5.1: When possible, use existing resources, agencies, and programs to implement the projects.

Objective 5.2: When possible implement projects that achieve several goals.

This plan is comprised of seven sections and their coverage is discussed as follows:

Section One – Introduction: This section introduces hazard mitigation planning, including an overview of DMA2000, benefits of utilizing the multi-jurisdictional approach, and plan financing and preparation.

Section Two – Planning Process: This section outlines the hazard mitigation planning process used for development of the plan, including hazard identification; resource organization; risk assessment; structural inventory; mitigation strategy; and plan implementation and maintenance. The members of the planning team; public involvement and participation; participating jurisdictions; as well as general plans, documents, and additional information used throughout the planning process are also listed in this section.

Section Three – Community Profile & Capability Assessment: This section provides an overall profile of the planning area including geography, climate, demographics, assets, and direct and indirect participant profiles, as well as local capabilities to ensure implementation.

Section Four – Risk Assessment: This section contains the risk assessment for the planning area including hazard identification, hazard background, historical occurrences, vulnerability assessment, potential losses, and future development and vulnerability for all participants.

Section Five – Mitigation Strategy: This section discusses the establishment of goals and objectives for all participants. The goals and objectives provide the framework for identifying mitigation alternatives or 'action items', the on-the-ground activities to reduce the effects of natural hazards. All action items were evaluated by the participants using the FEMA recommended 'STAPLEE' process.

Section Six – Plan Implementation and Maintenance: This section contains recommendations for plan implementation and maintenance, including the monitoring of hazards, establishment of a panel for the annual plan review, and an outline of the process for updating the plan in the future.

Section Seven – Participant Sections: Participant sections provide information specific to each individual plan participant, which was not covered in the 'Upfront Section'. The risk assessment includes a participant specific hazard identification summary and description of structural inventory and valuation. Also, maps specific to each participant can be found in their respective sections.

Participant Section for Lincoln

LPSNRD
Multi-Jurisdictional Hazard Mitigation Plan

March 2015

Community Profile

HISTORY

Lincoln is the capitol city of Nebraska and is the seat of the county government. Originally known as "Lancaster," the City's name was changed to Lincoln after a legislative motion. The City was incorporated on April 7, 1869.

To ensure that the City would prosper, state government and major state institutions were moved to Lincoln. The City also worked hard to recruit railroad services by offering bounties. In fact, the first train arrived and claimed a $50,000 prize on June 26, 1870. Thereafter, the City's population went from 2,500 residents in 1870 to 7,000 residents by 1875, and 13,000 residents by 1880.

Lincoln continued to grow and expand in every direction by 1890, except to the northwest where the rail yards and Salt Creek acted as barriers for the burgeoning 55,000 residents. It was the nationwide depression in the 1890's that adversely impacted Lincoln's population causing a decline to 37,000 by 1900. However, by the early 20th century a significant influx of Germans from Russia helped bolster the city.

In the late 1800's, satellite towns just outside the city began to emerge:

- In 1888, East of Lincoln's city limits, Nebraska Wesleyan University was established. The following year the site was incorporated as "University Place." By 1926 the community had reached 5,000 residents and was incorporated.
- In 1889, Nebraska Christian University was established. The community in 1890 was incorporated as "Bethany Heights." In 1922 the community residents voted to join Lincoln, and it wasn't until four years later was it annexed.
- In 1892, "College View" was incorporated with 1,000 residents. In 1929 Lincoln annexed the community when the population reached 2,900.
- The blue-collar suburban town of "Havelock", northeast of University Place, was incorporated in 1893. Havelock grew to 3,602 residents by 1920 and actively opposed annexation by Lincoln, until a strike by the Burlington Shops in 1922 continued without resolution.
- West Lincoln, which was established in 1887 on the west bank of the Salt Creek, was annexed in the 1960's after an increased interest in aviation was spawned as a result of the Lincoln Army Air Field (1942). Over 25,000 aviation mechanics were trained in Lincoln and 40,000 troopers were processed for combat through the facility.

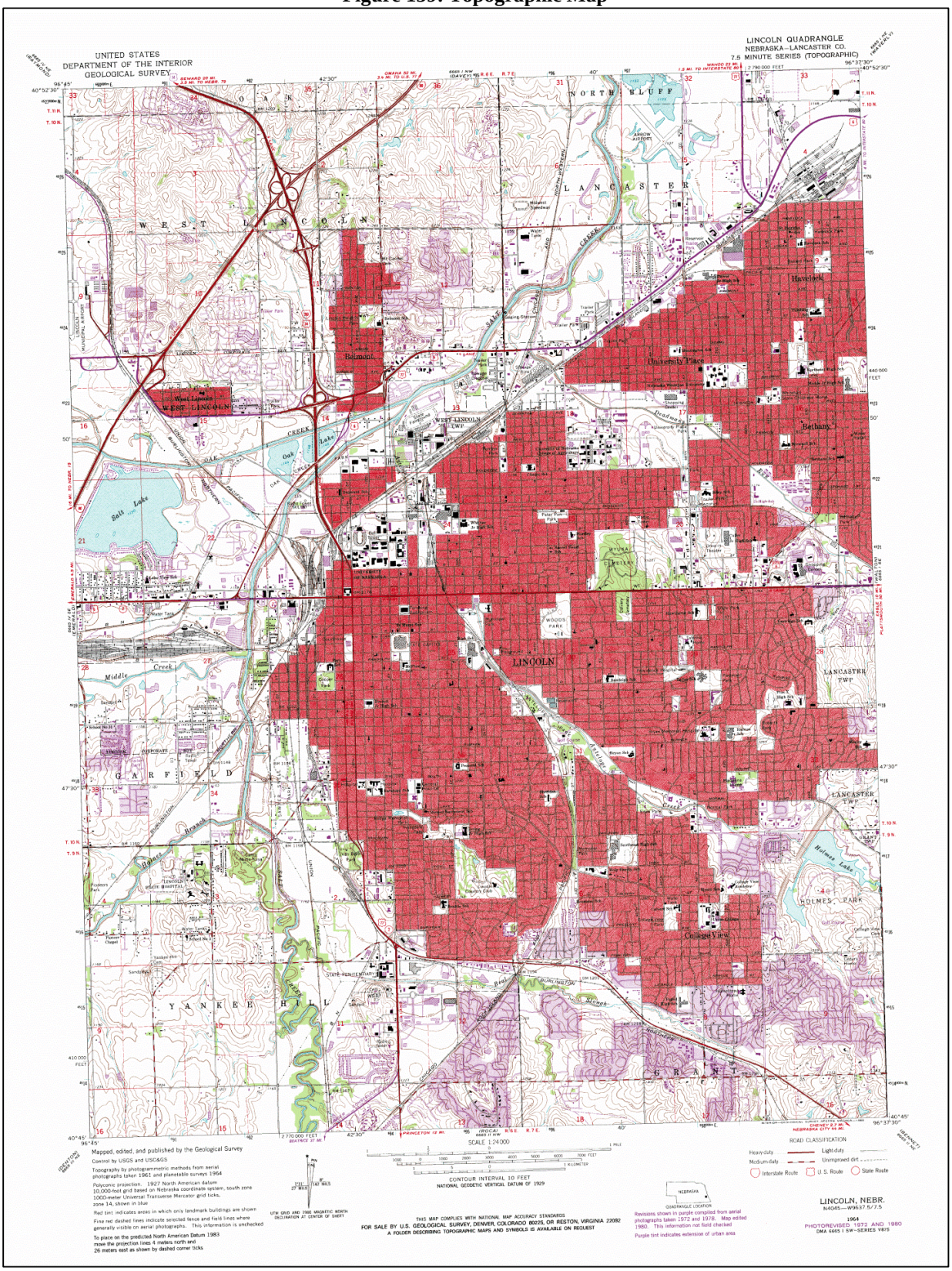
LOCATION/GEOGRAPHY

The City of Lincoln is the center and most populated city of Lancaster County. Located 55 miles west of the eastern state border, the City covers an area of 75.4 square miles comprised of 0.98% water. Originally laid out near Salt Creek, the area was selected for its salt flats, marshes, and nearly flat saline wetlands. Lincoln's landscape is mainly comprised of gently rolling hills and sits at 1,189 feet above sea level.

Lincoln's Salt Creek Watershed is comprised of a series of sub-basins such as; Antelope Creek, Beal Slough, Cardwell, Dead Man's Run, Haines Branch Salt Creek, Havelock, Little Salt Creek, Lynn, Middle Creek, Oak Creek, Southeast Upper Salt Creek , and Stevens Creek basins. Below in Figure 159, is Lincoln's watershed map as provided by the City of Lincoln's website: http://lincoln.ne.gov/city/pworks/watrshed.

Figure 158: Watershed Map

Figure 159: Topographic Map



Source: http://snr.unl.edu/data/geographygis/digitalraster/DRGdownloads.asp

DEMOGRAPHICS

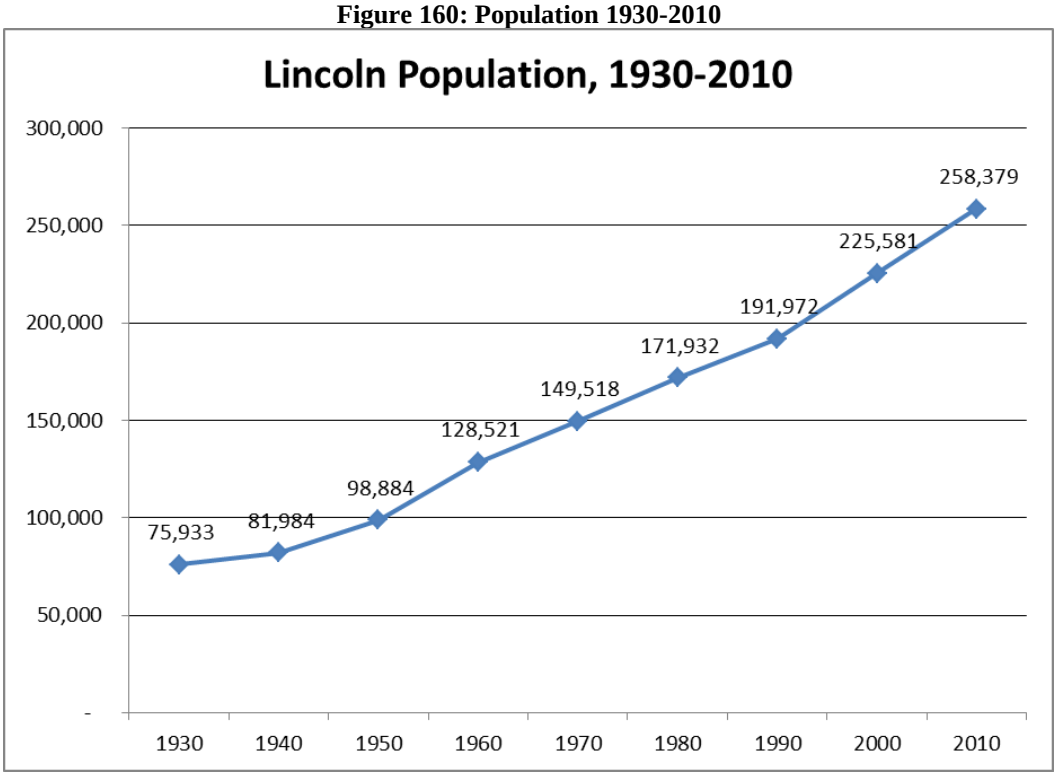
Lincoln's population has steadily increased from 1930 to 2000. Some of the increase was the result of the annexations of surrounding communities. The population has nearly tripled since 1930 to 2010 from 75,933 residents to 258,379 residents.

Between the years of 1990 and 2000, Lincoln and Lancaster County's minority communities more than doubled; markedly occurring within the Black/African Americans, Asians, and "Other" racial groups. This trend is anticipated to continue into the future.

The City of Lincoln's population makes up about 90% of Lancaster County's population. The Lincoln/Lancaster County Comprehensive Plan indicates that Lincoln's population is expected to reach 350,000 by 2030, growing at a rate of about 1.5% per year.

Lincoln's population density since 1970 has remained about 3,000 persons per square mile. The Lincoln/Lancaster County Comprehensive Plan expects that the overall city-wide population density to stay around 3,000 persons per square mile for the next 25 years.

Figure 160: Population 1930-2010



Source: U.S. Census Bureau, 2010, (DP4)

The age distribution and median age of individuals in Lincoln compares with the broader county population as show below. Lincoln's age population structure is very similar with that of the county.

Table 205: Population by Age

Age	Lancaster County	Lincoln
<5	8.0%	7.2%
5-64	83.9%	82.1%
>64	8.1%	10.7%
Median	30.4 years	31.8 years

Source: U.S. Census Bureau, 2010 American Community Surveys 5-year Estimates

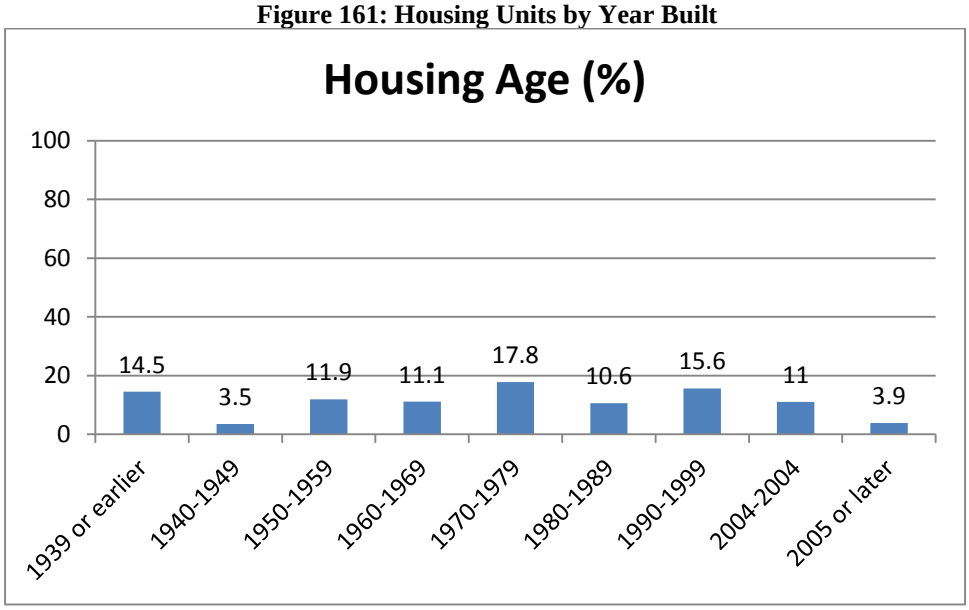
Median household income, per capita income, home value and rent for the city as a whole compare with broader county values as shown below.

Table 206: Housing and Income

	Lancaster County	Lincoln
Median Household Income	$50,849	$48,846
Per Capita Income	$25,949	$25,146
Median Home Value	$145,400	$140,600
Median Rent	$668	$667

Source: U.S. Census Bureau, 2010 American Community Surveys 5-year Estimates

Figure 161: Housing Units by Year Built



Source: U.S. Census Bureau, 2010 American Community Surveys 5-year Estimates

According to 2010 Census data, the city has 108,939 housing units; with 94% of those units occupied. 2187 units, or 2% of the village's housing, are classified as mobile homes. 29.9% of the village's housing units were built before 1960.

CITY GOVERNANCE

The City of Lincoln is governed by a Mayor and City Council. The City includes the following agencies, commissions, and departments (* indicates an agency which is shared with the County):

- Aging Partners*
- Building & Safety*
- Lincoln City Libraries*
- Planning*
- Purchasing*
- Public Works / Utilities Department
- Urban Development Department
- Health*
- Human Resources*
- Human Rights Commission*
- Information Services*
- Fire Department
- Police Department
- Parks & Recreation Department

FUTURE DEVELOPMENT TRENDS

As Lincoln's population grows, so too will the number of structures within the city. In 1990, Lincoln had 91% of Lancaster County's dwelling units at 79,079 units. From 1991 to 2000, dwelling unit construction permits were issued for 17,867 units in Lincoln. In 2000, Lincoln had 91.3% of Lancaster County's dwelling units at 95,199. From the 2011 Lincoln/Lancaster County Comprehensive Plan, it is assumed by 2040 an additional 52,100 dwelling units will be added within the County, with around 16% of these built within the existing City.

Urban growth in Lincoln is expected to expand in multiple directions around the City. Growth building on the foundations of Lincoln's established neighborhoods, as well as growth and strengthening of its downtown core, are the anticipated primary areas for urban growth and development.

The City of Lincoln encourages the preservation and renewal of historic buildings, districts and landscapes. Development in and around these areas is expected to maintain the integrity of these historical patterns and precedents. Additionally, conservation methods are expected to be implemented when developing in natural, and environmentally sensitive areas.

The following figure LIN 5 is the Future Growth Tier Map retrieved from Lincoln/Lancaster County Comprehensive 2040. It includes three tiers of growth for the City of Lincoln. Tier I reflects the "Future Service Limit," 34 square miles where urban services and inclusion in the city limits are anticipated within the 30 year planning period. This area should remain in its current use in order to permit future urbanization by the city. Tier II is an area of approximately 34 square miles that defines the geographic area the city is assumed to grow into immediately beyond Tier I. Tier III provides an approximately 131 square mile area for Lincoln's longer term growth potential. Figure X is the future land use map that displays the generalized location of each land use. Although all three tiers include some land in the 1% annual floodplain, the plan does state that: "The natural topography and features of the land should be preserved by new development to maintain the natural drainageways and minimize land disturbance."

Figure 162: Priority Growth

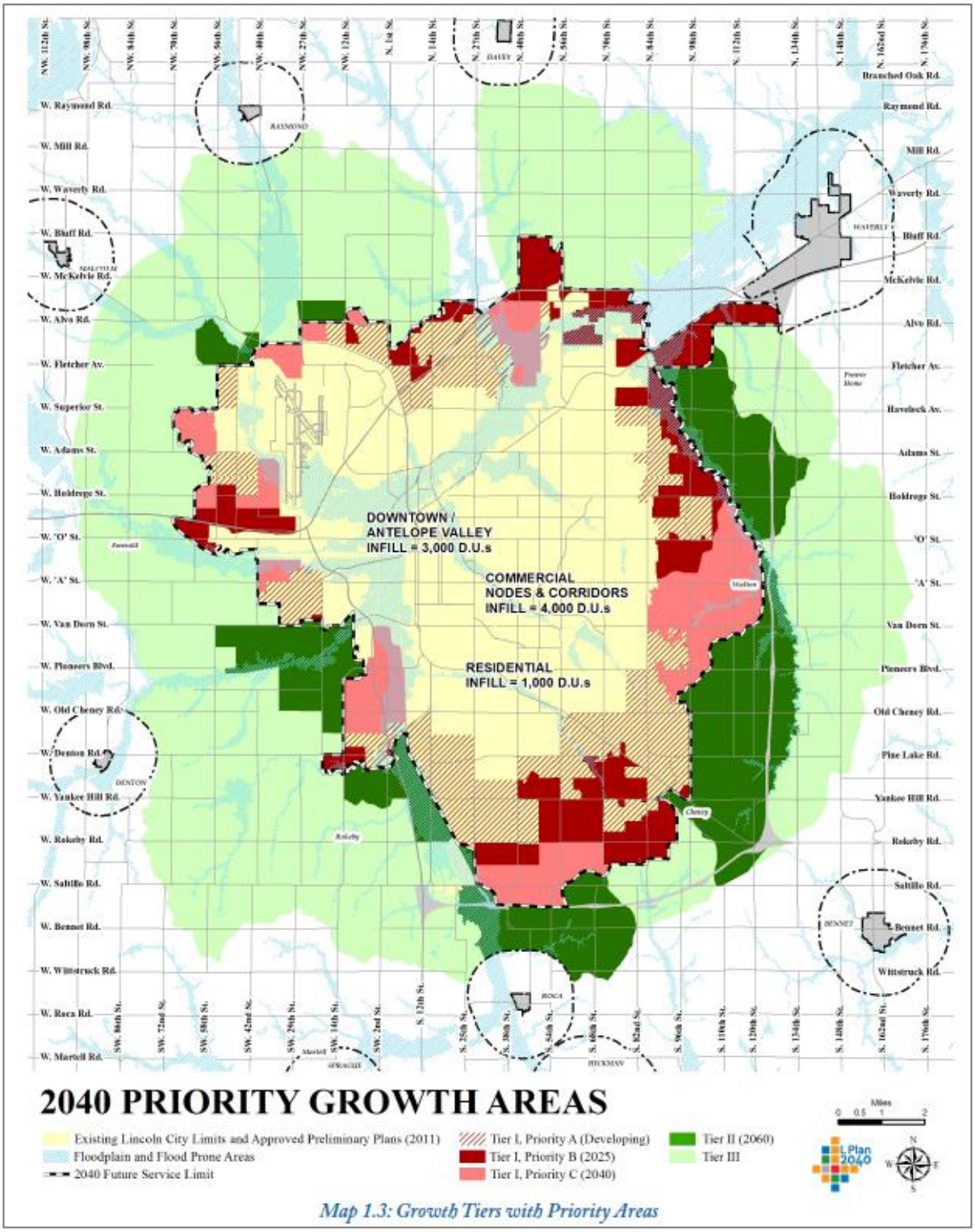
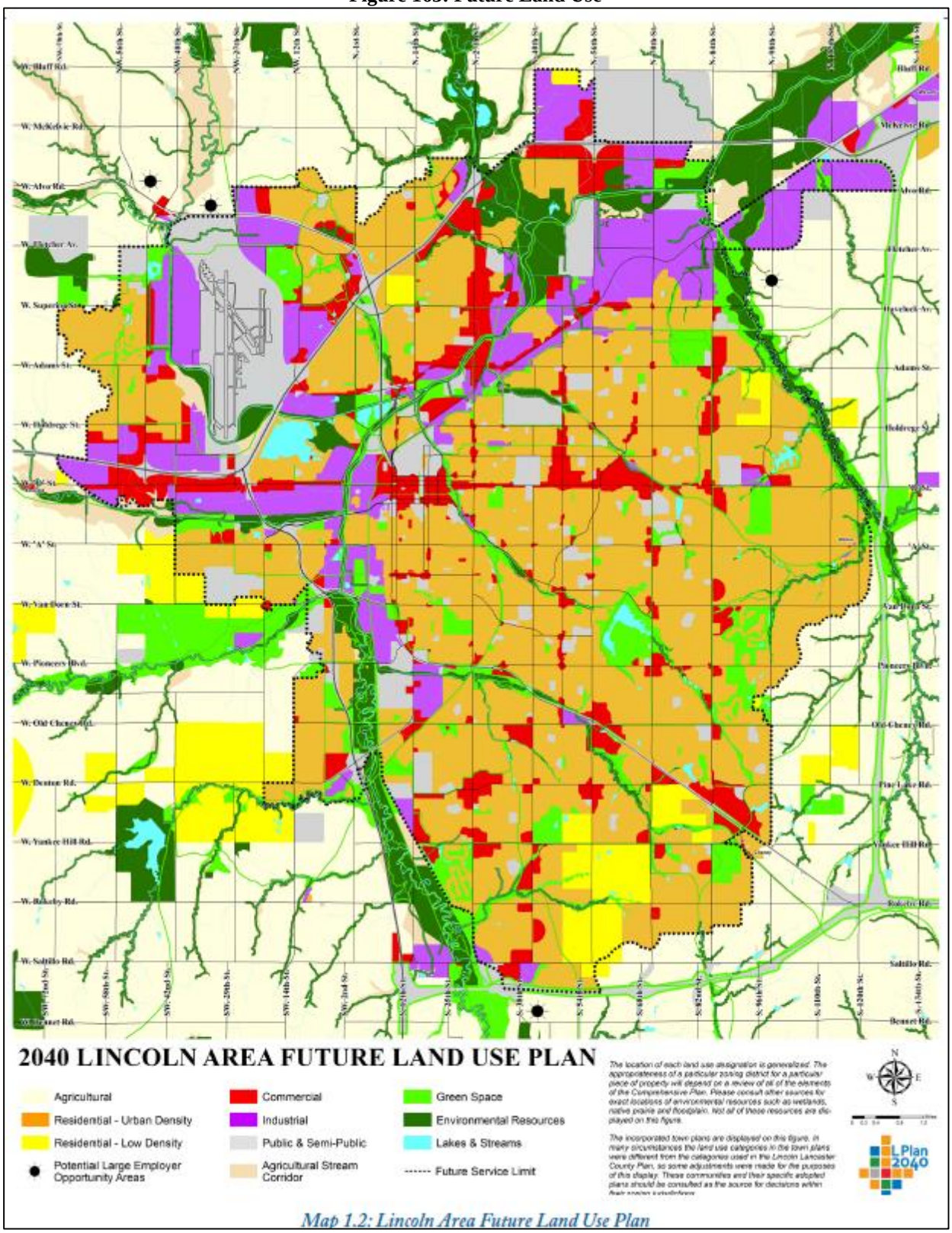


Figure 163: Future Land Use



Map 1.2: Lincoln Area Future Land Use Plan

STRUCTURAL INVENTORY AND VALUATION

Results from the structural inventory for the City of Lincoln are found in the table below. Information displayed in this table includes the number of structures, value per structure, and total value of each structure type. Of these structures, 36,536 are located in the 1% annual floodplain, with a total assessed value of $13,228,082,412. This represents around 1/3 of all structures.

Table 207: Structural Inventory

Structure Type	Number of Structures	Total Value	Value per Structure
Commercial/Industrial	6,319	$2,961,016,372	$468,589
Agricultural	5,513	$547,702,450	$99,347
Residential	75,958	$7,325,520,274	$96,274
Other	40,602	$6,281,462,478	$154,708
Total	**128392**	**$17,115,701,575**	**-**

Source: Nebraska Department of Revenue, Property Assessment Division

CRITICAL INFRASTRUCTURE/KEY RESOURCE

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 identified during the 2008 planning process and updated by the Lincoln planning team during as a part of the plan update (refer to *Appendix C*). Below is a summary of the CFs for the jurisdiction. Due the large number of CFs in Lincoln, a list of all the facilities is not provided but those that are in the floodplain are listed below.

Table 208: Critical Facilities

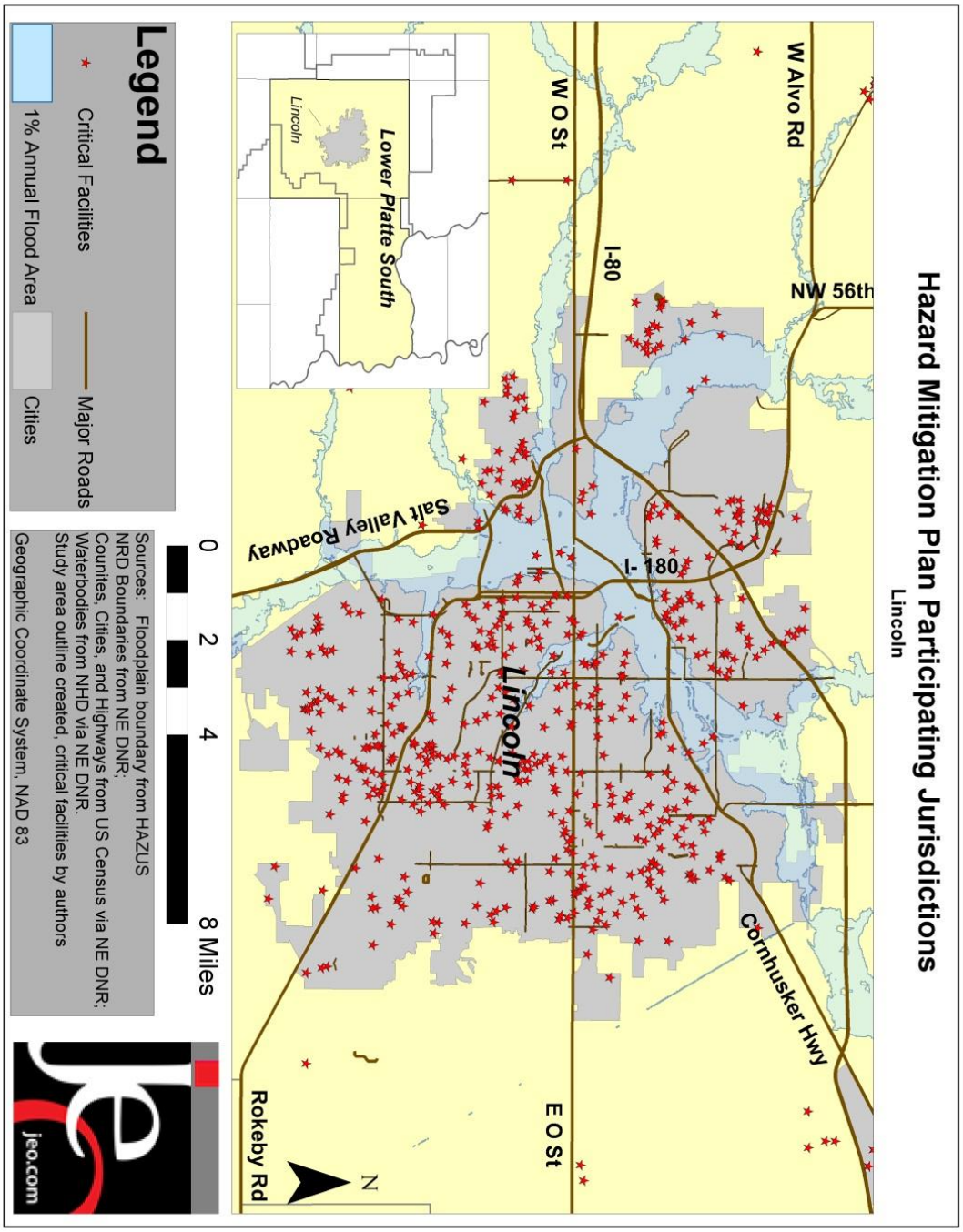
Critical Facility Type	#
Nursing Home/Child Care Center & Homes/Preschool	527
Fire Department	14
Law Enforcement/Police Station	12
Hospital/Emergency Center	9

Table 209: Critical Facilities in 1% annual Floodplain

Critical Facilities	Type
At Home To Grow, LLC	Family Child Care Home II
Diana L Jacobsen	Family Child Care Home II
Kindercare Learning Center	Child Care Center
Nebraska State Penitentiary Hospital & Clinic	Nursing Home
Carpenter, Diana	Family Child Care Home I
Allder, Jo Ann	Family Child Care Home I
Toombs, Diane	Family Child Care Home I
Leyden, Carol	Family Child Care Home I
Pospisil, Patricia	Family Child Care Home I
Downs, Cyndee	Family Child Care Home I
Woolf, Twila	Family Child Care Home I

Critical Facilities	Type
Martinez, Dulce M.	Family Child Care Home I
Cherry, Melissa	Family Child Care Home I
Isley, Connie	Family Child Care Home I
Mcbride, Rebecca	Family Child Care Home I
Lincoln Christian School Preschool	Preschool
Prairieview Preschool	Preschool
Fire Station #3	Fire Department

Figure 164: Critical Facilities Map



TRANSPORTATION SYSTEM

Roadways

Today there are an estimated 2,808 miles of streets and highways serving the Lincoln. This includes approximately 30 miles of Interstate, 158 miles of U.S. and state Highways, 565 miles of major arterials and collector streets, and 2,055 miles of local streets. I80 has an NDOR traffic count of 43,450 motor vehicles and 7,300 heavy trucks daily**.**

Risk Assessment

HISTORICAL OCCURRENCES

The NCDC reported 99 severe weather events from 1996 to 2011. Due to the many events in the city, only those that resulted in property damages were selected and refer to the table below for detailed information of these selected severe weather events including date, extent, property damage, and crop damage. The reported events by each participant during the public meetings are listed in *Section Four: Risk Assessment* under each hazard section. The five hazards of most concern to Lincoln are: tornados, high winds, drought, severe winter storms, and severe thunderstorms.

Table 210: NCDC Severe Weather Events

Hazard	Date	Extent	Property Damage	Crop Damage
Flash Flood	8/14/1996		60.00K	0.00K
Lightning	5/8/1996		0.40K	0.00K
Lightning	5/8/1996		12.00K	0.00K
Lightning	5/14/1996		9.00K	0.00K
Lightning	7/10/1997		25.00K	0.00K
Lightning	8/19/2003		90.00K	0.00K
Lightning	5/29/2004		6.00K	0.00K
Lightning	8/8/2006		225.00K	0.00K
Thunderstorm Wind	4/8/1999	60 kts.	5.00K	0.00K
Thunderstorm Wind	8/14/1996	70 kts.	20.00K	0.00K
Thunderstorm Wind	6/20/1997		5.00K	0.00K
Thunderstorm Wind (Lincoln Airport)	5/22/1996	72 kts.	1.400M	0.00K

TORNADOS

The local planning team identified tornados as the top concern for the community. This is consistent for the entire planning area. According to the NCDC data there was one recorded tornado but no events were reported by the planning team.

The following information was reported by the Tornado History Project database:

- **June 6, 1971:** Two tornados hit the City of Lincoln causing a total of $6,000 in damage.
- **April 27, 1975:** A category F0 tornado in the City caused $25,000 in damage.
- **August 15, 1977:** A tornado in the City caused $25,000 in damage.
- **May 22, 2004:** An F4 touched down in Hallam that resulted in one death and $100 million in property damage.

The NCDC reports two tornadic events in Lincoln:

- **May 8, 1995:** A funnel cloud was reported.
- **May 22, 1996:** An F0 tornado was reported. Fortunately no injuries or monetary damages resulted.

Lancaster County's 2007 LEOP, reports three tornadic occurrences:

- **1957:** An F4 tornado damaged residential structures, there were no deaths or injuries reported.

- **1975:** An F4 tornado touched down in the northwestern portion of Lincoln. A significant amount of property damage was incurred, however there were no deaths or injuries reported.
- **1993:** A strong summer storm with 90 mph straight line winds spawned four small tornados that moved across Lincoln and the northern part of Lancaster County. There were thousands of trees destroyed and several millions of dollars in property damage.

No other historical occurrences in Lincoln were recorded by residents, city officials, or found in any other document.

HIGH WINDS

The local planning team identified high winds as a significant concern for the community. This is consistent for the entire planning area. According to the NCDC data there were 24 storm events which included strong winds (50+ kts) which could cause trees to uproot, considerable structure damage, and over turning of improperly anchored mobile homes. No other historical occurrences in Lincoln were recorded by residents, city officials, or found in any other document.

DROUGHT

The local planning team identified drought as a significant concern for the community. Drought is generally a regional event, with impacts from a single drought event impacting multiple communities, counties, and even states. For the community only a small percentage of the workforce relies on agricultural based income (0.8 for Lincoln). Due to the regional nature of drought and the low percentage of agricultural based incomes within the community drought will not be fully examined in this section. Please refer to *Section Four: Risk Assessment* for more information regarding the vulnerability of the entire planning region.

SEVERE WINTER STORMS

The local planning team identified severe winter storms as a significant concern for the community. This is consistent with the entire planning area. NCDC data records severe winter storms as "zonal" events meaning there is not a specific record of what communities are impacted or at least what the level impacts were per community.

The Lancaster County LEOP reports four separate severe winter storm occurrences for the City of Lincoln:

- **October 9, 1970**: The Columbus Day snowstorm dumped 6.6 inches of snow on the City causing extensive tree damage.
- **January 12, 1975:** The snowstorm referred to as "The Blizzard of the Century", produced 16 inches of snowfall that transpired over a 24 hour period. Both of Nebraska's metropolitan cities, Lincoln and Omaha, were brought to a standstill. Record low atmospheric pressures in the region were recorded, and strong winds created snow drifts reaching 15 feet.
- **1982:** An ice storm caused massive power outages. Nearly all of Lancaster County was impacted and some of the county residents were without power for three days.
- **January 26, 1994:** Freezing rain and sleet caused icing of trees and power lines. Some electrical outages also occurred. $50,000 worth of property damage was incurred.
- **September 22, 1995:** Record low temperatures from the lower 20s to the lower 30s put an end to an already stunted growing season across the Midlands. Nearly the entire state fell below 28 degrees. Hardest hit were the milo, soybean, and corn crops. Crop damages reported were $262 million.
- **October 25, 1997:** A rare winter storm brought 13 inches of wet, heavy, snow that weighed down and broke power lines and tree limbs. As a result, many residential areas and businesses were without power for several days and some areas for over a week. "Disaster areas" were declared and accrued over $50 million in public property damage. The cleanup was extensive, continuing well

into the following summer. The Lincoln Water System reported that they were without power at three critical pumping stations for several hours. The Lincoln Airport and West Lincoln business areas were two pressure districts affected by the storm.

The elderly may be more likely to sustain an injury or have a medical emergency as a result of shoveling snow following a winter storm. Community members and families below the poverty line are also as higher risk related to severe winter storms, as they may lack resources needed to sustain themselves through a major severe winter storm.

SEVERE THUNDERSTORMS

The local planning team identified severe thunderstorms as a significant concern for the community and expected that more than four severe thunderstorms would take place in the community in the next decade.

Lincoln has older housing stock and an aging population, both of which may lead to greater levels of vulnerability. Severe thunderstorms and hail can result in loss of electricity, blocked roadways, damages to trees, and flooding. Blocked roadways, as a result of downed threes, may also present life safety concerns to those needing immediate medical attention.

Damages to roofs and siding can result in significant losses for homeowners as well as business owners. CFs can also be damaged by hail events. NCDC reports 12 thunderstorm and lightning events that caused a total of $1,797,400 in property damages.

The Lincoln Journal Star reports:

- **August 1, 1981:** A 25 year storm hit, producing from 4.3 to 5.5 inches of rain in some areas.
- **September 25, 1981:** A storm producing three inches of rain in the southern and eastern part of the City caused two major power outages and six or seven smaller ones. The 911 call center reported receiving an estimated 150 phone calls regarding flooded basements.
- **June 22, 1981:** Hail, heavy rains, flooding, strong wind gusts and lightning damaged power lines, vehicles, and trees.

No other historical occurrences were reported by residents, village officials, or found in any other document.

EXTREME HEAT

The local planning team identified extreme heat as a significant concern for the community. This is consistent with the planning area. While there are no documented occurrences recently, via NCDC or other, it is understood that extreme heat is part of the local as well as regional climate. Extreme heat events are most likely to occur during June, July, and August.

Elderly residents, young children, and low-income families are all groups within the community which may be more vulnerable to the impacts of extreme heat events.

FLOODING

The local planning team identified flooding as a significant concern for the community. The NCDC reports three flash flood occurrences, one of which reported damages:

- **August 14, 1996:** $60,000 in reported property damage was caused by four inches of rain that produced a flash flood. Local businesses and homes were also damaged.

The following list of storms and information was provided by the Lancaster County LEOP:

- Salt Creek flooded 136 times between 1900 and 1952. Of these events, 22 were considered major.
- **May 8, 1950:** Salt Creek peaked at a height of 26.05 feet with a flow of 27,800 cfs. This occurred after 5.5 inches of rain fell in six hours and accumulated to 14 inches. 20,000 acres of land was flooded including 600 homes and 80 businesses. The total damage incurred amounted to $1,643,000 and nine deaths.
- **June 2, 1951:** Antelope Creek flooded. Water was waist deep at 28th and D streets, and one foot deep at 33rd and Normal. Salt Creek peaked at 26.15 feet with a flow of 28,200 cfs.
- **June 14, 1951:** Antelope Creek flooded. Eight inches of rain fell and caused $2,000,000 worth of damage. 92 businesses, 298 homes and the railroad were all damaged in the area.
- **June, 1952:** Another Antelope Creek flood occurred when 2.18 inches fell, causing $63,000 in damage.
- Between 1962 and 1993, a series of eight floods occurred on Salt Creek. The total amount of federal funds contributed was $668,800, with the largest lump sum contribution of $487,185 in 1993.
- **June 13, 1984:** Little Salt Creek flooded when three to four inches of rain caused the creek to peak at 16.20 feet and flow 7,500 cfs. The flood was classified as a 10-year flood.

The Lincoln Journal Star recounts the following flood events:

- **1892:** Extensive flooding drove 300 people from their homes.
- **1902:** Flooding left 1,000 residents homeless and caused 9 deaths
- **July 23, 1993:** Little Salt Creek peaked at 4 feet over flood stage. Lynn and Stevens Creek tributaries left their banks flooding streets, parking lots, businesses, and homes. The City received $823,997 from the Federal Emergency Management Agency for partial damage reimbursement. The total damage to public property was $2.9 million.
- **June 15, 1982:** Stevens Creek peaked at a height of 18.85 feet with a flow of 3,820 cfs. Up to five inches of rain blocked roads, threatened homes, and left cars stranded in high water. There was a police advisory encouraging Lincoln residents not to drive and at one point during the downpour, the police were instructed to park their cruisers unless they were needed somewhere. Lincoln Electric System reported several power outages, one of which was the result of flooded underground cables.
- **June 13, 1984:** Stevens Creek flooded with a peak of 19.57 feet and a flow of 4,620 cfs. The flood was classified as a 10-year flood and it claimed two lives when a car was swept off Highway 34.
- **July 4, 1984:** Water back log from Beal's Slough caused damage to local area businesses. One business reported damage of $4,000.
- **September 13, 1989:** Heavy rains caused $20,000 in damage to Lancaster County rock and gravel roads.
- **July 25, 1990:** Five inches of rain washed out roads, flooded basements, damaged businesses, and flooded parking lots.

Participants from the City of Lincoln recollected the following events:

- **March 1993:** The Lincoln Water System reports an ice jam on the Platte River that caused severe flooding along Salt Creek and Highway 6. The flood waters eroded embankments and exposed a 48-inch and 54-inch water transmission line from one of the Lincoln Water System's well fields. This exposure caused sections of the pipe line to break and float away.
- **July 24, 1993:** Flooding resulted when Lincoln received three times the normal amount of rain for July.

- **July 20, 1996:** Beal Slough flooded when over five inches of rain fell in south Lincoln over an 18 hour period. Flooding occurred on a number of roadways including Highway 2. Residential basements and recreational areas were flooded. Flooding also occurred near 33rd Street and Pioneers Boulevard as well as in many areas along the Tierra Branch in the Tierra, Williamsburg, Seven Oaks, and Cripple Creek Subdivisions. A similar incident occurred in 1989 when heavy rains filled and overtopped the creek. The waters spread to Tierra and Briarhurst Parks, and other nearby open spaces.

Participants also reported localized flooding at the following locations:

- 52nd and O St.
- Along Deadmans Run
- Cornhusker Hwy, particularly near N 14th St.
- 49th & Rentworth
- Old Cheney, near 7th Street
- 8th & Rentworth
- Fletcher, near N 57th St.

No other historical occurrences in Lincoln were recorded by residents, city officials, or found in any other document.

The following structures in the City of Lincoln are located within the 1% annual floodplain.

Table 211: Structural Inventory - Floodplain

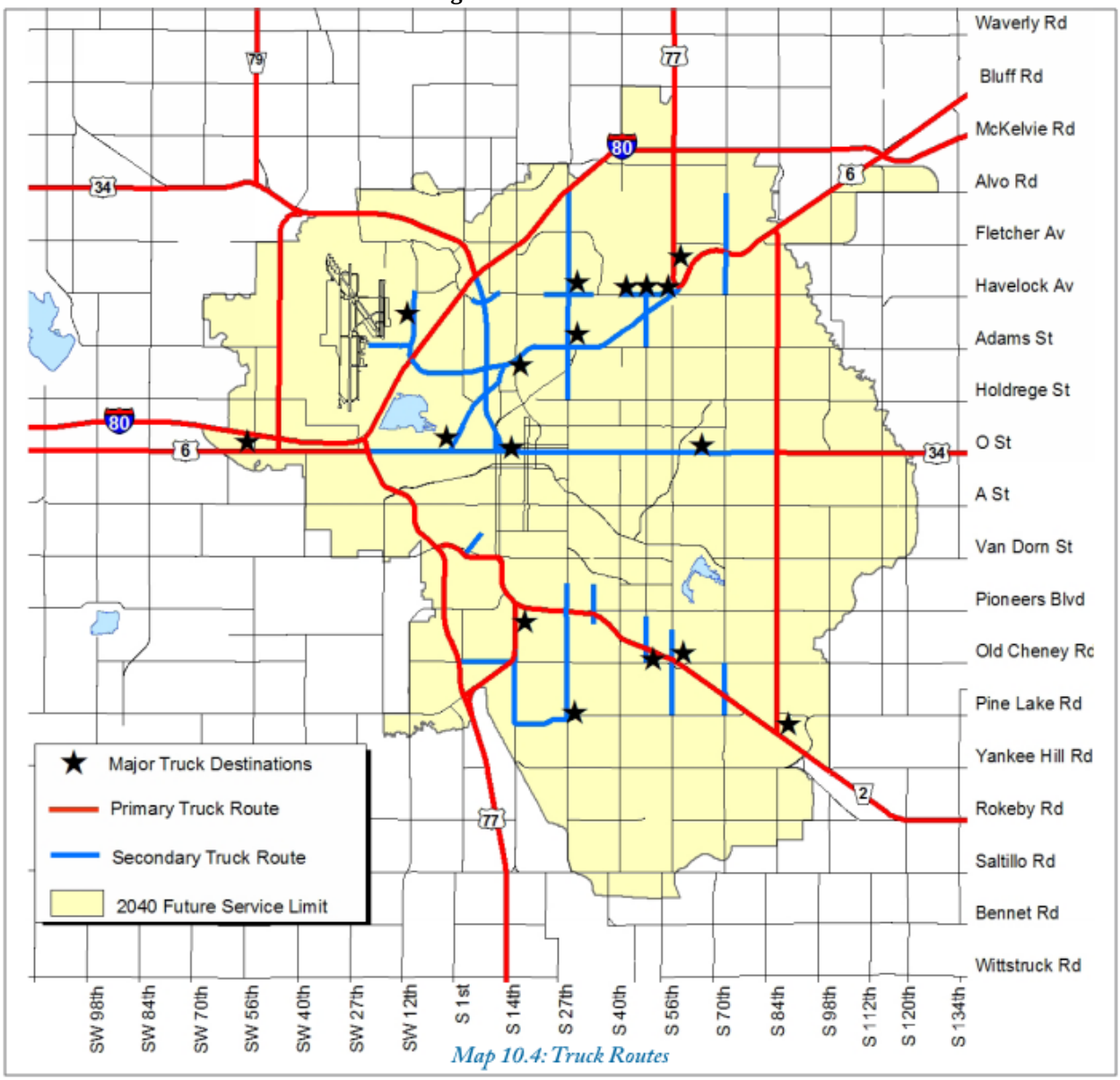
Structure Type	Number of Structures
Commercial/Industrial	7,355
Agricultural	70
Industrial	1,833
Residential	16,946
Other	10,332
Total	**36,536**

Lincoln also has one single family home on the NFIP repetitive loss list.

TRANSPORTATION

The following map, from the Comprehensive Map, illustrates existing truck routes.

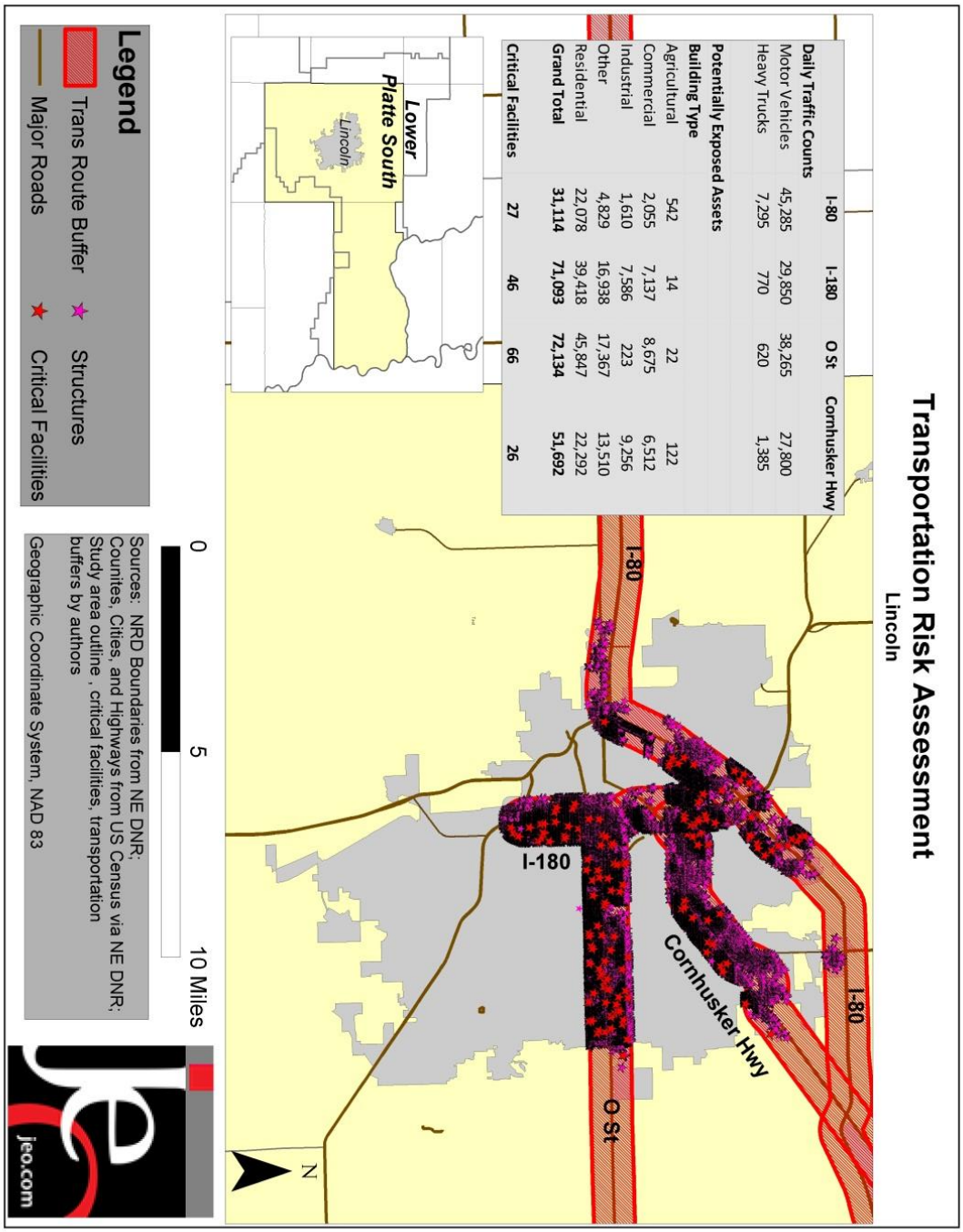
Figure 165: Truck Routes



CHEMICAL TRANSPORTATION

The following map illustrates all of the properties located within a ½ mile of the major chemical transportation routes which pass through Lincoln. Although any one event would not impact all of these structures, their proximity to the major transportation routes places them at greater risk. Any one event would impact a small subset of these structures, with the size of the impacted radius dependent upon the quantity and type of chemical spilled. All structures and CFs within the identified risk area should have shelter in place plans in place.

Figure 166: Transportation Risk

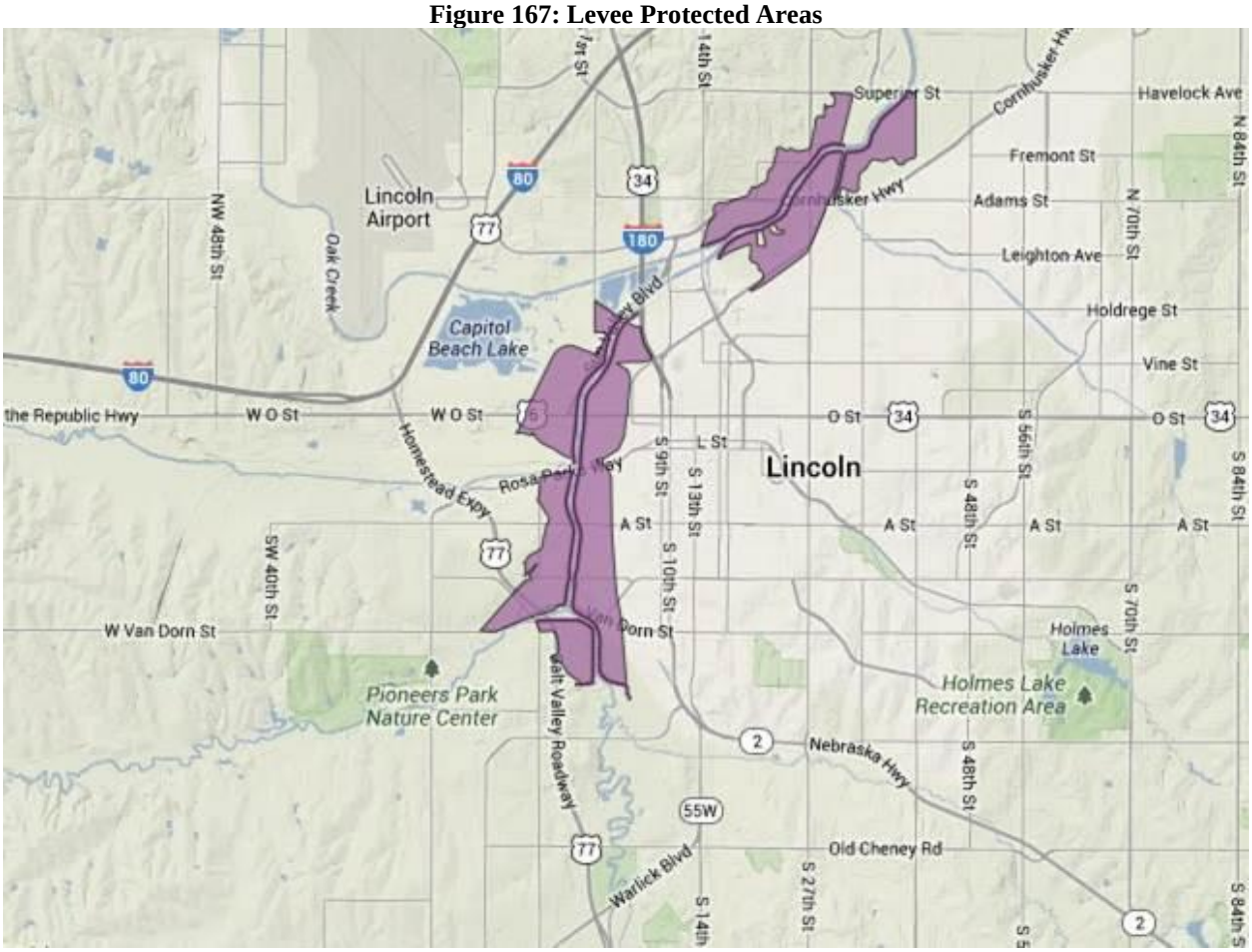


	I-80	I-180	O St	Cornhusker Hwy
Daily Traffic Counts				
Motor Vehicles	45,285	29,850	38,265	27,800
Heavy Trucks	7,295	770	620	1,385
Potentially Exposed Assets				
Building Type				
Agricultural	542	14	22	122
Commercial	2,055	7,137	8,675	6,512
Industrial	1,610	7,586	223	9,256
Other	4,829	16,938	17,367	13,510
Residential	22,078	39,418	45,847	22,292
Grand Total	**31,114**	**71,093**	**72,134**	**51,692**
Critical Facilities	**27**	**46**	**66**	**26**

LEVEE FAILURE

Although levee failure was not identified as a significant risk by the local planning team, there are urban areas of Lincoln which are protected by levees and therefore at risk in the event of a failure. The following map illustrates the levee protected areas.

Figure 167: Levee Protected Areas



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, regulation, plans, and the programs. The survey serves to gather information regarding the jurisdiction's planning and regulatory capability; administrative and technical capability; fiscal capability; and education and outreach capability.

CAPABILITY ASSESSMENT SURVEY

- The city has five building inspectors and in addition a total of 22 various inspectors that inspect some part of buildings … Mechanical, Plumbing, Housing, Fire and Electrical inspectors. They inspect all new construction in some manner, but only the building inspector would inspect floodplain.
- Assorted codes are updated every three years. A task force for each trade reviews the current and proposed codes. The zoning code changes weekly, based on the changes proposed to City Council.
- Yes, they city charges fees for all parts of development.
- All of the inspectors can inspect for hazards, but it depends on the hazard. They are specialists trained in assorted fields.

- Funding for mitigation is minimal. Staffing is always on call.

Table 212: Capability Assessment

Survey Components/Subcomponents		Comments
Planning & Regulatory Capability	Comprehensive Plan	Yes
	Capital Improvements Plan	Yes
	Hazard Mitigation Plan	Yes
	Economic Development Plan	Yes (part of Comprehensive Plan)
	Emergency Operational Plan	Yes, Lancaster County
	National Resources Protection Plan	Yes (part of Comprehensive Plan)
	Floodplain Management Plan	Yes
	Storm Water Management Plan	Yes
	Zoning Ordinance	Yes
	Subdivision Regulation/Ordinance	Yes
	Floodplain Ordinance	Yes
	Building Codes	Yes (2009 IBC & local amendments)
	National Flood Insurance Program	Yes
	Community Rating System	No
	Well Head Protection Area/District	No
	Other (if any)	N/A
Administrative & Technical Capability	Planning Commission	Staff: 4
	Hazard Mitigation Planning Commission	No
	Floodplain Administration	Staff: 1
	Emergency Manager	Lancaster County
	GIS Coordinator	Staff: 3
	Chief Building Official	Staff: 5
	Civil Engineering	Staff: 4
	Staff Who Can Assess Community's Vulnerability to Hazards	Yes
	Grant Manager	Yes, at the department level
	Other (if any)	Urban Development Department
Fiscal Capability	Capital Improvement Project Funding	Yes
	Community Development Block Grant	Yes
	Authority to Levy Taxes for Specific Purposes	Yes
	Gas/Electric Service Fees	No
	Storm Water Service Fees	
	Water/Sewer Service Fees	Yes
	Development Impact Fees	Yes
	General Obligation Revenue or Special Tax Bonds	Yes
	Other (if any)	N/A
Education &	Local citizen groups or non-profit organizations focused on	

Survey Components/Subcomponents		Comments
Outreach Capability	environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes
Education & Outreach Capability	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
	Tree City USA	Yes
	Public-private partnership initiatives addressing disaster-related issues	Yes
	Other (if any)	N/A

PLAN EVALUATION

The Lincoln/Lancaster Comprehensive Plan addresses the natural environment in many ways, under the umbrella of Environmental Stewardship and Sustainability. The plan addresses natural resource preservation through land use, as well as discussing the need to ensure community resilience in the face of natural disasters.

The results of applying the Safe Growth Audit (see *Section Six: Plan Implementation and Maintenance*) to evaluating the Lincoln/Lancaster County Comprehensive Plan 2040, the findings are demonstrated in the table below.

Table 213: Safe Growth Audit

Component		Items	I (Included)
Comprehensive Plan	Land Use	Identify hazard areas	I
		Land-use policy that discourages (re)development within hazard areas	I
		Provide adequate area for growth outside hazard areas	I
	Transportation	Limit access to hazard areas	
		Policy that guides growth outside hazard areas	
		Emergency functional designs	
	Environmental Management	Identify and map environmental systems that protect development from hazards	
		Policy that maintains and restore protective ecosystems	I
		Policy that provides incentives to developments outside protective ecosystems	
	Public Safety	Goals and policies are related to hazard plan	I

Component		Items	I (Included)
		Plan's growth and development policies that explicitly include safety	I
		Monitoring and implementation section cover safe growth objectives	
Zoning Ordinance		Discouraging (re)development within hazard areas	I
		Contain natural hazard overlay zones that set conditions for land use within such zones	
		Recognize hazard areas as limits in rezoning procedures	
		Prohibit development within, or filling of, wetlands, floodways, and floodplains	I
Subdivision Regulation		Restrict the subdivision of land within or adjacent to hazard areas	I
		Conservation subdivisions or cluster subdivisions to conserve environmental resources	
		Allow density transfers where hazard areas exist	

Mitigation Strategy

Completed Projects:

ACTION 2.1.21	Project at Beal Slough at 14th Street
Analysis	Near 14th Street to decrease flood elevations by implementing a package of conveyance improvements. Improvements near 14th Street to include construction of a diversion channel around a BNSF Railway spur track, channel improvements to Beal Slough, and replacement of the existing 14th Street bridge to increase conveyance capacity. (Preliminary Flood Reduction Study, Beal Slough - Pioneers Boulevard to Southwood Drive, July 26, 2006)
Goal/Objective	Goal 2/Objective 2.1
Hazard(s) Address	Flooding
Status/Notes	Completed; This project was a collaborative effort between the NRD & City funded with help from HMGP

ACTION 2.1.22	Flood Reduction at Antelope Creek
Analysis	Flood reduction project along Antelope Creek from 40th Street downstream through 27th Street. This project involves widening 1,450 feet of the channel with a "lower shelf" on the left bank, reconstruction of the existing bike trail, installation of 2 box culverts at the "A" Street crossing, and creation of a dry detention cell in Antelope Park. (Preliminary Flood Reduction Study, Antelope Creek, South 27th Street to South 56th Street, Lincoln, Nebraska, Alternative 4 p. 32)
Goal/Objective	Goal 2/Objective 2.1
Hazard(s) Address	Flooding
Status/Notes	Completed

ACTION 2.1.23	Antelope Creek Project Near A Street
Analysis	Antelope Creek project near A Street. This project would add two box culverts at A Street bridge, realign the Billy Wolfe bicycle trail, and improve the channel for 1450 linear feet downstream. (Preliminary Flood Reduction Study, Antelope Creek, South 27th Street to South 56th Streets, section 3.1)
Goal/Objective	Goal 2/Objective 2.1
Hazard(s) Address	Flooding
Status/Notes	Completed

ACTION 2.1.24	Antelope Creek Dry Detention Project

Analysis	Antelope Creek Dry Detention Project in Antelope Park to reduce flooding by adding a 2.2 acre detention cell to temporarily store a portion of the flow from a tributary to Antelope Creek. (Preliminary Flood Reduction Study, Antelope Creek, South 27th Street to South 56th Streets, section 3.3)
Goal/Objective	Goal 2/Objective 2.1
Hazard(s) Address	Flooding
Status/Notes	Completed

ACTION 2.1.30	**Storm Water Detention at Taylor Park Near 66th**
Analysis	Stormwater detention project in Taylor Park near 66th and Taylor Park Drive. This project would enhance the functionality of the park using walking trails and trees. (DMR Master Plan 8.4.2.2)
Goal/Objective	Goal 2/Objective 2.1
Hazard(s) Address	Flooding
Status/Notes	Completed

ACTION 2.1.50	**Central Utility Plant at Department of Corrections**
Analysis	At the Central utility plant at the department of corrections, where power comes in at, build a floodwall around the facility and build flood gates
Goal/Objective	Goal 2/Objective 2.1
Hazard(s) Address	Flooding
Status/Notes	Completed; This project was a collaborative effort between the NRD & City funded with help from HMGP

NEW OR PREVIOUSLY IDENTIFIED MITIGATION ACTIONS

The following hazard mitigation actions were ranked high by the City Lincoln, or were noted as being underway since the previous hazard mitigation plan.

Improve Drainage

Description: Improve the drainage at 11th Street and Harrison Ave.
Hazard(s) Addressed: Flooding
Estimated Cost: $1,318,000
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Engineering Department
Status: Not Yet Started

Improve Drainage

Description: Improve the drainage from at 33rd and Holdrege Streets
Hazard(s) Addressed: Flooding
Estimated Cost: $471,000
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Engineering Department
Status: Not Yet Started

NFIP Repetitive Loss Structure Removal/Acquisition

Description: Implement projects such as property acquisition, relocation, demolition, or elevation of the one existing repetitive loss structure located in the City/Village
Hazard(s) Addressed: Flooding
Estimated Cost: Dependent upon market value of the structure
Potential Funding: HMGP, PDM, Flood Mitigation Assistance, LPSNRD, Governing County & Local Governing Agency
Timeline: Ongoing
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division), Lower Platte South NRD
Status: No structures have been acquired in the last five years.

Stormwater System and Drainage Improvements

Description: Lincoln utilizes a stormwater system comprised of pipes and inlets as well as ditches and culverts. Stormwater system improvements may include pipe upsizing and additional inlets. Retention and detention facilities may also be implemented to decrease runoff rates while also decreasing the need for other stormwater system improvements. Other improvements may include ditch upsizing, ditch cleanout and culvert improvements. These improvements can serve to more effectively convey runoff within city, preventing interior localized flooding.
Hazard(s) Addressed: Flooding
Estimated Cost: $100,000+
Potential Funding: HMGP, PDM, CDBG, City of Lincoln Public Works, LPSNRD, & Lancaster County
Timeline: Ongoing
Priority: Medium
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: In the past 5 years, the City has spent approximately $10 million on various Storm Water Bond projects to improve the capacity of inlets, ditches, and storm sewer pipes

Flood Reductions within the Deadman's Run Watershed

Description: Implement projects identified in the Deadman's Run Watershed Master plan developed by the City and NRD to address basin wide flooding concerns, stream erosion problems and improve water quality. The master plan identified more than dozen Capital Improvement Projects (CIP) with the estimated cost of $50 Million. These CIP projects include channel widening, bridge upgrade, detention ponds and stream stabilization project. City plans to implement the CIP projects identified in these plans.
Hazard(s) Addressed: Flooding
Estimated Cost: $50,000,000
Potential Funding: HMGP, PDM, CDBG, City of Lincoln, LPSNRD, Lancaster County
Timeline: 1 to 5 years
Priority: Medium
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Currently being evaluated for alternatives

Storm Shelter / Safe Rooms

Description: Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, school, and other areas.
Hazard(s) Addressed: Tornados and high winds, severe thunderstorms
Estimated Cost: $200-$300/sf stand alone; $150-200/sf addition/retrofit
Potential Funding: PDM, HMGP, City of Lincoln, Lancaster County, LPSNRD
Timeline: Ongoing
Priority: High
Lead Agency: City of Lincoln, Lincoln/Lancaster County Emergency Management
Status: Local officials and stakeholders have met to discuss the feasibility of safe room installation in critical facilities and near vulnerable populations

Middle Creek Project

Description: Middle Creek flood control project to reduce peak flow from Middle Creek to lower flooding level in Salt Creek. Flooding from Salt Creek threatens several hundred homes and businesses in Lincoln including the downtown area.
Hazard(s) Addressed: Flooding
Estimated Cost: $15,400,000
Potential Funding: PDM, HMGP, Lincoln, State of Nebraska, LPSNRD
Timeline: Consideration pending the availability of future funding
Priority: Medium
Lead Agency: City of Lincoln Dept of Public Works (Watershed Management), LPSNRD
Status: Not yet started

Oak Creek Project

Description: Oak Creek flood control project to reduce peak flow from Oak Creek. This will reduce flooding in Oak Creek and the adjacent airport as well as lower flooding levels in Salt Creek. Flooding from Salt Creek threatens several hundred homes and businesses in Lincoln including the downtown area.
Hazard(s) Addressed: Flooding
Estimated Cost: $23,200,000
Potential Funding: PDM, HMGP, Lincoln, State of Nebraska, LPSNRD, NEMA
Timeline: Consideration pending the availability of future funding
Priority: Medium
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division), LPSNRD
Status: Not yet started

Oak Creek Flood Control

Description: Oak Creek flood control protection. This project is to increase the protection level of a non-certified levee for the airport and nearby National Guard base. This is associated with the Oak Creek Flood Control Project.
Hazard(s) Addressed: Flooding
Estimated Cost: $6,000,000
Potential Funding: PDM, HMGP, Lincoln, State of Nebraska, LPSNRD, NEMA
Timeline: Consideration pending the availability of future funding
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division), LPSNRD
Status: Not yet started

Emergency Power Contingency Plan

Description: Development and implementation of an Emergency Power Contingency Plan for the Lincoln Water System. (A comprehensive study and installation of back-up power at critical locations. This will provide the ability to remain operational for minimum water demands and fire suppression in the City of Lincoln.)
Hazard(s) Addressed: Severe Thunderstorm, Severe Winter Storm, Flooding, Drought, and Extreme Heat
Estimated Cost: Not yet available
Potential Funding: PDM, HMGP, Lincoln, State of Nebraska, LPSNRD, NEMA
Timeline: 2 years
Priority: Very High
Lead Agency: City of Lincoln Department of Public Works (Lincoln Water System)
Status: Not yet started

Maintain Good Standing in the Community Rating System (CRS)

Description: Maintain good standing as a CRS community. Furthermore, work to gain better status and further lower flood insurance premiums
Hazard(s) Addressed: Flooding
Estimated Cost: $0
Potential Funding: City of Lincoln
Timeline: On-going
Priority: Medium
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Lincoln is currently a Class 5 in the CRS program

National Flood Insurance Program (NFIP)

Description: Maintain good standing with National Flood Insurance Program (NFIP)
Hazard(s) Addressed: Flooding
Estimated Cost: N/A
Potential Funding: N/A
Timeline: Ongoing
Priority: High
Lead Agency: City of Lincoln Department of Building & Safety
Status: Lincoln is still participating in the NFIP

Civil Service Improvements

Description: Improve Fire Department and Rescue squad equipment and facilities. Providing additional, or updating existing emergency response equipment; this could include fire trucks, ATV's, motor boats, etc. This would also include developing backup systems for emergency vehicles, and identifying and training additional personnel for emergency response.
Hazard(s) Addressed: All Hazards
Estimated Cost: $5,000 to $400,000 per vehicle, varies depending on what equipment is needed
Potential Funding: HMGP, City of Lincoln, Lancaster County, & LPS NRD
Timeline: On-going
Priority: Low
Lead Agency: City of Lincoln, Lancaster County, Lincoln/Lancaster Emergency Management Agency
Status: Improvements to response and recovery capabilities are ongoing. New resources are purchased as the need is identified and funds are available.

Improve and Revise Snow / Ice Removal Program

Description: As needed, continue to revise and improve the snow and ice removal program for streets. Revisions should address situations such as plowing snow, ice removal, parking during snow and ice removal, and removal of associated storm debris. Actions under this item should improve the capabilities to rescue those stranded in blizzards and increase the capacity in which snow can be removed from roadways after an event.
Hazard(s) Addressed: Severe Winter Storm
Estimated Cost: $20,000 +
Potential Funding: HMGP, City of Lincoln, Lancaster County, LPS NRD
Timeline: On-going
Priority: Low
Lead Agency: City of Lincoln Department of Public Works, LPSNRD, Lancaster County
Status: In 2014 Public Works revised the Winter Operations Plan; Implementations of Anti-Ice Brine production process for emergency snow routes, bridges, intersections, and other arterials.

Weather Radios

Description: Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
Hazard(s) Addressed: All hazards
Estimated Cost: $50/per radio
Potential Funding: HMGP, PDM, City of Lincoln, Lancaster County, LPS NRD
Timeline: On-going
Priority: High
Lead Agency: City of Lincoln, Lancaster County, Lincoln/Lancaster County Emergency Management
Status: Weather radios have been placed in all Lincoln Public Schools School. Lincoln/Lancaster County EMA continues to work with stakeholders and local agencies to identify areas of need and make recommendations to install weather radios. Lincoln/Lancaster County EMA has assisted in the purchase of weather radios as needed. In 2014 Lincoln/Lancaster County EMA assisted in the installation of 10 weather radios for local government and local nonprofit agencies

Improve Drainage

Description: Improve the drainage on 24th Street from E St. to Antelope Creek
Hazard(s) Addressed: Flooding
Estimated Cost: $462,000
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Not Yet Started

Improve Drainage

Description: Improve the drainage on 33rd Street from Holdrege St. to Baldwin Ave.
Hazard(s) Addressed: Flooding
Estimated Cost: $3,637,000
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Not Yet Started

Improve Drainage

Description: Improve the drainage at 63rd and Aylesworth Ave.
Hazard(s) Addressed: Flooding
Estimated Cost: $531,200
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Not Yet Started

Improve Drainage

Description: Improve the drainage from 40th and J Streets to 37th and M Streets
Hazard(s) Addressed: Flooding
Estimated Cost: $1,690,000
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Not Yet Started

Improve Drainage

Description: Improve the drainage at Cotner Blvd and Baldwin Ave.
Hazard(s) Addressed: Flooding
Estimated Cost: $410,000
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Not Yet Started

Improve Drainage

Description: Improve the drainage at N 68th St. between Fremont St and Seward St
Hazard(s) Addressed: Flooding
Estimated Cost: $733,000
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Not Yet Started

Improve Drainage

Description: Improve the drainage south of Lowell Ave. between 46th and 47th Streets
Hazard(s) Addressed: Flooding
Estimated Cost: $36,000
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Not Yet Started

Improve Drainage

Description: Improve the drainage at North of Madison Ave, east of 33rd St
Hazard(s) Addressed: Flooding
Estimated Cost: $23,000
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Not Yet Started

Improve Drainage

Description: Improve the drainage at Forest Lake Blvd
Hazard(s) Addressed: Flooding
Estimated Cost: $84,100
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Watershed Management Division)
Status: Not Yet Started

Bank Stabilization

Description: Implement river bank stabilization measures for city owned property along the Platte River. Current erosion pattern will impact the ability to develop that area for wells to meet future production demands.
Hazard(s) Addressed: Flooding
Estimated Cost: Not yet available
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Lincoln Water System)
Status: In Progress

Emergency Generator Service Provider Agreement

Description: Development and implementation of a service agreement to provide emergency back-up generators. These generators would be necessary to provide power for operations to provide fire suppression and minimum water demands for the City of Lincoln.
Hazard(s) Addressed: All Hazards
Estimated Cost: Not yet available
Potential Funding: City of Lincoln
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Lincoln Water System)
Status: In Progress

Capability to Connect To Portable Generators to Operate City Vehicle Fuel Sites

Description: Conduct a comprehensive study of remote city vehicle fueling sites to identify electrical components required for utilization of portable back-up generators. Project would also include installation of those components, generators to be provided by local emergency management or contractual services.
Hazard(s) Addressed: All Hazards
Estimated Cost: Not yet available
Potential Funding: HMGP, City of Lincoln, NEMA
Timeline: 3 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works
Status: In Progress

Inflow and Infiltration Reduction Program

Description: Develop and implement a program to reduce inflow and infiltration of stormwater into the wastewater collection system.
Hazard(s) Addressed: Flooding
Estimated Cost: $500,000
Potential Funding: PDM, HMGP, CDBG, City of Lincoln
Timeline: December 2016
Priority: High
Lead Agency: City of Lincoln Department of Public works
Status: Scope of work being developed

Re-Routing of Sump Pump Discharge

Description: Develop and implement a program to inspect piping and routing of sump pump discharge. This may include a cost share program to assist homeowner in this effort. Estimate 20,000 homes at 1c000 each and 50-50 cost share.
Hazard(s) Addressed: Flooding
Estimated Cost: 250,000 to develop program, 500,000 yearly for cost share
Potential Funding: City of Lincoln
Timeline: 18 months to develop program, 20 years to implement
Priority: Medium
Lead Agency: City of Lincoln Department of Public works
Status: Not yet started, concept being evaluated.

Service Line Inspection Program

Description: Develop and implement a program inspect wastewater service lines and prioritize lines in need of repair. This program would reduce ground water infiltration into the wastewater system and reduce impacts during flood and high water events. Estimate 10,000 homes at 5,000 ea.
Hazard(s) Addressed: Flooding
Estimated Cost: 250,000 to develop program, 1,000,000 yearly
Potential Funding: City of Lincoln
Timeline: 18 months to develop program, 50 years to implement
Priority: Medium
Lead Agency: City of Lincoln Department of Public works
Status: Not yet started, concept being evaluated.

Wastewater Collection System Monitoring

Description: Improve/expand monitoring capabilities of the wastewater collection system for the city.
Hazard(s) Addressed: Flooding
Estimated Cost: $300,000
Potential Funding: City of Lincoln
Timeline: December of 2016
Priority: High
Lead Agency: City of Lincoln Department of Public works
Status: Scope of work being developed

Back-Flow Preventer Cost Share Program

Description: Establish a cost share program to assist home owners in vulnerable areas in the installation of backflow preventers on wastewater service lines. This would prevent wastewater from backing up into structures during flooding and high water events. Install in 200 houses at 5,000 each
Hazard(s) Addressed: Flooding
Estimated Cost: 25,000 to develop program, 1,000,000 to implement
Potential Funding: City of Lincoln
Timeline: December of 2017
Priority: Medium
Lead Agency: City of Lincoln Department of Public works
Status: Not yet started, concept being evaluated.

Develop Emergency Action Plans

Description: Develop emergency action plans for service divisions of Lincoln's Public Works Department. These plan would outline the response protocol employed during emergency events.
Hazard(s) Addressed: Flooding
Estimated Cost: $10,000 - $30,000 per service division (seven total divisions)
Potential Funding: City of Lincoln, Lancaster County
Timeline: 3 years
Priority: Medium
Lead Agency: City of Lincoln Department of Public works
Status: In progress

Channel Improvement

Description: Channel improvements project to correct the effects of channel constrictions near Cornhusker Highway. This project would involve 3 separate locations where the constriction of flow will be alleviated by increasing the width or the stream channel, creating a two stage channel which allows the smaller stream forming flow to meander within the larger flood channel. Other improvements would be to replace crossing structures with larger capacity structures. (DMR Master Plan, Section 8.4.1.1)
Hazard(s) Addressed: Flooding
Estimated Cost: $8,304,000
Potential Funding: HMGP, PDM, FMA, City of Lincoln, LPS NRD
Timeline: Consideration pending the availability of funding
Priority: High
Lead Agency: City of Lincoln Public Works
Status: Not yet started

56th Street and Morton Channel Improvements

Description: The area of 56th Street/HWY 77, between Cornhusker and HWY 80 has a history of flooding, with numerous properties subject to damage. The City is pursing channel and crossing improvements in the northern reaches of the area to increase channel capacity and reduce flood depths.
Hazard(s) Addressed: Flooding
Estimated Cost: $3,260,000
Potential Funding: HMGP, City of Lincoln
Timeline: 5 years
Priority: High
Lead Agency: City of Lincoln Public Works
Status: Pending funding

Improve Drainage

Description: Project on N. 56th Street ditch in the vicinity of Fletcher Street. Adjacent business have been flooded two times (7/10/03 & 6/18/08)
Hazard(s) Addressed: Flooding
Estimated Cost: $1,000,000
Potential Funding: HMGP, PDM, City of Lincoln, LPS NRD
Timeline: Consideration pending the availability of funding
Priority: High
Lead Agency: City of Lincoln Public Works
Status: Not yet started

Tree City USA

Description: Maintain participation in the Tree City USA program.
Hazard(s) Addressed: Tornado, Severe Thunderstorms, Severe Winter Storms
Estimated Cost: $517,000 for tree care program
Potential Funding: City of Lincoln
Timeline: Ongoing
Priority: Medium
Lead Agency: City of Lincoln Parks and Recreation
Status: Lincoln has participated in the program for 38 years

Emergency Electrical Generator for Wastewater Treatment Plant

Description: Installation of emergency electrical generators at the Theresa Street Wastewater Treatment Plant to provide emergency backup power for wastewater treatment.
Hazard(s) Addressed: Flooding
Estimated Cost: $250,000 design, $1,008,000 construction
Potential Funding: HMGP, PDM, City of Lincoln, Lancaster County, State of Nebraska
Timeline: Timeline is currently under review
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Waste Water)
Status: Scope of Services for an Emergency Preparedness Study for the City of Lincoln Department of Public Works & Utilities was prepared in 2014 and is under review

Levee at Theresa Street

Description: Installation of a levee around the Theresa Street Waste Water Treatment Plant to protect it from flooding from Salt Creek**.**
Hazard(s) Addressed: Flooding
Estimated Cost: $250,000 design, $1,008,000 construction
Potential Funding: City of Lincoln, Lancaster County
Timeline: 5 years
Priority: High
Lead Agency: City of Lincoln Department of Public Works (Waste Water)
Status: Not yet started

Complete a City Wide Master Plan to Prioritize All Flooding Related Projects

Description: Stormwater master plans can be conducted to perform a community-wide stormwater evaluation, identifying multiple problem areas, and potentially multiple drainage improvements for each.
Hazard(s) Addressed: Flooding
Estimated Cost: $200,000 - $300,000 per Basin or update
Potential Funding: City of Lincoln, Lancaster County, LPS NRD
Timeline: On-going
Priority: High
Lead Agency: City, NRD
Status: The City has completed plans examining different Watershed Basins within the city in recent years. Studies include (but are not limited to): Antelope Creek Basin Master Plan, Beal Slough Master Plan, Cardwell Master Plan, Deadman's Run Watershed Study, Haines Branch Master Plan, Little Salt Creek Master Plan, Middle Creek Master Plan, South Salt Creek Master Plan, Southeast Upper Salt Creek Master Plan, and Stevens Creek Master Plan)

Preserve Natural and Beneficial Functions

Description: Preserve natural and beneficial functions of floodplain land through measures such as: retaining natural vegetation, restoring streambeds, and preserving open space in the floodplain.
Hazard(s) Addressed: Flooding
Estimated Cost: $100,000 - $200,000 annually
Potential Funding: PDM, HMGP, CDBG, City of Lincoln, Lancaster County & LPSNRD
Timeline: On-Going
Priority: High
Lead Agency: City of Lincoln Public Works
Status: Have assisted in the purchase of several properties within the floodplain of Haines Branch

Adopt a No Adverse Impact approach to floodplain management

Description: Adopt a No Adverse Impact approach to floodplain management
Hazard(s) Addressed: Flooding
Estimated Cost: $0
Potential Funding: N/A
Timeline: On-Going
Priority: High
Lead Agency: City of Lincoln Public Works
Status: Program On-Going

Utilize low impact development practices and green infrastructure to reduce flood risk

Description: Low impact development practices and green infrastructure can reduce runoff and result in a reduction in stormwater related flooding
Hazard(s) Addressed: Flooding
Estimated Cost: Varies
Potential Funding: City of Lincoln, Lancaster County & LPS NRD
Timeline: Ongoing: Community will implement projects as they are identified
Priority: High
Lead Agency: City of Lincoln Public Works
Status: Program On-going; City adopted Water Quality Standards which go into effect 2/2016