City of Yukon

Oklahoma

HAZARD MITIGATION PLAN
2011-2016

INCLUDING: CITY OF YUKON, YUKON PUBLIC SCHOOLS

DEVELOPED BY:

YUKON HAZARD MITIGATION PLANNING TEAM

PREPARED BY:

Hazard Mitigation Specialists L.L.C.

Eufaula, OK

TABLE OF CONTENTS

Yukon Hazard Mitigation Plan

CHAPTER ONE ..... - 1 -
INTRODUCTION ..... - 1 -
Funding ..... - 3 -
Purposes of the Plan ..... - 3 -
Scope ..... - 3 -
Community Mitigation Planning Goals ..... - 4 -
Plan Point of Contact ..... - 5 -
Existing Plans / Programs ..... - 6 -
Community Profile ..... - 6 -
Population ..... - 8 -
Academia ..... - 8 -
Topography ..... - 11 -
Climate ..... - 11 -
Economics ..... - 12 -
Critical Facilities ..... - 13 -

CHAPTER TWO ..... - 14 -
THE PLANNING PROCESS ..... - 14 -
City of Yukon Hazard Mitigation Plan Formation ..... - 15 -
Coordination Among Agencies ..... - 19 -

CHAPTER THREE ..... - 21 -
HAZARD IDENTIFICATION AND ASSESSMENT ..... - 21 -
Review of Natural Hazards ..... - 21 -
Recent Disaster History ..... - 24 -
Review of Natural Hazards ..... - 26 -
Dam Failure ..... - 28 -
Location ..... - 28 -
Extent ..... - 30 -
Previous Occurrences ..... - 31 -
Probability of Future Events ..... - 31 -
Vulnerability and Impact ..... - 32 -
Conclusion ..... - 32 -
References ..... - 32 -

Drought ..... - 33 -
Location ..... - 34 -
Extent ..... - 34 -
Previous Occurrences ..... - 35 -
Probability of Future Events ..... - 36 -
Vulnerability and Impact ..... - 37 -
Conclusion ..... - 37 -
References ..... - 37 -
Earthquake ..... - 38 -
Location ..... - 38 -
Extent ..... - 38 -
Previous Occurrences ..... - 40 -
Probability of Future Events ..... - 40 -
Vulnerability and Impact ..... - 41 -
Conclusion ..... - 41 -
References ..... - 41 -
Expansive Soils ..... - 42 -
Location ..... - 43 -
Extent ..... - 43 -
Previous Occurrences ..... - 44 -
Probability of Future Occurrence ..... - 44 -
Vulnerability and Impact ..... - 45 -
Conclusions ..... - 46 -
References ..... - 46 -
Extreme Heat ..... - 47 -
Location ..... - 47 -
Extent ..... - 48 -
Previous Occurrences ..... - 49 -
Probability of Future Events ..... - 50 -
Vulnerability and Impact ..... - 51 -
Conclusion ..... - 51 -
References ..... - 51 -
Flood ..... - 52 -
Location ..... - 52 -
Extent ..... - 53 -
Previous Occurrences ..... - 54 -

Probability of Future Events ..... - 55 -
Vulnerability and Impact ..... - 56 -
Conclusion ..... - 56 -
References ..... - 56 -
Hail ..... - 57 -
Location ..... - 57 -
Extent ..... - 57 -
Previous Occurrences ..... - 58 -
Probability of Future Events ..... - 60 -
Vulnerability and Impact ..... - 60 -
Conclusion ..... - 60 -
References ..... - 60 -
High winds ..... - 61 -
Location ..... - 61 -
Extent ..... - 61 -
Previous Occurrences ..... - 63 -
Probability of Future Events ..... - 64 -
Vulnerability and Impact ..... - 64 -
Conclusion ..... - 65 -
References ..... - 65 -
Lightning ..... - 66 -
Location ..... - 67 -
Extent ..... - 67 -
Previous Occurrences ..... - 67 -
Probability of Future Events ..... - 68 -
Vulnerability and Impact ..... - 68 -
Conclusion ..... - 69 -
References ..... - 70 -
Tornado ..... - 71 -
Location ..... - 71 -
Extent ..... - 72 -
Previous Occurrences ..... - 74 -
Probability of Future Events ..... - 75 -
Vulnerability and Impact ..... - 75 -
Conclusion ..... - 76 -
References ..... - 76 -

Wildfire ..... - 77 -
Location ..... - 77 -
Extent ..... - 78 -
Previous Occurrences ..... - 79 -
Probability of Future Events ..... - 79 -
Vulnerability and Impact ..... - 80 -
Conclusion ..... - 80 -
References ..... - 80 -
Winter storms ..... - 81 -
Location ..... - 81 -
Extent ..... - 82 -
Previous Occurrences ..... - 83 -
Probability of Future Events ..... - 86 -
Vulnerability and Impact ..... - 87 -
Conclusion ..... - 88 -
References ..... - 88 -
Long Range Growth And Post Disaster Redevelopment ..... - 89 -
Analyzing Development Trends ..... - 89 -
CHAPTER FOUR ..... - 90 -
MITIGATION STRATEGIES ..... - 90 -
Yukon Hazard Mitigation Goals ..... - 91 -
Determination of Action Projects ..... - 91 -
Action Plan ..... - 91 -
Action Project 1 - Evaluate/Upgrade Warning Systems ..... - 92 -
Action Project 2 - Fire Response Plan ..... - 93 -
Action Project 3 - Power Outage Response Plan ..... - 93 -
Action Project 4 – Harden Server Equipment Room at EOC ..... - 94 -
Action Project 5 - Weather Radios for Critical facilities ..... - 94 -
Action Project 6 – Harden Server Equipment Room at City Hall ..... - 95 -
Action Project 7 – Community/School Safe Rooms ..... - 95 -
Action Project 8 - Update/Verify FIRM's/Drainage Study ..... - 96 -
Action Project 9 – Debris Management Plan ..... - 96 -
Action Project 10 – Mass Notification System ..... - 97 -
Action Project 11 - Develop Haz Mat Response Plan ..... - 97 -
Action Project 12 – Water Line Upgrades ..... - 98 -
Action Project 13 - Surge Protection ..... - 98 -

Action Project 14 - All Hazards Public Information/Education ..... - 99 -
Action Project 15 – GIS and GPS Mapping ..... - 99 -
Action Project 16 – Maintain Flood Administrator ..... - 100 -
Action Project 17 – NFIP Continued Participation ..... - 100 -
Action Project 18 – Floodplain Ordinance Compliance ..... - 101 -
Action Project 19 – Window Film ..... - 101 -
Action Project 20 - Population Mapping ..... - 102 -
Action Project 21 - Home Fire Protection ..... - 102 -
Action Project 22 - Individual Safe Room Rebate Program ..... - 103 -
Action Project 23 - Backup 911/EOC Facilities ..... - 103 -
Action Project 24 – NFIP Public Information ..... - 104 -
Action Project 25 - Land Use Ordinances ..... - 104 -
Action Project 26 - Replace Culverts With Bridge ..... - 105 -
Action Project 27 - Replace Culverts With Bridge ..... - 105 -
Action Project 28 - Expansive Soil Testing ..... - 106 -
Action Project 29 - Elevation Bench Marks ..... - 106 -
Action Project 30 - Highway Message Boards ..... - 107 -
Action Project 31 - Flood Prone Property Mitigation ..... - 107 -
Action Project 32 - Foreign Language Translators ..... - 108 -
Action Project 33 - Hail Resistant Roofing ..... - 108 -
Completed Action Projects ..... - 109 -
Action Project – Haz Mat Teams/Equipment ..... - 109 -
Action Project - Reserve Water Supply ..... - 109 -
Action Project - Mass Communications System ..... - 110 -
Action Project - School Vulnerability Inspection ..... - 110 -
Action Project - Bridge Inspections ..... - 111 -
Action Project - Fire Suppression System ..... - 111 -
Action Project - Wildfire Response Training ..... - 112 -
Action Project - Drought Identification ..... - 112 -
Action Project - Pollutant Collection Program ..... - 113 -
Action Project - City of Yukon Evacuation Plan ..... - 113 -
Deleted Action Projects ..... - 114 -
Action Project - Disaster Training ..... - 114 -
Action Project – Lightning Rods ..... - 114 -
Action Project - Hazardous Materials Routing ..... - 114 -
Action Project - Address Identification ..... - 114 -

Action Project - Tree Trimming ..... - 114 -
Action Project - Heat Emergency Action Plan ..... - 115 -
Action Project - Drought Public Awareness ..... - 115 -
Action Project - Haz Mat Teams/Equipment ..... - 115 -
Action Project - First Aid / CPR ..... - 115 -
Action Project - Winter Weather Damage Prevention ..... - 115 -
Action Project - Heat Disorder Education ..... - 115 -
Action Project - Public Education on Dumping ..... - 116 -
Action Project - Outdoor Warning Education ..... - 116 -
Action Project - Day Care Safe Rooms ..... - 116 -
Action Project - Vehicle Sheltering ..... - 116 -
Action Project - Bury Power Lines ..... - 116 -
Action Project - Fire Emergency Plan ..... - 116 -
Action Project - Natural Hazards Education Plans ..... - 117 -
Action Project - Tornado Shelter Programs ..... - 117 -
Action Project - Lightning Warning ..... - 117 -
Action Project - Upgrade Equipment ..... - 117 -
Action Project - Foundation Construction ..... - 117 -
Action Project - Evacuation Plans ..... - 117 -
Action Project - Fire Extinguishers In Community Facilities ..... - 118 -
Action Project - Fire Hydrant Backflow Preventers ..... - 118 -
Action Project - Wildfire Evacuation ..... - 118 -
Action Project - Tornado/Earthquake Construction ..... - 118 -
Action Project - Dam Release Rate Mapping ..... - 118 -
Action Project - Safer Community Partnerships ..... - 118 -
Action Project - Security And Surveillance ..... - 119 -
Action Project - Floodplain Mitigation For Homeowners ..... - 119 -
Action Project - Community Safe Rooms / Storm Shelters ..... - 119 -
Action Project - Building Codes ..... - 119 -
Action Project - Code Requirements For Shingles ..... - 119 -
Action Project - Whole House Surge Suppression ..... - 119 -
Action Project - Lightning Public Awareness ..... - 120 -
Action Project - Storm Spotters At Recreational Facilities ..... - 120 -
Action Project - Winterizing Structures ..... - 120 -
Action Project - Debris Management Plan Update ..... - 120 -
Action Project - Public Awareness Distribution Materials ..... - 120 -

Action Project - Building Code Foundation Piers ..... - 120 -
Action Project - Wildfire Risk Warnings ..... - 121 -
Action Project - Public Awareness On Fire Resistant Materials ..... - 121 -
Action Project - Controlled Burns Public Education ..... - 121 -
Action Project - Earthquake Building Codes ..... - 121 -
NFIP Participation ..... - 121 -

CHAPTER FIVE ..... - 123 -
PRIORITIZATION ..... - 123 -

CHAPTER SIX ..... - 127 -
PLAN MAINTENANCE ..... - 127 -
Monitoring, Evaluating, and Updating Plan ..... - 127 -
Implementation Through Existing Programs ..... - 128 -
Continued Public Participation and Involvement ..... - 129 -

Appendix A- Plan Organization ..... - 132 -
List of Hazard Mitigation Planning Team Members ..... - 132 -
List of Hazard Mitigation Project Committee ..... - 133 -
Letters of Invitation ..... - 137 -
Contact Mailing List ..... - 140 -
Meeting Roster/Minutes ..... - 144 -

Appendix B- Maps ..... - 158 -
Yukon City Limits ..... - 158 -
Yukon School Districts ..... - 159 -
Yukon Fire Station Locations ..... - 160 -

Appendix C- Critical Facilities – Not For Public Review ..... - 170 -
Estimating Potential Losses – All Hazards ..... - 170 -

RESOLUTION 2011-05

A RESOLUTION OF THE CITY OF YUKON, MAYOR, AND CITY COUNCIL ADOPTING THE CITY OF YUKON HAZARD MITIGATION PLAN FOR THE CITY OF YUKON, OKLAHOMA.

WHEREAS, the Hazard Mitigation Plan for the City of Yukon is presented in fulfillment of requirements of the Hazard Mitigation Grant Program (HMGP) as outlined by the Federal Emergency Management Agency (FEMA) according to Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Title 42 United States Code (U.S.C.), §4154, enacted under Sec 104 of the Disaster Mitigation Act of 2000, (DMA 2000) Public Law 106-390; and

WHEREAS, the purpose of the Hazard Mitigation Plan is to provide guidance for the City of Yukon and participating jurisdictions hazard mitigation activities for the next five years and to ensure the City of Yukon and participating jurisdictions and other partners implement activities that are most effective and appropriate for mitigating natural hazards and hazardous materials incidents; and

NOW, THEREFORE, BE IT RESOLVED by the City of Yukon Mayor and City Council;

That this Hazard Mitigation Plan for the City of Yukon, under the multi-jurisdictional planning participation and adoption process, presented in realization of requirements of the HMGP for the Federal Emergency Management Agency, according to the sections cited above, is hereby approved and adopted by the City of Yukon Mayor and City Council;

PASSED BY THE CITY COUNCIL AND APPROVED BY THE MAYOR OF THE CITY OF YUKON, OKLAHOMA, THIS 19th DAY OF APRIL 2011.

Bob Bradway

Bob Bradway, Mayor

ATTEST:

Doug Shivers, City Clerk

RESOLUTION

RESOLUTION TO ADOPT THE HAZARD MITIGATION PLAN FOR THE YUKON PUBLIC SCHOOL SYSTEM

WHEREAS, the School Board of the Yukon Public School System, after discussion, hereby approves Resolution _____, a Resolution to adopt the Hazard Mitigation Plan for the Yukon Public School System; and

WHEREAS, the Hazard Mitigation Plan for the Yukon Public School System is presented in fulfillment of requirements of the Hazard Mitigation Grant Program (HMGP) as outlined by the Federal Emergency Management Agency (FEMA) according to Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Title 42 United States Code (U.S.C.), §4154, enacted under Sec 104 of the Disaster Mitigation Act of 2000, (DMA 2000) Public Law 106-390; and

WHEREAS, the purpose of the Hazard Mitigation Plan is to provide guidance for the housing authority and participating jurisdictions hazard mitigation activities for the next five years and to ensure the Yukon Public School System and participating jurisdictions and other partners implement activities that are most effective and appropriate for mitigating natural hazards and hazardous materials incidents; and

NOW, THEREFORE, BE IT RESOLVED BY THE SCHOOL BOARD OF THE YUKON PUBLIC SCHOOL SYSTEM;

That this Hazard Mitigation Plan for the Yukon Public School System, under the jurisdictional planning participation and adoption process, presented in realization of requirements of the HMGP for the Federal Emergency Management Agency, according to the sections cited above, is hereby approved and adopted by the School Board of the Yukon Public School System.

BE IT FURTHER RESOLVED, that any and all resolutions heretofore adopted by the School Board of the Yukon Public School System and certified to by them as governing the operation shall continue in full force and effect, except as the same may be supplemented or modified by the foregoing part of this resolution.

IN WITNESS WHEREOF, Karen Youngblood hereunto subscribed by name as President of the Yukon Public School System School Board and caused the stamp or seal of said authority to be hereunto affixed this 2nd day of May 2011.

Karen Youngblood, President

ATTEST:

David Moore, Clerk

CHAPTER ONE

INTRODUCTION

Changes to Chapter One:

Reformatted plan for simplified review and use

Added Yukon Public Schools to municipal plan

Updated goals to reflect FEMA requirements

Preventing the disaster—rebuild—disaster cycle is a major initiative of the Federal Emergency Management Agency (FEMA). Disasters cannot be controlled, but human activities can minimize damages. One of the goals of FEMA is to reduce or prevent potential damage from various natural disasters. FEMA has initiated programs to make investments in communities that will reduce the amount of money it takes for a community to recover from a disaster. This risk reduction is known as Hazard Mitigation and the process to achieve it is outlined in a Hazard Mitigation Plan (HMP).

A Hazard Mitigation Plan provides a systematic, objective review of a political jurisdiction and describes steps to reduce a disaster's harmful effect. Among the benefits of maintaining a Hazard Mitigation Plan are:

- The Plan ensures hazard mitigation activities are coordinated with other community goals to prevent conflicts and reduce the costs of implementation.
- It ensures all alternatives are evaluated so problems are addressed by the most appropriate and effective solutions.
- The Plan educates residents and other planning participants regarding existing hazards and protection measures.
- It justifies public and political support for projects.

The Plan is designed to fulfill the requirements of the following programs administered by the Federal Emergency Management Agency (FEMA):

a. Pre-Disaster Mitigation Program (PDM)
b. Flood Mitigation Assistance Program (FMA)
c. Community Rating System Floodplain Management Planning (CRS)
d. Post-disaster assistance through the Hazard Mitigation Grant Program (HMGP)
e. Severe Repetitive Loss Program (SRL)
f. Repetitive Flood Claims Program (RFC).

In the past, the **Robert T. Stafford Disaster Relief and Emergency Assistance Act** provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 (DMA 2000) amended the Stafford Act to meet the growing concern and needs of natural hazard mitigation. Due to the recent increase of disasters in Oklahoma and other states throughout the nation, the challenge to eliminate or reduce the effects of natural disasters on jurisdictions and their citizens primarily falls to the local jurisdictions to resolve the problem.

The escalating costs of emergency relief aid prompted the Federal Emergency Management Agency (FEMA) to focus its priorities toward mitigation. This is a dramatic shift from FEMA's traditional charter of responding to disasters and preparedness to respond.

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5165, enacted under the Disaster Mitigation Act (DMA) of 2000 (P.L. 106-390), provides new and revitalized approaches to mitigation planning. Section 322, in concert with other sections of the Act, provides:

> (b) Local and Tribal Plans - Each mitigation plan developed by a local or tribal government shall -
>
> (1) Describe actions to mitigate hazards, risks, and vulnerabilities identified under the plan; and
>
> (2) Establish a strategy to implement those actions. A major requirement of the law is the development of local hazard mitigation plans.

To remain eligible, local mitigation plans must be reviewed, updated and submitted to the State Hazard Mitigation Division, and re-approved by FEMA every five years. This Mitigation Plan meets the requirements of the Act and the regulations established by FEMA.

Funding:

Funding for the City of Yukon Hazard Mitigation Plan was provided by a 75 percent HMGP grant from FEMA through the Oklahoma Department of Emergency Management (OEM). The City of Yukon provided the 25 percent local share.

In January 2010, the City received approval from FEMA for a $42,000.00 grant from the Federal Emergency Management Agency (FEMA) to develop a Hazard Mitigation Plan for their jurisdiction. Subsequently, the Yukon City Council contracted with Hazard Mitigation Specialists, L.L.C., a Hazard Mitigation consulting firm, to assist the City of Yukon with the Hazard Mitigation Plan.

Purposes of the Plan

The City of Yukon experiences natural hazards threatening lives and causing damage to property and having the potential to adversely affect local citizens.

This plan provides a framework on which to base comprehensive mitigation planning throughout the City. Hazard identification is the means to determine which hazards may threaten Yukon and the public schools. Hazard Mitigation is the process of eliminating or reducing the effects of natural disasters that may affect the City of Yukon in the future, and is largely driven by events occurring throughout the past five years.

This plan not only provides the framework and guidance for an all-hazard approach to mitigation, it identifies hazard mitigation goals and recommended actions and initiatives to reduce or prevent injury and damage from natural hazards. This plan pinpoints hazards and the measures to implement or continue in order to alleviate the suffering and damage caused by any natural disasters that may occur in Yukon.

Scope

The scope of the Yukon Hazard Mitigation Plan is city-wide and all-inclusive of natural hazards that may threaten Yukon residents, schools or visitors. Jurisdictions included in the City of Yukon Multi-jurisdictional Hazard Mitigation Plan **are** the **City of Yukon**, the **Yukon Public School District**, and all eligible entities within the City of Yukon. The City of Yukon's initial plan expired and did not include the Yukon Public School District. Several projects from the previous

plan were retained and rewritten to include the school district and make the plan more functional.

Members of the Yukon Hazard Mitigation Planning Team (YHMPT) and the Yukon Hazard Mitigation Action Planning Committee analyzed and reviewed major sections of the previous plan to determine updates to the document and incorporate the school district into this version of the plan.

To be as effective and complete as possible, the plan incorporates information from Chapter Three of the State of Oklahoma Hazard Mitigation Plan-Risk Assessment. The Oklahoma Climatological Survey and Oklahoma Geological Survey provided this data to the state which far exceeds local jurisdiction resources.

With the benefit of this Plan, the City of Yukon intends to lessen its vulnerability to disasters caused by natural hazards. These actions will shape the community into a more resilient framework able to more quickly and easily recuperate.

The Hazard Analysis previously prepared for Yukon was reviewed and incorporated into the strategies utilized in Hazard Mitigation proposals. The Hazard Analysis is described in Chapter Three. Action plans were reviewed and incorporated into the current plan.

Community Mitigation Planning Goals

In order to minimize the destruction and devastation resulting from disasters, Yukon developed this Hazard Mitigation Plan to guide all levels of government, businesses and the general public in reducing or eliminating the effects of natural hazards in Yukon. The Yukon Emergency Management Department, the City Manager, the City Council, the School Superintendent and School Board will administer pre-disaster mitigation. In addition, the Yukon Hazard Mitigation Team will play a key role relative to general oversight by reviewing goals and objectives, and developing pre-disaster mitigation implementation plans.

The strategy of Yukon and Yukon Public Schools is to utilize the mitigation programs of the federal government to minimize loss of life and property to the citizens of the city. Each natural hazard applicable to any portion of the jurisdiction is identified and addressed, and will be

eliminated when possible through the implementation of the HMGP, PDM, SRL, FMA and RFC programs and grants. To further enhance their mitigation program, the city will also utilize available grants from additional sources. The approach of the strategy is all-hazard as they relate to the jurisdiction, with a specific focus on prioritizing and mitigating those hazards. The intention of this plan is to promote increased coordination among local officials and agencies from all levels of government, and to integrate hazard mitigation management capabilities and programs throughout the jurisdiction. The primary goals of the Yukon Hazard Mitigation Plan are to:

Goal 1: **Protect lives and property.**

Goal 2: Improve ability to monitor and transmit warnings.

Goal 3: Expand education, training and public information in regard to all hazards.

Goal 4: Ensure continuity of government and critical services.

Goal 5: Reduce and/or eliminate flooding in the city of Yukon.

Plan Point of Contact

PRIMARY:

Frosty Peak, City of Yukon Emergency Management Director

100 S. Ranchwood Blvd.

Yukon, OK 73099-2700

Telephone: (405) 823-0544

Fax: (405) 350-0786

fpeak@cityofyukonok.gov

ALTERNATE:

Corby Poursaba, Assistant to the Emergency Management Director

100 S. Ranchwood Blvd.

Yukon, OK 73099-2700

Telephone: (405) 350-5413

Fax: (405) 350-0786

Existing Plans / Programs

The City of Yukon Hazard Mitigation Plan discusses the operational plans of various local, state and federal agencies and private organizations that coordinate or interact with the city's Hazard Mitigation Plan. The following list of current plans and programs was reviewed, and where appropriate, integrated into the Yukon Hazard Mitigation Plan:

CITY OF YUKON EMERGENCY OPERATIONS PLAN (EOP)

The Yukon Emergency Operations Plan (EOP) assigns responsibilities to designated departments, agencies and volunteers in the event of a disaster. The EOP provides locations of warning sirens and community shelters and directs departments, agencies and volunteers in procedures to provide the most advantageous guidance, relief and assistance to citizens affected by a disaster. The Emergency Operations Plan is written expressly for the welfare and safety of Yukon residents and visitors. When applicable and through its annual update, the EOP remains in compliance with the goals and projects depicted in the City of Yukon Hazard Mitigation Plan.

DEPARTMENTAL STANDARDS OF OPERATIONS (SOP)

Each major department has a written operating guide that outlines day to day operations. The Fire Department and Police Department have the most noteworthy SOP's described by City officials as an excellent response plan. The departmental SOP's outline the operations and who is responsible for the various tasks. Each department affected by the Hazard Mitigation Plan will incorporate the goals and projects into their operational plans in order to better carry out the goals established in the HM Plan.

CITY CODES AND ORDINANCES

Codes and ordinances will be updated as necessary when policies and codes are changed due to changes in the Hazard Mitigation Plan.

Community Profile

The City of Yukon, Oklahoma, is located in eastern Canadian County approximately 10 miles west of downtown Oklahoma City. Nestled between Interstate 40 on its southern boundary and historic Route 66 on the north, Yukon is the largest of seven incorporated communities in the county and encompasses 25.8 square miles.

The town was founded with a population of 25 in 1891 by A.N. Spencer. Spencer was associated with the Choctaw, Oklahoma and Gulf Railroad and made an agreement to plat a town site and lay railroad tracks through the town in exchange for half the lots.

Main Street looking west, early 1900s

As planned, the railway company laid its track through Yukon in 1891 and thereby caused the abandonment of the nearby town of Frisco, population 1,000. Yukon began attracting a sizeable Bohemian population around 1898. Following World War I and the dissolution of Bohemia into Czechoslovakia and Moravia, the Yukon Bohemians became "Czechs." This heritage is still recognized today. Yukon has been proclaimed "the Czech Capital of Oklahoma" and since 1966 has held an annual Czech Festival on the first Saturday of October.

Situated in proximity to fertile farmland, Yukon quickly thrived as the urban center for area farmers. By 1905, the town had an organized library and in 1927, a dedicated public library building was constructed on Elm Street.

The Yukon Mill and Grain Company dominated Yukon's industry for decades. Founded in 1893 as a small elevator, the mill became the largest flour plant in the state and Southwest, and had a capacity of two thousand barrels of flour per day by the 1930s. In 1933, Dobry Mills started across the street. Both mills continued in operation for many decades before they were sold to larger corporations. Shawnee Mills purchased the Yukon Mill and Grain Company, and Mid-Continent bought the Dobry Mills. In 1972, Mid-Continent purchased the historic Yukon Mill and Grain Company which remains in operation on Yukon's Main Street.

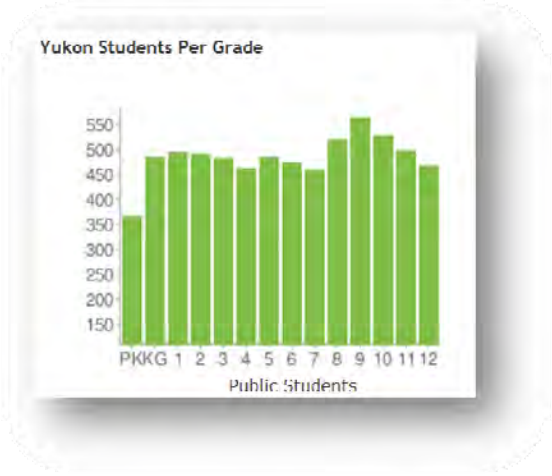
The Mulvey Mercantile building is another notable site, and is located in the Central Business Historical District on Main Street. Constructed in 1904, the general store was the largest retail operation in Yukon until the 1930s when the Great Depression forced its closure.

The main thoroughfare in Yukon has further acclaim due to its association with U.S. Highway 66. Designated in 1926, Route 66 was a major transportation artery through Yukon for decades before the four-lane Interstate 40 displaced it in the 1960s. Like its predecessor, Interstate 40 created commercial vacuum and attracted restaurants, gas stations, and other businesses along its off-ramps. The commercial strip at Yukon’s Highway 92 exit was renamed Garth Brooks Boulevard in the 1990s for one of the town's favorite sons. Commercial growth along this busy interchange was primarily north, but quickly expanded to the south side of the interstate following a major construction boom to the area soon after the beginning of the twenty-first century.

Another major event took place in the 1960s when Oklahoma City and Yukon annexed the area surrounding Yukon. When Oklahoma City annexed the majority of property adjacent to Yukon, Yukon city officials responded by annexing the remaining land. With the new proximity to the metropolitan area, Yukon quickly attracted numerous Oklahoma City residents seeking a smaller- town environment. The result was massive housing and commercial development primarily to the south and east sides of town. Today the City of Yukon is a vibrant Oklahoma community of 24,000 residents who enjoy a high quality of life in a safe, family-oriented community. Yukon is home to country music superstar, Garth Brooks; the notable Cross Canadian Ragweed Band; PRCA Team Roping (Heading) World Champion, Nick Sartain; movie actor, Dale Robertson; and the Express Clydesdales.

Population

Incorporated in 1901, Yukon had a population of 830 by 1907 statehood. Three years later the town numbered slightly more than one thousand, and the figure remained steady through 1920. Gaining by almost one-third, by 1930 the population equaled 1,455. Continuing to grow on a smaller scale, the 1940 population was 1,660. The 1940s was another moderate decade of growth for Yukon with the number of residents increasing to 1,990 in 1950. Jumping by more than a thousand, the 1960 population registered at 3,076. Over the next two decades, Yukon became a "bedroom" community and grew to more than five times its 1960 population. Yukon was home to 8,411 persons in 1970, and by 1980, the number had more than doubled to 17,112. The population stabilized in 1990 at 20,935, and an increase of slightly more than one hundred persons brought the 2000 tally to 21,043. The U.S. Census Bureau estimated the population in 2008 at 22,849. This would indicate an 8.58% increase over the 2000 census.



Academia:

Yukon Public Schools are located in and around the Yukon city limits. Total enrollment for 2009-2010 is 7209 which is the latest enrollment figures available. The Yukon School District has 7 elementary schools, 2 middle schools and two high schools. Appendix C shows the Yukon Public School District boundaries in relation to other Canadian County Public School Districts.

Yukon Elementary Schools:

(PK - 5th grades)

Central Elementary -
(Enrollment = 364)

Myers Elementary -
(Enrollment = 319)

Parkland Elementary -
(Enrollment = 420)

Ranchwood Elementary -
(Enrollment = 550)

Shedeck Elementary -
(Enrollment = 368)

Skyview Elementary -
(Enrollment = 614)

Surrey Hills Elementary -

(Enrollment = 415)

Yukon Middle Schools

(6th - 8th grades)

Independence Middle School

(Enrollment = 692)

Lakeview Middle School

(Enrollment = 664)

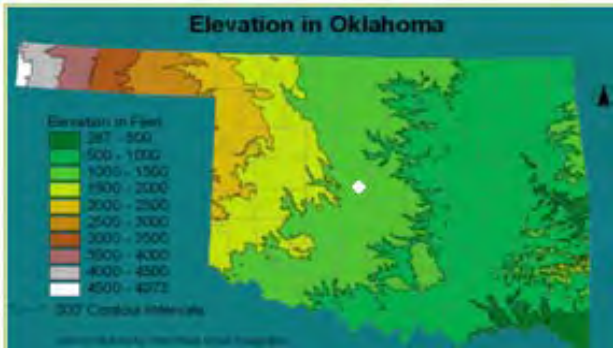
Yukon High Schools

(Grades 9-10 - Enrollment 1085)

(Grades 11-12 - Enrollment 862)

Topography:

Although Yukon with its estimated 2008 population of 22,849 is surrounded by Oklahoma City, Yukon has created an identity of its own. The land in and around Yukon is flat. Yukon is a moderately-sized urban area with farms, ranches and small acreages around its perimeter.



Elevation showing Yukon and most of Canadian County at 1000 - 1500 feet above sea level.

North Canadian River near Yukon

With a long railroad history, only the Union Pacific continues to operate through Yukon carrying goods to markets nation-wide.

Blue denotes Union Pacific Route

Major transportation arteries within Yukon are Interstate 40; U.S. Highway 66, also called historic Route 66; Oklahoma Highways 4 and 92; and the Kirkpatrick Turnpike. **(Appendix C map)**

Climate

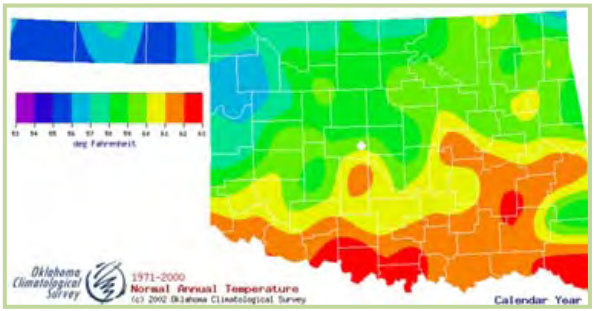
The climate of Yukon is greatly influenced by the Gulf of Mexico to the south and the Rocky Mountains to the west. During the fall, winter and spring, heavy rainfall, hail and wind can result

from frontal storms caused by the interaction of warm, moist air from the Gulf and cold, dry air from cold fronts approaching from the west. Intense convective storms triggered by daytime heating and gulf moisture can occur in the summer time. Even though the city is positioned about 400 miles from the Gulf Coast, hurricanes and tropical storms can still create a significant flooding threat. Sometimes, as tropical storms and hurricanes move inland, they tend to lose strength and move slower, resulting in unusually large quantities of rain over a given area.

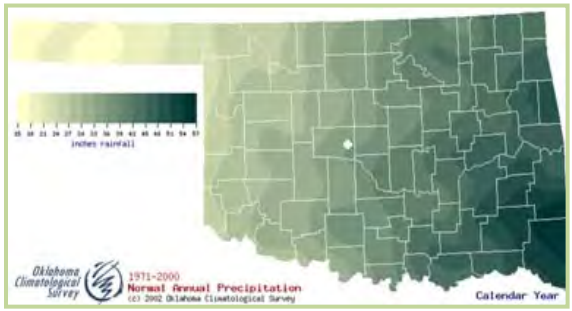
According to National Climatic Data Center records, Canadian County has experienced 74 tornados from 1950 - 2005. Since 2005 Yukon has experienced two tornados which are profiled in Chapter Three.

Canadian County (Yukon) Climatological Data

Latest Data available from Oklahoma Climatological Survey



Normal Annual Temperature in Yukon is 59° -60°



Normal annual precipitation for Yukon is 36 - 39 inches

January and July are typically considered the coldest and hottest months respectively. Temperatures tend to remain in the median range for the state with high temperatures exceeding 90 degrees for seventy to eighty days a year. Winters tend to stay on the mild side with only three to six days a year below 32 degrees, although recent winters have exceeded six days generally due to long-term severe ice storms.

Economics

Strong commercial growth is evident in Yukon by the 2009 addition of eight new businesses, some of which are national franchises such as Target. Five additional businesses, again featuring nationally known names, were added in 2010.

Table 1-2

Major Employers of Yukon		
Employer	**Type of Business**	**Number of Employees**
Yukon Public Schools	Education	481 Certified
Wal-mart	General merchandise/groceries	368
Target	General merchandise/groceries	129
Hospital	Medical services	325
City of Yukon	Municipal government	250

While Yukon was certainly not missed by the current downturn in the economy, the community is trying to maintain an attitude of growth although the growth is not as quick as previous years. The fact that Yukon is adding new nationally known businesses is a good indication the economy in Yukon is healthy and new businesses are interested in locating in Yukon.

Although not one of Yukon's major businesses, the renowned Express Clydesdales are housed at Yukon and provide a major tourist attraction in the area. The Express Clydesdales are housed in a specially reconstructed barn originally built in 1936. A group of Amish barn specialists came from Indiana to rebuild the barn's structure. The barn is now a welcome center for visitors from around the world, featured with pine wood and walnut trim and brass fixtures throughout.

Critical Facilities

The Hazard Mitigation Plan for Yukon identifies critical facilities located in the city. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public; is otherwise necessary to preserve the welfare and quality of life in the City of Yukon; or fulfills important public safety, emergency response, disaster recovery functions, and/or continuity of government.

Electric services are primarily provided by Oklahoma Gas & Electric. Gas is supplied by Oklahoma Natural Gas Company.

Due to security concerns, the critical facilities specifics are listed in Appendix C and are not available for public review.

CHAPTER TWO

THE PLANNING PROCESS

Changes to Chapter Two:

- ✓ **Reformatted chapter for simplified review and usage**
- ✓ **Added Yukon Public Schools to municipal plan**
- ✓ **Updated Planning Team and Committee members**
- ✓ **Updated Coordinating Agencies**

Hazard mitigation planning is the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural and human-caused hazards. The primary purpose of hazard mitigation planning is to identify community policies, actions, and tools for implementation over the long term that will result in a reduction of risk and potential for future losses community-wide. This is accomplished by using a systematic process of learning about the hazards that can affect the community, setting clear goals, identifying appropriate actions, following through with an effective mitigation strategy, and keeping the plan current. The ten-step process as outlined in the FEMA publication #386 "How-To" Guides was followed in the course of developing the City of Yukon Hazard Mitigation Plan.

Phase 1 – Organize resources

Step 1 – Coordinate/involve all agencies and jurisdictions wanting to participate

Step 2 – Involve the public

Step 3 – Organize to prepare the plan

Phase 2 – Assess the Risks

Step 4 – Assess the natural hazards

Step 5 – Assess the problem

Phase 3 – Develop the Mitigation Plan

Step 6 – Develop list of goals

Step 7 – Develop list of mitigation actions

Step 8 – Draft an action plan

Phase 4 – Implement and Monitor pr

the plan

Step 10- Implement, evaluate and revise the plan

City of Yukon Hazard Mitigation Plan Formation

The City of Yukon Hazard Mitigation Planning Team was formed to provide guidance during the development of this plan. The Team was comprised of representatives from local governments, county government, state government, public schools, local businesses and private citizens. Table 2A lists the officials, employees and citizens of the plan's communities and schools who attended the introductory meeting. Newspaper notices designed to encourage interest from the public were printed in the Yukon Review newspaper. Thirty-eight citizens attended the Introductory Meeting. The City of Yukon Hazard Mitigation Team was formed during that meeting. Each individual who agreed to participate on the CYHMPT signed an Agreement to Serve form. See Appendix B for a copy of this form, attendance rosters, newspaper notices and news articles. Frosty Peak, Yukon Emergency Management Director, served as chairman of the team. Regular public meetings were held and designed for public involvement. The meetings were conducted in the Yukon Police Department building at 100 S. Ranchwood Boulevard. The meetings were designed to encourage and invite input from team members and citizens, and receive information assigned at other meetings. In order to promote more citizen involvement, a survey was sent to 100 randomly chosen City of Yukon residents for input into the process. A copy of the survey is located in Appendix B along with a summary of information received. The results of the survey were used in determining the hazard impact on citizens, their preparedness and level of knowledge about protection of their family and property. This permitted the team to determine the action plans listed in Chapter Four. Table 2-2 lists the Hazard Mitigation Planning Team members, their affiliation and contribution. See Appendix A for meeting minutes and completed attendee sign-in sheets.

Table 2-1

Introductory Meeting Attendees February 9, 2010		
NAME	**AFFILIATION**	**POSITION**
J.R. Reed	City of Yukon	Public Works Dept.
Mucio and Candace Macedo	Rosewood Home Owners Assoc.	NW Coordinator/ Citizen
Cheryl Drabek	Von Elm East	Contact person
Mitchell Hart	City of Yukon	Community Development Director
David Peter	Target Stores	General Manager

Introductory Meeting Attendees February 9, 2010		
NAME	**AFFILIATION**	**POSITION**
Anna Waggoner	City of Yukon	GIS/Stormwater
Gary Cooper	City of Yukon	Technical Director
Scarlet Owen	City of Yukon	Community Development
Michael Malmfeldt	City of Yukon	Treasurer
Tracy Chlouber	Ranchwood Nursing Center	Administrator
Ken Smith	Yukon	Citizen
Laurie Fried	American Red Cross	Executive Director
Doug Tippens	Bank of Commerce	President/CEO
Klare Ly	Yukon Police Department	Community Affairs
Corby Poursabe	Yukon Emergency Management	EM Assistant
Steve Somerlott	Hazard Mitigation Specialists	Consultant
Jenifer Koebrick	Cheyenne/Arapaho tribe EM	Deputy Emergency Mngr.
James Nimrod	Cheyenne/Arapaho tribe EM	Emergency Manager
Joan Wolfe	Victorian Estates Assisted Living	Administrator
William R Allen	Victorian Estates Assisted Living	Maintenance
John L Bridges	Yukon Fire Department	EMS Trainer
John Corn	Yukon Police Department	Deputy Chief
Leon Corn	Yukon	Retired
Craig Kerr	Oklahoma Military Department	Deputy Director
Dennis Adler	Yukon	Retired
Leland Larson	Yukon	Retired
Kent Mathers	Yukon Public Schools	Ass't Superintendent
Cam Dooley	Von Elm West	Block Captain
Donna Alloway	Canadian Valley Technology Cntr.	Campus Director
Jim Powell	Yukon Review	Staff writer
Jim Crosby	City of Yukon	City Manager
Jim Scott	City of Yukon Parks & Recreation	Director
Brent Going	Integris Canadian Valley Hospital	Safety Officer
Floyd Sisk	Yukon Fire Department	Captain
David Van Nostrand	Hazard Mitigation Specialists	Consultant
Frosty Peak - **Chairman**	City of Yukon Emergency Mngt.	Director
Judy Soos	Hazard Mitigation Specialists	Consultant

The following individuals signed up to be members of the City of Yukon Hazard Mitigation Team following the Introductory Meeting by signing an agreement form. A copy of the form is located in Appendix B.

Table 2-2

CITY OF YUKON HAZARD MITIGATION PLANNING TEAM			
Name	**Affiliation**	**Position**	**Contribution**
Frosty Peak	City of Yukon	Emergency Management Director	Provided constant assistance to contractor in the formulation of this plan. Provided information about the city's available plans and reviewed plan segments as they were prepared.
John Bridges	City of Yukon	Fire/EMS Coordinator	As a team member for the previous plan, he provided information of its intentions. Also provided information as it related to the Yukon Fire and EMS operations. Discussed enhanced warning system; recovery shelter capabilities and better storm monitoring ability.
Matthew Maly	City of Yukon	Public Works Utility Mngr.	Provided information on projects needed by Public Works. Discussed resource management and internal communications.
Mitchell Hart	City of Yukon	Community Development	A team member for the previous plan. Discussed GIS Mapping uses within the city.
Scarlet Owen	City of Yukon	Community Development	Discussed GIS uses.
Anna Waggoner	City of Yukon	Stormwater Dept.	Discussed GIS mapping
Laura Fried	American Red Cross	Executive Director	Discussed response and preparedness aspects of plan.
Sandy Meier	Chamber of Commerce	Executive Director	Discussed need for quicker notification to businesses of hazard condition and advanced warning system through electronic billboards
Dennis Adler	Parkland Addition	Citizen	Discussed a list of shelters provided to the public
Ward Larson	City of Yukon	City Council	Development of storm shelters for before and after a storm.
Kent Mathers	Yukon Public Schools	Assistant Superintendent	Discussed School safe rooms and buried utility lines.

CITY OF YUKON HAZARD MITIGATION PLANNING TEAM			
Name	**Affiliation**	**Position**	**Contribution**
Gary Cooper	City of Yukon	Technology Director	Discussed need for technological advances
Mucio Macedo	Rosewood Home Owners Association	Citizen/NW Coordinator	
Leon Corn	River Birch Estates	Builder/Developer	Concerned about wildfire protection and flooding.
Cheryl Drabek	Von Elm East Neighborhood Watch	Citizen/Contact person	
Cam Dooley	Von Elm Subdivision	Citizen	Discussed storm shelter program, program for citizens and assistance to PD during crisis.
Donna Alloway	Canadian Valley Technology Center	Campus Director	Discussed protection from tornados for students. Also winter storms.
James Crosby	City of Yukon	City Manager	Discussed funding for shelter program and generators for use during power outages.
Corby Poursabe	Yukon Emergency Management	EM Assistant	Coordinated meetings and notices. Proof read final plan for errors.

February 9, 2010

March 9, 2010

May 11, 2010

City of Yukon CYHMPT Meetings

The City of Yukon Hazard Mitigation Planning Team (CYHMPT) also determined it would best serve the overall project to utilize an Action Project Committee to review, identify and determine the feasibility of project suggestions. Members of that Committee were:

Table 2-3

CITY OF YUKON HAZARD MITIGATION ACTION PLANNING COMMITTEE		
NAME	**AFFILIATION**	**POSITION**
J.R. Reed	City of Yukon	Public Works Dept.
Mitchell Hort	City of Yukon	Community Development Director
Anna Waggoner	City of Yukon	GIS/Stormwater
Gary Cooper	City of Yukon	Technical Director
Scarlet Owen	City of Yukon	Community Development
Corby Poursabe	Yukon Emergency Management	EM Assistant
John L Bridges	Yukon Fire Department	EMS Trainer
Dana Deckard	City of Yukon	Administration
John Taylor	City of Yukon Fire Department	Fire Inspector
Matt Maly	City of Yukon Public Works	Utilities Manager
Teresa Kemerley/Stover	City of Yukon Public Works	Coordinator
Ward Larson	City of Yukon	City Council
Kent Mathers	Yukon Public Schools	Ass't Superintendent
Scott Heinz	Yukon Public Schools	Ass't Principal
Floyd Sisk	Yukon Fire Department	Captain
Frosty Peak - **Chairman**	City of Yukon Emergency Mngt.	Director
Judy Soos	Hazard Mitigation Specialists	Consultant

Coordination Among Agencies

- **NATIONAL FLOOD INSURANCE PROGRAM (NFIP)** – The City of Yukon is a member of the NFIP. Participation in the NFIP by municipalities, counties, and tribal organizations is voluntary. According to the NFIP list of participating communities in Oklahoma, there are 53 counties, 475 municipalities, and three tribal jurisdictions that are NFIP communities with several communities making application to join. Within the NFIP program, the Community Rating System (CRS) is a program whereby individual communities may reduce their flood insurance rates by performing certain specified activities to enhance flood mitigation. Continued participation in the NFIP is anticipated.

- **OKLAHOMA EMERGENCY MANAGEMENT, HAZARD MITIGATION DIVISION (OEM)** – During the planning and preparation of this plan, close contact was maintained with OEM Mitigation Division personnel to maintain current FEMA requirements necessary for this plan as well as coordination with the Oklahoma Hazard Mitigation Plan approved in March 2008.

- **NATIONAL WEATHER SERVICE (NWS)- NORMAN** was utilized concerning weather data for the City of Yukon area. The NWS in Norman, Oklahoma has been a regular partner with the City of Yukon Emergency Management during severe weather events to get better warning and information concerning potential hazards to the citizens.

- **OKLAHOMA CLIMATOLOGICAL SURVEY (OCS) -** provided additional information concerning the climate in the City of Yukon. Their research studies and information were useful in determining key climatological statistics.

- **OKLAHOMA GEOLOGICAL SURVEY (OGS) -** provided information about earthquakes in the City of Yukon area through statistical data concerning past earthquakes.

- **OKLAHOMA WATER RESOURCES BOARD (OWRB) -** provided information in regard to high-hazard dam sites near the City of Yukon. They have also provided information concerning aquifers and underground water.

- **NATIONAL CLIMATIC DATA CENTER (NCDC)** provided information concerning past history of storms in the City of Yukon. Their information complimented or reinforced local and state data.

- **FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)** website provided information about Presidential Declarations in City of Yukon, FIRM maps, and NFIP community status.

- **U.S. CORPS OF ENGINEERS** – provided information concerning Canton Lake Dam Breach inundation area.

CHAPTER THREE

HAZARD IDENTIFICATION AND ASSESSMENT

Changes to Chapter Three:

- ✓ **Reformatted plan for simplified review and use**
- ✓ **Added Yukon Public Schools to municipal plan**
- ✓ **Added Flood to Hazard Profiles**
- ✓ **Removed Thunderstorm from Hazard Profiles to bring plan up to current model standards**

This plan exclusively profiles natural hazards. The City of Yukon Hazard Mitigation Planning Team (CYHMPT) reviewed the hazards listed in the 2008 *Hazard Mitigation Plan for the Great State of Oklahoma.* After examining the state plan and noting the frequency of occurrence for each hazard, the team determined the City of Yukon is generally susceptible to most of the same hazards. The CYHMPT identified twelve (12) hazards that may threaten the City of Yukon and the public schools. The school campuses for the Yukon Public School District are located within or adjacent to the City of Yukon and as such; the hazards that affect the City of Yukon will equally affect the Yukon Public School District and the hazard profiles are the same. The school district is discussed further in the location specific hazards profile sections. This chapter profiles these hazards. Although other natural hazards exist, their occurrences are rare in Oklahoma and have not caused recognized damage in the City of Yukon. Future updates of this plan will contain information about additional hazards only if an occurrence has a significant impact to the risk of human life or property. Table 3-1 summarizes in alphabetical order the natural hazards relevant to the City of Yukon and includes a review and identification remarks.

Review of Natural Hazards

The City of Yukon Hazard Mitigation Planning Team reviewed possible hazards and solicited community input during a public meeting on February 9, 2010. Through personal experience, knowledge of the City of Yukon, and data derived from a public survey, planning team members held a roundtable discussion of possible hazards the City of Yukon might encounter. The team briefly assessed landslides. The City of Yukon is very flat, and the threat of landslides or falling rock within the city limits is improbable. Therefore, the plan does not include landslides.

Table 3-1 is a list of natural hazards for the City of Yukon that was compiled with input from the City of Yukon Hazard Mitigation Planning Team, a public survey, and the City of Yukon Emergency Management Department.

Table 3-1

NATURAL HAZARDS FOR CITY OF YUKON		
Hazard	**Review Source**	**Basis for Identification**
DAM FAILURE	• Oklahoma Water Resources Board • CYHMPT Input • Public Input	Canton Lake, located NW of the City of Yukon, is the primary threat for dam failure.
DROUGHT	• Oklahoma Climatological Survey • Oklahoma Water Resources Board Historical Data	Although sufficient water sources exist to ensure an adequate water supply during normal conditions, loss of infrastructure during drought conditions could have a negative impact on Yukon.
EARTHQUAKE	• Information from Oklahoma Geological Survey • Past Historical Records	Past history and existing fault lines within Oklahoma and neighboring states place Yukon at risk for earthquake.
EXPANSIVE SOIL	• CYHMPT Input	Participants in the first meeting of the CYHMPT indicated past problems with Expansive Soil in the City of Yukon.
EXTREME HEAT	• National Weather Service • Oklahoma Climatological Survey	Oklahoma has prolonged periods of high temperatures exceeding 100° and is prone to wide temperature swings.
FLOOD	• Local Emergency Management Records • CYHMPT Input • FEMA Declarations • National Climatic Data Center (NCDC)	Frequent flooding in the City of Yukon is usually due to heavy rains and drainage problems.

NATURAL HAZARDS FOR CITY OF YUKON		
Hazard	**Review Source**	**Basis for Identification**
HAILSTORM	• Local Input • NCDC	The City of Yukon experiences hailstorms during severe thunderstorms.
HIGH WIND	• NCDC data • CYHMPT Input • Oklahoma Climatological Survey • National Weather Service • Storm Prediction Center	Each year Oklahoma experiences hundreds of severe thunderstorms with lightning. High winds and downdrafts have damaged homes and buildings.
LIGHTNING	• Oklahoma Climatological Survey • National Weather Service • NCDC data	Lightning is a common occurrence with thunderstorms. Yukon annually experiences numerous thunderstorms and occasional damage from lightning.
TORNADO	• Local Emergency Management Records • Public Input • FEMA Declarations • NCDC	Oklahoma is the epicenter of Tornado Alley. The City of Yukon experienced its last damaging tornado in May 2008.
WILDFIRE	• Local Fire Department Records • CYHMPT Input	Some of the area within the City of Yukon city limits are wooded and have extensive grasslands which can be a threat to life and property.
WINTER STORM	• Public Input • National Weather Service • FEMA Declarations	Severe ice storms occur regularly in central Oklahoma and Yukon.

The Probability of Occurrence discussed in each hazard profile is based on the following chart.

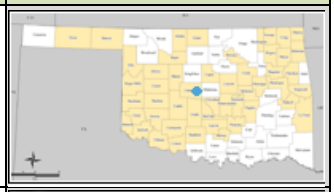
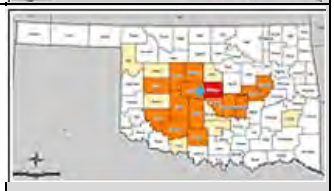
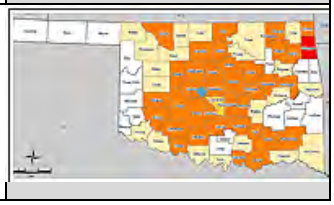
Table 3-2

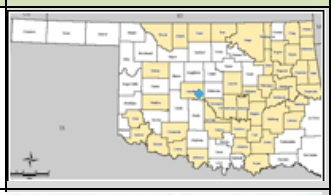
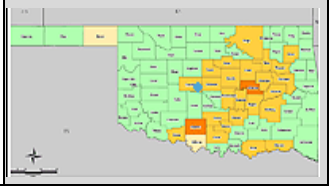
PROBABILITY OF OCCURRENCE SCALE	
4 - HIGHLY LIKELY	Event is probable within the calendar year. Event has a 1 in 1-year chance of occurring.
3 - LIKELY	Event is probable within the next three years. Event has an up to 1 in 3-year chance of occurring.
2 - POSSIBLE	Event is probable within the next 5 years. Event has an up to 1 in 5-year chance of occurring.
1 - UNLIKELY	Event is possible within the next 10 years. Event has an up to 1- to 10-year chance of occurring.

Recent Disaster History

The City of Yukon experienced ten natural disasters for which the President of the United States declared the County of Canadian County a disaster area. Table 3-3 provides a detailed summary of the federally declared disaster history of Canadian County, including the City of Yukon.

Table 3-3

EMERGENCY AND DISASTER HISTORY OF CANADIAN COUNTY, INCLUDING THE CITY OF YUKON (EXCLUDES FIRE MANAGEMENT ASSISTANCE HISTORY)				
Declaration Date	**Nature of Disaster**	**FEMA #**	**Affected Areas**	**Declared Area**
03/05/2010	Severe Winter Storm	1883	All of Canadian County, including the City of Yukon.	
02/25/2010	Severe Winter Storm	1876	All of Canadian County, including the City of Yukon.	
01/30/2010	Severe Winter Storm	3308	All of Canadian County, including the City of Yukon.	
12/18/2007	Severe Winter Storm	1735	All of Canadian County, including the City of Yukon.	
12/10/2007	Severe Winter Storm	3280	All of Canadian County, including the City of Yukon.	
08/24/2007	Severe Storms, Tornados, and Floods	1718	All of Canadian County including the City of Yukon.	
07/07/2007	Severe Storms, Tornados, and Floods	1712	All of Canadian County including the City of Yukon.	

EMERGENCY AND DISASTER HISTORY OF CANADIAN COUNTY, INCLUDING THE CITY OF YUKON (EXCLUDES FIRE MANAGEMENT ASSISTANCE HISTORY)				
Declaration Date	**Nature of Disaster**	**FEMA #**	**Affected Areas**	**Declared Area**
02/01/2007	Severe Winter Storm	1678	All of Canadian County including the City of Yukon.	
01/15/2007	Severe Winter Storms and Flooding	3272	All of Canadian County including the City of Yukon.	
01/10/2006	Severe Wildfire Threat	1623	All of Canadian County including the City of Yukon.	

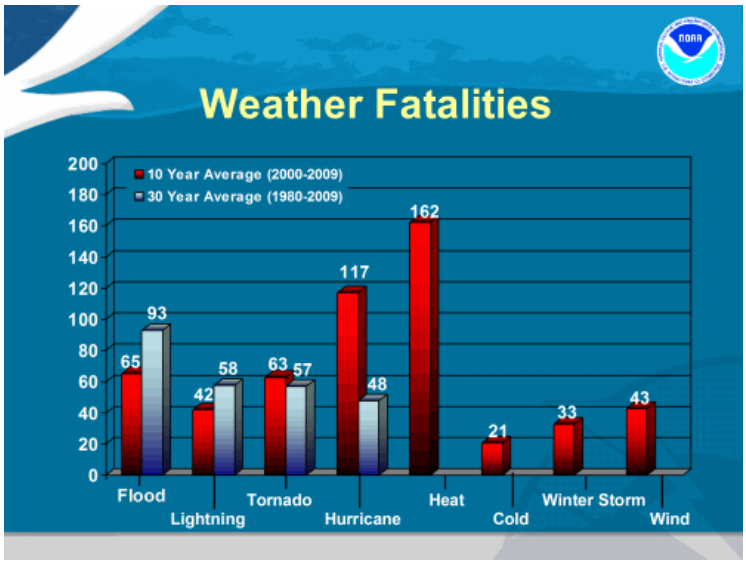
Review of Natural Hazards

This chapter profiles each of the hazards identified during the planning process and assesses the vulnerability and impact they may have to life and property. The information in this chapter includes:

- **HAZARD PROFILE** – a description of each hazard, its effects, frequency of occurrence, and measurement criteria;
- **LOCATION** – provides information about the site(s) within the City of Yukon city limits that are primary areas of concern for the profiled hazard;
- **EXTENT** – the size or intensity of a hazard event;
- **PREVIOUS OCCURRENCES** – the known historical events of the hazard in the City of Yukon area;
- **PROBABILITY OF FUTURE OCCURRENCES** – defines the calculated potential of future events occurring within the City of Yukon city limits based on past history and geological or climatological potential;

- **VULNERABILITY AND IMPACT**– describes the degree to which the citizens, infrastructure, economy, and structures in the jurisdiction are susceptible to the profiled hazard and its resulting consequences;
- **CONCLUSION** – summarizes the hazard findings;
- **REFERENCES** – presents sources used.

Natural hazards in Oklahoma, including the City of Yukon, often cause injuries and fatalities from drowning, flying debris, falling objects, or in the case of lightning, as a direct result of the event itself. The following graph shows the number of fatalities from weather-related hazards in the United States from 1980 – 2009.



Dam Failure

According to the Oklahoma Water Resources Board (OWRB), Oklahoma has over 4,500 dams. Many are located on farm and ranch ponds, and small lakes.

A dam is an artificial barrier usually constructed across a stream channel to impound water. Timber, rock, concrete, earth, steel, or a combination of these materials is used to build dams. Dams must have spillway systems to safely convey normal stream and flood flows over, around, or through the dam. Spillways are commonly constructed of non-erosive materials such as concrete. Dams should also have a drain or other water-withdrawal facility to control the pool or lake level, and to lower or drain the lake for normal maintenance and emergency purposes.

The amount of impounded water is measured in acre-feet. An acre-foot is the volume of water covering an acre of land to a depth of one foot. As a function of upstream topography, even a very small dam may impound or detain many acre-feet of water. Two factors influencing the potential severity of a full or partial dam failure are the amount of water impounded by the dam and the density, type, and value of development and infrastructure located downstream. In hydrologic terms, a dam failure is a catastrophic event characterized by the sudden, rapid, and uncontrolled release of impounded water.

Dams falling within the jurisdiction of the OWRB are non-federally constructed or maintained, and are greater than six feet in height with storage capacities of 50 acre-feet or more; or 25 feet or greater in height with storage capacities of 15 acre-feet or more.

OWRB requires inspections every five and three years for low and significant hazard structures, respectively. It requires annual inspection of the State's high-hazard dams, so designated due to the presence of one or more habitable structures downstream with loss of life likely to occur should a dam fail.

Location

Canton Lake is located 80 miles northwest of the City of Yukon and is operated by the Corps of Engineers. It covers 4,100 acres and has a shoreline of 45 miles. Congress authorized the Canton Lake project in 1938 for flood control. The Flood Control Acts of 1946 and 1948 authorized irrigation and municipal water supply storage for Enid, Oklahoma. This $11 million dollar project began in 1940, but World War II temporarily halted

construction. After the war ended, the Corps of Engineers resumed work, completed the project in late 1948, and formally dedicated it in May 1949. The dam has 7,900 surface acres.

CANTON LAKE INFORMATION

Purpose: Flood Control, Water Supply, Irrigation
Normal Area: 7,910 acres
Normal Pool Elevation: 1,615.4 ft
Normal Pool Capacity: 111,310 acre-feet
Flood Pool Elevation: 1,638 ft
Flood Pool Capacity: 377,100 acre-feet
Water Supply Storage: 38,000 acre-feet
Water Supply Yield: 16,240 acre-feet

Canton Lake is a popular recreational area in Oklahoma, as well as a reservoir providing water to western and central Oklahoma. Maps showing the location and estimated inundation zone for the lake are located in Appendix C. Canton Lake is classified as a high-hazard dam. If a dam failure occurs on Canton Lake, peak flood stage is estimated to occur at the City of Yukon approximately 18 hours after the breach. This allows adequate time for the necessary evacuations to occur. None of the Yukon Public School District campuses are located within the inundation zone for Canton Lake.

Table 3-4

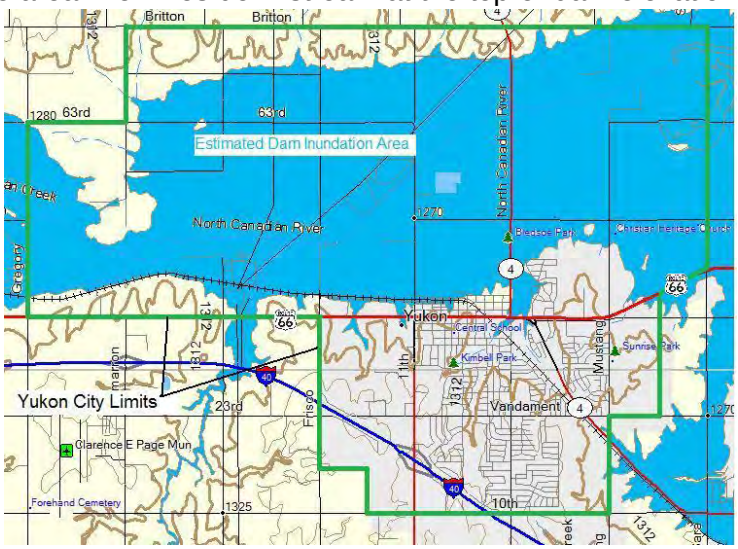
OWRB CLASSIFICATION OF HAZARD POTENTIAL		
Category	**Loss Of Life**	**Economic Loss**
LOW	None - No probable future development; may be zoned to prevent future development.	Minimal - undeveloped to occasional structure or agriculture
SIGNIFICANT	None - Potential for future development exists; habitable structures may exist in	Appreciable notable agriculture, industrial or

OWRB CLASSIFICATION OF HAZARD POTENTIAL		
Category	**Loss Of Life**	**Economic Loss**
	inflow design flood floodplain, however, dam failure would not endanger lives that would not be endangered if structure did not exist.	structural
HIGH	Yes (One or more habitable structures with loss of life due to dam failure likely)	Excessive extensive community, industrial or agricultural losses. Possible loss of life.

Depending on the pool level in Canton Lake at the time of a breach, the northern part of the City of Yukon, which is generally north of Highway 66, would be affected (see Complete Corps of Engineers Inundation Map, Appendix C).

Extent

The Oklahoma Conservation District indicates, "As a general rule in the absence of a formal breach inundation map, we consider the area five miles downstream at the top-of-dam elevation and below to be the potential area of risk." None of the High Hazard Dams located in Canadian County would have any effect on the City of Yukon and as such, are not profiled. None of the Yukon Public School District campuses are at risk from dam failure. As with any location in which man-made structures are built, potential failure of the structure could place lives and property at risk. The best way to minimize potential failure is to identify structures whose failure could cause the greatest loss of life or property, and to require those structures to undergo a rigorous inspection



regime. (See the Estimated Inundation Map below and the Corps of Engineers Inundation Map in Appendix C).

Dam failures can result from any one or a combination of five reasons:

- Overtopping caused by water spilling over the top of a dam
- Structural failure of materials used in dam construction
- Cracking caused by movements like the natural settling of a dam or an earthquake
- Inadequate maintenance and upkeep such as failure to remove trees or repair internal seepage problems
- Piping—when seepage through a dam is not properly filtered and soil particles continue to progress and form sink holes in the dam

A small break or seepage eliciting only 1-inch of flow per minute and causing nominal crop damage is considered a minor severity. Because the land area in the City of Yukon is flat, the City of Yukon considers a breach releasing one foot of water flooding businesses and homes a major severity.

Previous Occurrences

The City of Yukon has experienced no recognized instances of dam failure in or around its city limits; however the potential of future events is present.

Probability of Future Events

Soil, concrete and metal components deteriorate. The Canton Lake Dam was dedicated 61 years ago in 1949. Most dams were built with a life span of 50 years. Some renovation work was recently completed on the Canton Lake Dam by the Corps of Engineers.

Several dams do not meet current dam safety regulations that were enacted and revised with more stringent requirements than when the dams were built. The U.S. Natural Resources Conservation Service is rehabilitating some of the dams in Oklahoma. The federal government provides 65 percent of the funding for rehabilitation projects and project sponsors provide 35 percent. Projects are selected on a priority basis with those posing high safety and health concerns receiving the highest priority. The Canton Lake reservoir has no history of dam failures; therefore, dam failure affecting the City of Yukon from Canton Lake is "**UNLIKELY**" (see Table 3-2).

Vulnerability and Impact

Dam failures are generally catastrophic if the structure is breached or significantly damaged. Dam failure can occur with little warning. Intense storms may produce a flood in a few hours or even minutes for upstream locations. Flash floods occur within six hours of the beginning of heavy rainfall, and dam failure may occur within hours of the first signs of breaching.

Vulnerability and Impact is assessed in several ways: (1) the benefit to human society arising from the dam; agriculture, water, damage prevention and power, and the benefit to nature and wildlife; (2) the harm caused by dam failure is another way of determining vulnerability and impact. The disruption to human lives through relocation, the loss of employment due to business loss, the loss of life, and loss of wildlife are many possible impacts of a dam failure. The property losses of homes, vehicles, and businesses located north of highway 66 are all a major factor when considering the vulnerabilities and impacts of dam failure. Additionally, the loss of transportation routes forces people to find alternate routes, the loss of communications facilities, loss of critical structures and facilities, and massive economical losses can be devastating to the population.

Conclusion

The dam at Canton Lake is inspected regularly by the Corps of Engineers and repairs or maintenance performed by that agency. As recently as 2006-7, repairs were made to a faulty spillway mechanism which could have caused a breach. As early as two years prior to this work, meetings were held with officials from all jurisdictions that would be affected. These meetings were to call attention to the fact a breach was not likely but was more likely than usual until repairs were made.

With the attention and communications plans which exist within the Corps of Engineers and local jurisdictions, including Yukon, the potential of an unexpected event is very unlikely.

References

Oklahoma Water Resources Board

U.S. Corps of Engineers

Drought

Drought is a persistent and abnormal moisture deficiency having adverse impacts on vegetation, animals, or people. Dozens of more specific drought definitions are used around the world based on the lack of rain over various time periods or measured impacts, such as reservoir levels or crop losses. Because of the various ways people measure drought, no one has produced an objective drought definition upon which everyone can agree.

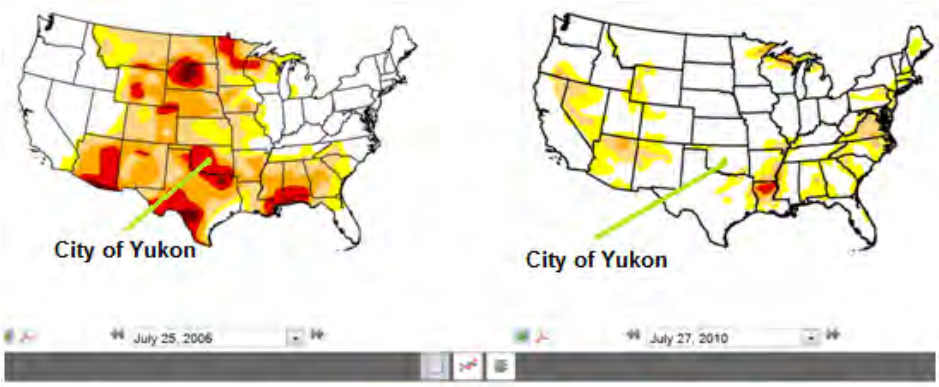
Drought Consideration Types:

1. **METEOROLOGICAL DROUGHT** is usually based on long-term precipitation departures from normal, though high temperatures often play a role.

2. **HYDROLOGICAL DROUGHT** refers to deficiencies in surface and subsurface water supplies. It is measured as stream flow, and as lake, reservoir, and ground water levels.

3. **AGRICULTURAL DROUGHT** occurs when soil moisture does not meet the needs of a particular crop at a particular time. Agricultural drought is typically evident after meteorological drought, but before a hydrological drought.

When little or no rain falls, soils dry out and plants die. The flow of streams and rivers declines when rainfall is less than normal for several weeks, months, or years; and water levels fall in lakes, reservoirs, and aquifers causing the depth of water in wells to decrease. If dry weather persists and water supply problems develop, the dry period can become a drought. The first evidence of drought is usually seen in records of decreased rainfall.



Week	Nothing	D0-D4	D1-D4	D2-D4	D3-D4	D4
July 25, 2006	38.50	61.50	49.95	29.12	11.33	1.25
July 27, 2010	74.30	25.70	6.95	1.84	0.29	0.00

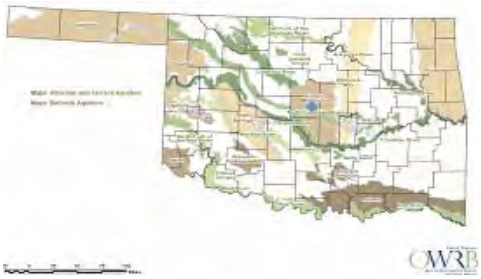
The previous map comparison of the City of Yukon area in 2006, when Yukon and Oklahoma were engaged in an exceptional drought rating, shows that drought conditions can quickly dissipate. Four years later in 2010, the state and the City of Yukon are again out of a drought period due to heavy rains during the spring and summers of 2007-2009.

In reverse and within a relatively short period of time, the amount of moisture in soils can decrease. The effects of a drought on flow in streams and rivers, or on water levels in lakes and reservoirs, may not be noticed for several weeks or months. Water levels in wells may not reflect a shortage of rainfall for a year or more after the drought begins due to aquifer availability.

The maps show as recently as 2006, most of Oklahoma and the City of Yukon were in an extreme to exceptional drought situation. By 2009, drought affected only a few small parts of Oklahoma. The City of Yukon is not currently (2010) in a drought situation; however, the potential exists that another one will occur.

Location

The entire City of Yukon is subject to drought conditions. During normal times, Canton Lake provides water to Oklahoma City which in turn sells Yukon the greater part of water necessary for the City of Yukon. Municipal water wells provide additional water for the City of Yukon. The aquifer below Yukon also helps provide additional water during low water periods.



Oklahoma Water Resources Board map

Extent

The Palmer Drought Severity Index (PDSI) was developed in 1965 as an index to “measure the departure of the moisture supply.” Palmer based his index on the supply and demand concept of the water balance equation, taking into account more than only the precipitation deficit at specific locations. The objective of the Palmer Drought Severity Index was to provide a standard measurement of moisture conditions so comparisons using the Index could be made between locations and months.

The Palmer Index is based on precipitation and temperature; therefore, it can be applied to any site for which sufficient precipitation and temperature data is available. The Index varies roughly between -4.0 and +4.0. Weekly PDSI values are calculated for climate divisions during every growing season and are on the internet from the Climate Prediction Center.

Table 3-5

PDSI CLASSIFICATIONS FOR DRY/WET PERIODS				
4.00 or more	Extremely Wet		**-0.50 to -0.99**	Incipient Dry Spell
3.00 to 3.99	Very Wet		**-1.00 to -1.99**	Mild Drought
2.00 to 2.99	Moderately Wet		**-2.00 to -2.99**	Moderate Drought
1.00 to 1.99	Slightly Wet		**-3.00 to -3.99**	Severe Drought
.050 to 0.99	Incipient Wet Spell		**-4.00 to -4.99**	Extreme Drought
0.49 to - 0.49	Near Normal		Source: http://drought.unl.edu/whatis/induces.html	

Yukon officials consider a significant drought situation as dry periods with a magnitude of -2.00 or below on the Palmer Drought Severity Index. By the time the situation drops below -3.00, Yukon officials consider it an extreme drought.

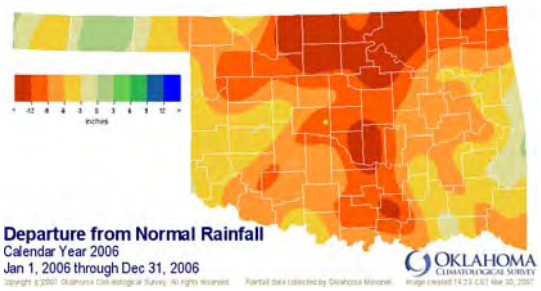
Previous Occurrences

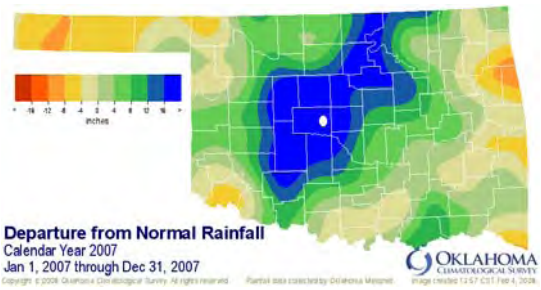
According to the **National Climatic Data Center (**NCDC) records, 16 droughts have occurred in Canadian County, including the City of Yukon, from January 2000 through April 2007. Twelve of those were during the year of 2006, starting in 2005 and ending in 2007. The term, **drought year**, is used for identification in this plan because NCDC may consider several drought events during a single year. Total drought events for Canadian County were 16, but the years involved were only five.

Table 3-6

CANADIAN COUNTY (INCLUDES YUKON) DROUGHT EVENTS 2000 THROUGH 2009		
DATE	**DESCRIPTION**	**DAMAGE**
January 2007	The drought has been ongoing for over a year now, which continues the water worries over many communities. Lake levels remain at or near record lows, although the recent beneficial moisture has helped somewhat. Even at low levels, most lakes are still considered at safe levels for everyday living, and water rationing has been kept to a minimum.	Unknown
2006	Drought conditions persisted and expanded across the area into the first month of the new year. Drought levels ranged from severe to exceptional (D2-D4), with the driest conditions in southeast Oklahoma. Some precipitation fell during the month, mainly in the form of snow, which did not do much to alleviate the dry conditions over the area. Severe to exceptional (D2-D4) drought conditions were seen across much of Oklahoma during the month of December. This drought event lasted into January 2007.	Unknown

CANADIAN COUNTY (INCLUDES YUKON) DROUGHT EVENTS 2000 THROUGH 2009		
DATE	**DESCRIPTION**	**DAMAGE**
December 2005	With below normal precipitation for several months, drought conditions continued to increase across the area ending as D2 and D3 across much of the area. The drought conditions and warm temperatures during much of the month of December caused an increase in wildfire potential. Wildfires were easier to start and harder to contain due to the dry and frequently windy conditions.	Unknown
July 2001	An extended period of excessive heat in July affected all of western and central Oklahoma. Daily mean temperatures ranged from the mid-80s to near 90 degrees, which is four to five degrees above normal. Most areas regularly experienced high temperatures at or above 100 degrees, particularly western and north central Oklahoma. In addition to the excessive heat, rainfall averaged about one-third of normal, resulting in a drought.	Unknown
August 2000	An extended period of unusually dry weather began in early August and lasted for two months. Many parts of the state did not receive rain in August; and starting in June, portions of southwest and south central Oklahoma remained dry for almost 90 days. Reservoir levels were also low across southwest and south central Oklahoma, averaging 50 percent of normal.	Unknown





The above maps show a comparison between the 2006 annual rainfall (drought) and the 2007 rainfall one year later.

Probability of Future Events

Oklahoma has significant exposure to drought; therefore, the City of Yukon is also vulnerable to drought. Based on the history of six *drought years* in the past nine years, the CYHMPT considered the probability of future events and concluded drought is possible in the future. The entire area of the City of Yukon is equally at risk for drought, and the probability of future events is "**POSSIBLE**" (see Table 3-2).

Vulnerability and Impact

The City of Yukon is susceptible to the effects of drought. The most recent event started in early January 2007, and concluded by the end of the month. The drought was considered minor. However, farmers and ranchers greatly felt its results through crop failure and financial loss that consequently, limited revenue to the business community of the City of Yukon. Several residents of the City of Yukon suffered heat exhaustion and possibly heat stroke during previous, more severe droughts. The elderly and very young are especially vulnerable.

Additional effects of drought include woodland fires from parched vegetation that can produce further loss of grazing lands. The dry, cracking soil can cause water lines to break, which can result in water loss to segments of the City of Yukon. Highway and street pavement can crack and produce hazardous driving conditions for residents, and force them to find alternate routes. As water sources dry up or become extremely low during a drought, water rationing may become necessary. Consequently, the City of Yukon may have to limit or stop lawn watering, car washing and other non-critical uses in order to have sufficient water for potential fire needs and normal day to day critical needs.

As water sources dry or become extremely low during a drought, water rationing may become necessary. Consequently, the City of Yukon will limit or stop lawn watering, car washing, and other non-critical water uses in order to have sufficient water for potential fire needs and normal day-to-day critical needs.

Conclusion

Drought is a concern for the City of Yukon, but because it is primarily an urban area, it would not have the impact a jurisdiction with major agricultural activity might have. In the event of a drought and a need for water rationing, the most vulnerable populations within the City of Yukon are those requiring large volumes of water such as industries, landscapers, fire fighters, and those dependent on them. In the immediate surrounding area north and west of north and west of Yukon, the vulnerable populations are primarily related to agriculture.

References

Oklahoma Climatological Survey (OCS)
National Climatic Data Center Storm Event Database (NCDC)
http://drought.unl.edu/whatis/induces.html

Earthquake

An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the surface. For hundreds of millions of years, the forces of plate tectonics have shaped the earth as the huge plates that form its surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together and unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates. Earthquakes strike suddenly, without warning.

Location

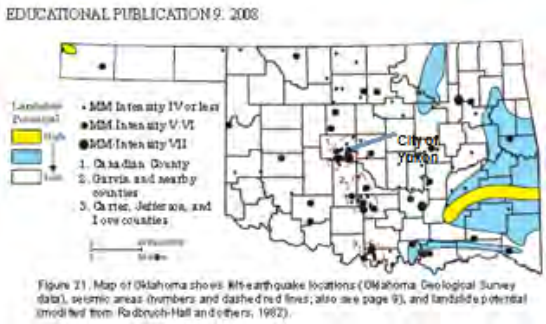
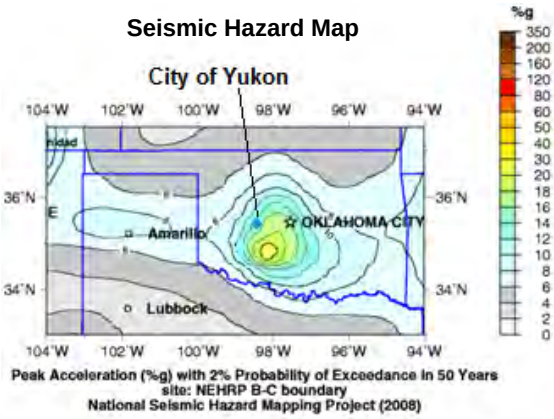


Figure 21. Map of Oklahoma shows felt-earthquake locations (Oklahoma Geological Survey data), seismic areas (numbers and dashed red lines; also see page 9), and landslide potential (modified from Radbruch-Hall and others, 1982).

All of Canadian County, including the City of Yukon, is at risk for earthquakes. The map to the left shows felt, significant earthquakes in Oklahoma.

Extent

The Seismic Hazard Map shows the City of Yukon falls within the United States Geological Survey (USGS) 15%g Peak Ground Acceleration (PGA) with 2% probability of exceedance in 50 years. This equates to a Modified Mercalli Intensity (MMI) scale of IV or V. This intensity indicates a future earthquake affecting the city will cause only light to moderate ground shaking with zero to minimal damage to buildings. The historical impact of earthquake incidents falls in the category of slight to moderate impact in the community. City of Yukon officials consider any earthquake activity above 4.8 on the Richter scale as a significant event. Housing in Yukon is generally not built to “earthquake standards.”



Past earthquakes in and near the City of Yukon have been slight with little or no damage to the city with the exception of the El Reno earthquake in 1952. The 5.5 tremor broke windows and cracked walls. El Reno, Oklahoma, is 13 miles west of the City of Yukon.

Charles F. Richter of the California Institute of Technology developed the Richter magnitude scale in 1935 as a mathematical device to compare the size of earthquakes. This scale is usually the one referred to by news media when broadcasting, and is the most familiar to the public. The diagram below compares the Mercalli and Richter scales, and gives a description of earthquake impact for each level.

Table 3-7

Earthquake: Mercalli/Richter Scale Comparison		
Mercalli Scale	**Richter Scale**	**Full Description**
I.	**0 – 1.9**	Not felt. Marginal and long period effects of large earthquakes.
II.	**2.0 -2.9**	Felt by persons at rest, on upper floors, or favorably placed.
III.	**3.0 – 3.9**	Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
IV.	**4.0 - 4.3**	Hanging objects swing. Vibration like passing of heavy trucks. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink the upper range of IV, wooden walls and frame creak.
V.	**4.4 - 4.8**	Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Pendulum clocks stop, start.
VI.	**4.9 - 5.4**	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Books, etc., off shelves. Pictures off walls. Furniture moved. Weak plaster and masonry D cracked. Small bells ring. Trees, bushes shaken.
VII.	**5.5 - 6.1**	Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices. Some cracks in masonry C. Waves on ponds. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.
VIII.	**6.2 - 6.5**	Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.
IX.	**6.6 - 6.9**	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters.

Earthquake: Mercalli/Richter Scale Comparison		
X.	7.0 - 7.3	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
XI.	.7.4 - 8.1	Rails bent greatly. Underground pipelines completely out of service.
XII.	> 8.1	Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.
Masonry A: Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces. Masonry B: Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces. Masonry C: Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces. Masonry D: Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.		

Previous Occurrences

The Oklahoma Geographical Survey Observatory provides a brief history of earthquake activity affecting Canadian County and the Yukon area.

Table 3-8

CANADIAN COUNTY (INCLUDES YUKON) Earthquake EVENTS 2000 THROUGH JULY 2010					
Date	**Time**	**Depth**	**Magnitude**	**Latitude**	**Longitude**
Mar. 11,2010	07:41:29	2.3-46.4	2.3	35.3585	-97.9703
Note: A series of 10 minor earthquakes occurred near Yukon; however, no damage was reported. The earthquake listed above was the closest to the Yukon city limits.					

Oklahoma Geological Survey Observatory

Probability of Future Events

Oklahoma is at moderate risk for an earthquake as a result of its proximity to the New Madrid Seismic Zone. Future felt earthquakes in Canadian County and the City of Yukon are possible due to faults in the general area. The Meers fault is located southwest of Yukon and occasionally causes small earthquake tremors.

Oklahoma County has experienced numerous earthquakes since 2007. As of January 1, 2010, it has encountered 31 tremors registering in the 1.1 – 5.0 range. Parts of Canadian County felt some of those events.

Based on public input, past history, and data from the Oklahoma Geological Survey and the USGS, the potential of damaging earthquakes in Canadian County, including the City of Yukon, is "**LIKELY**" (see Table 3-2).

Vulnerability and Impact

In The City of Yukon, buildings with foundations resting on unconsolidated landfill and other unstable soil, trailers not tied to their foundations or homes not properly secured to their foundations are at risk during an earthquake. They can shake off their mountings during even a modest occurrence and; thereby, displace residents. Roads and bridges may be compromised limiting emergency response and forcing motorists to find alternate routes. Earthquakes can damage natural gas lines, water lines, pipelines, electric lines, and underground lines causing loss of services to the citizens of Yukon. Environmental concerns may arise as well. Inside structures, bookshelves, hot water tanks, pictures on walls, and equipment can fall. When an earthquake occurs in heavily populated areas such as The City of Yukon, people are often injured or killed, and property is frequently damaged.

Conclusion

Based on available information, the potential impact of earthquakes to the City of Yukon is small. Yukon is in a relatively active earthquake area; however, it appears to have limited potential for earthquake damage based on historical occurrences of earthquakes in Oklahoma.

References

U.S. Geological Survey (USGS)

Oklahoma Geological Survey (OGS)

Expansive Soils

A little known but damaging hazard in Oklahoma is expansive soils. Although the southeast part of the state is the most susceptible, other isolated areas in Oklahoma may also be at risk.

Expansive or “swelling” soils, as the name implies, are soils that swell when subjected to moisture. These swelling soils typically contain clay minerals that attract and absorb water. Another category of expansive soil known as swelling bedrock contains a special type of mineral called clay stone. When water is added to these expansive clays, the water molecules are pulled into gaps between the clay plates. As more water is absorbed, the plates are forced further apart, leading to an increase in soil pressure or an expansion of the soil's volume. As expanded soils dry, the soil mass shrinks and often causes damage to building foundations and walls.

Soils containing expansive clays become very sticky when wet and usually are characterized by surface cracks or a "popcorn" texture when dry. Therefore, the presence of surface cracks is usually an indication of an expansive soil.

Soils are composed of a variety of materials, most of which do not expand in the presence of moisture. However, a number of clay minerals are expansive. These include: smectite, bentonite, montmorillonite, beidellite, vermiculite, attapulgite, nontronite, illite, and chlorite. Some sulfate salts also expand with changes in temperature. When a soil contains a large amount of expansive minerals, it has the potential of significant expansion. When the soil contains very little expansive minerals, it has little expansive potential.

Changes in soil volume present a hazard primarily to structures built on top of expansive soils. The most extensive damage occurs to highways and streets. The effect of expansive soil is most prevalent in regions of moderate to high precipitation where prolonged periods of drought follow long periods of rainfall. Expansive soils are recognized either by visual inspection in the field or by conducting laboratory analysis.

Location

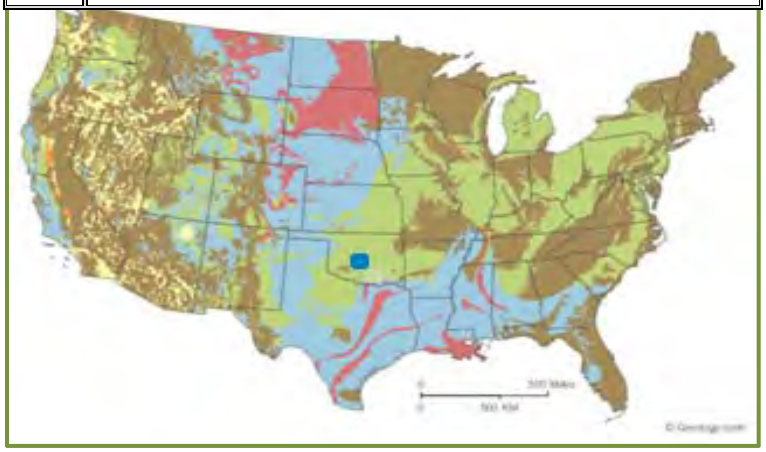
All of the City of Yukon and the Yukon Public School District are susceptible to Expansive Soils. The soils in and around the City of Yukon are clay-based, and attract and absorb water. As they dry, they become very hard and shrink in volume.

Extent

W.B. Creath reported in 1996 that uninsured losses to property owners throughout the nation might be as high as $6 billion per year. However, because the hazard develops gradually and seldom presents a threat to life, expansive soils have received limited attention despite their costly effects in Oklahoma. Most engineering problems caused by volume changes in swelling soils result from human activities that modify the local environment. They commonly involve swelling clays beneath areas covered by buildings and slabs, or layers of concrete and asphalt, such as those used in construction of highways, walkways, and airport runways. The American Society of Civil Engineers estimates one fourth of all homes in the United States have some form of damage caused by expansive soils. Table 3-11 shows general trends in the geographic distribution of expansive soils. The map is not a property evaluation tool; however, it is useful for learning the areas to which expansive soils underlie a significant portion of the land and might be a localized problem. The City of Yukon as shown above is in an area that is underlain by soils with abundant clays of slight to moderate swelling potential. Moderate expansive soils (Table 3-10) leading to building instability, major road damage, or loss of utilities such as water or gas would be considered a severe event by the City of Yukon.

Table 3-9

	Over 50 percent of these areas are underlain by soils with abundant clays of high swelling potential.
	Less than 50 percent of these areas are underlain by soils with clays of high swelling potential.
	Over 50 percent of these areas are underlain by soils with abundant clays of slight to moderate swelling potential.
	Less than 50 percent of these areas are underlain by soils with abundant clays of slight to moderate swelling potential.
	These areas are underlain by soils with little to no clays with swelling potential.
	Data insufficient to indicate the clay content or the swelling potential of soils.



When expansive soils are present, they generally do not cause problems if their water content remains constant. The greatest damage occurs when significant or repeated moisture content changes. The expansive tendency of a soil is a function of its shrink-swell potential. The **Natural Resources Conservation Service** (NRCS) sorts shrink-swell potential soil property into five categories: very low, low, moderate, high, and very high. Shrink-swell potential categories are based on the change in length of an unconfined clod, as moisture content increases from air-dry to filled capacity.

Table 3-10

CANADIAN COUNTY MAGNITUDE OF EXPANSIVE SOILS HAZARD	
CATEGORIES	**PERCENT OF CHANGE**
Very low	< than 1%
Low	1 to 3%
Moderate	3 - 6%
High	6 - 9%
Very high	> than 9%

Soils in the low to moderate category may be modified using lime to stabilize the soil. High to very high expansive soils not only are treated with lime, but structures must be built to resist damage from the high shrink-swell soils.

Previous Occurrences

Oklahoma does not have disaster information on expansive soils because a catastrophic event has not and probably will not occur. This hazard develops gradually and is difficult to attribute dollar amounts to this hazard. No history is available for Canadian County or the City of Yukon although members of the City of Yukon Hazard Mitigation Planning Team expressed individual knowledge of problems with cracking walls and foundations due to expansive soil conditions. Because there are no reported losses to emergency services no local records exist and reported incidents are non-existent. The hazard is profiled in this plan because of its potential risk to water supply pipes, area highways, critical facilities, businesses, and homes in the City of Yukon.

Probability of Future Occurrence

When expansive soils are present, they generally will not cause a problem if their water content remains constant. The situation in which the greatest damage occurs is when significant or repeated moisture content changes. Because the City of Yukon has experienced only minor

damage from expansive soils, no reports have been made to emergency services. Residents of the City of Yukon need to become more aware of the potential hazard and the necessary steps to alleviate the problem, especially in new construction. The probability of expansive soils continuing to occur in the City of Yukon is "**LIKELY**" (see Table 3-2).

Vulnerability and Impact

Even though expansive soils cause enormous amounts of damage, most people are unaware of them because the harm occurs slowly and cannot be attributed to a specific event. The damage from expansive soils is attributed to poor construction practices or a misconception that all buildings experience a certain amount of damage as they age. In the City of Yukon, the most obvious appearance of damage to buildings are sticking doors, uneven floors, and cracked foundations, floors, walls, ceilings, and windows. If damage is severe, the cost of repair may exceed the value of the building and force residents to relocate. The most extensive damage from expansive soils occurs to highways and streets. Risk of fatalities or injuries is minimal unless the soil situation causes a partial or full collapse of a building.

Expansive soils also shrink as they dry. This shrinkage can remove support from buildings or other structures, and result in damaging subsidence. Fissures in the soil can also develop. These fissures can facilitate the deep penetration of water when moist conditions or runoff occurs. This produces a cycle of shrinkage and swelling that places repetitive stress on structures.

Expansive soils may cause cracking and breaking to roads and highways in the City of Yukon, including major U.S. transportation arteries, from trapped moisture in the roadbeds. This can create dangerous conditions especially on high speed highways leading to detours and delays for motorists. Road repairs are expensive and time consuming, and often take months to repair. Expansive soils can affect housing and businesses especially in cases where more extensive damages occur. Foundations break or crack weakening the structure walls and brick facades leading to expensive repairs. Expansive soils do not normally contribute to injuries and deaths. Water, sewer, and gas lines are vulnerable to expansive soils, which can lead to short-term loss of these services and further expensive maintenance costs.

Conclusions

It is possible to build successfully and safely on expansive soils if stable moisture content is maintained or the building is insulated from soil volume changes that occur. The procedure for success is as follows:

- Test to identify problems
- Design to minimize moisture content changes and insulate from soil volume changes
- Build without changing the conditions of the soil
- Maintain a constant moisture environment after construction

Expert assistance is needed to follow these procedures successfully. Most people are unaware of expansive soils and the damage the hazard can cause to their property. As residents become more aware of the potential damage and signs of expansive soils, they can alleviate more severe damage.

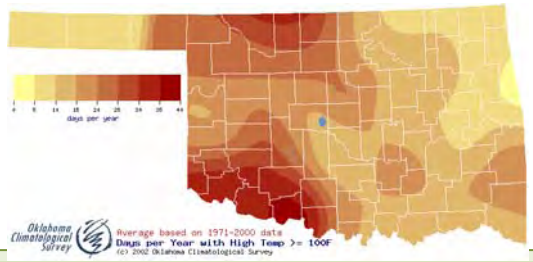
References

Geology.com

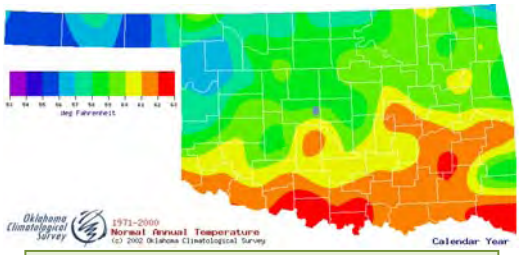
Oklahoma Geological Survey (OGS)

Extreme Heat

Oklahoma, as part of the Southern Great Plains, is prone to wide swings of temperature. Summertime temperatures routinely climb above the 100-degree mark. **Extreme heat** is defined as temperatures that hover 10 degrees or more above the average high for the area, and last for several weeks. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a “dome” of high atmospheric pressure traps hazy, damp air near the ground.



Days per year with high temperatures greater than 100



Normal Annual Temperatures

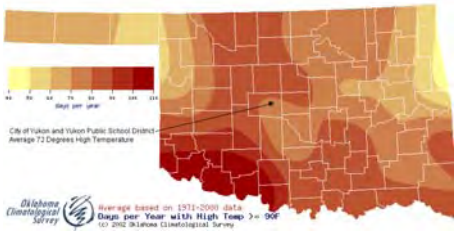
Latest available data from OCS

The hottest period of the Oklahoma summer extends from mid-July through mid-August. August, the third and final month of the climatological summer, is overall Oklahoma's second hottest, fifth driest, and least windy month. The normal statewide monthly temperature is 80.9 degrees Fahrenheit. Canadian County’s average maximum temperature, according to the Oklahoma Climatological Survey, is 72 degrees with the highest record temperature of 115 degrees Fahrenheit occurring in El Reno, Oklahoma, on July 15, 1914. El Reno is located 13 miles west of the City of Yukon.

The above maps show the variation between the high temperatures in the summer exceeding 100 degrees and normal temperatures. Canadian County averages 5 - 20 days over 100 degrees while Yukon experiences only 10-15 days over 100 degrees. Yukon averages 78 days over 90 degrees.

Location

The entire City of Yukon is at risk for extreme heat. The average high temperature in Canadian County is 72 degrees Fahrenheit, which exceeds the temperatures of the counties located in extreme southwest and northwest



Oklahoma. These counties are usually considered the hottest areas of the state; however, they average more days of temperatures over 90 degrees. The humidity in Canadian County and the City of Yukon is higher than western Oklahoma counties because of its location in relation to the Gulf of Mexico.

Extent

It is often extremely hot and humid during the summer in Oklahoma, including the City of Yukon. The often extended higher than normal temperatures can result in the heat becoming a hazard to life and property.

Table 3-11

Heat Index Chart

Temperature	% Relative Humidity															
	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
110	108	112	117	123	130											
105	102	105	108	113	117	122	130									
100	97	98	102	104	107	110	115	120	126	132						
95	91	93	95	96	98	100	104	106	109	113	119	124	130			
90	86	87	88	90	91	92	95	97	98	100	103	106	110	114	117	121
85	81	82	83	84	85	86	87	88	89	90	92	94	96	97	100	102
80	76	77	78	78	79	79	80	81	82	83	84	85	86	87	88	89

Legend	
80-89 degrees	Fatigue is possible with prolonged exposure and/or physical activity.
90-104 degrees	Sunstroke, heat cramps and heat exhaustion are possible with prolonged exposure and/or physical activity.
105-129 degrees	Sunstroke, heat cramps and heat exhaustion are likely. Heat stroke is possible with prolonged exposure and/or physical activity.
130+ degrees	Heatstroke/sunstroke is highly likely with continued exposure.

The heat index is the temperature a person feels when heat and humidity in the air are combined. High humidity with high temperatures makes the body sense a superficial temperature higher than the actual air temperature. The City of Yukon considers any extended period (three or more consecutive days) with heat indexes above 95 degrees severe and cause for concern. Periodic health checks of the elderly and other at-risk populations are encouraged.

Previous Occurrences

Canadian County, including the City of Yukon, had only two major extreme heat incidences since their last Hazard Mitigation plan was approved in 2005. However, the events were significant for the citizens of Yukon and included one fatality.

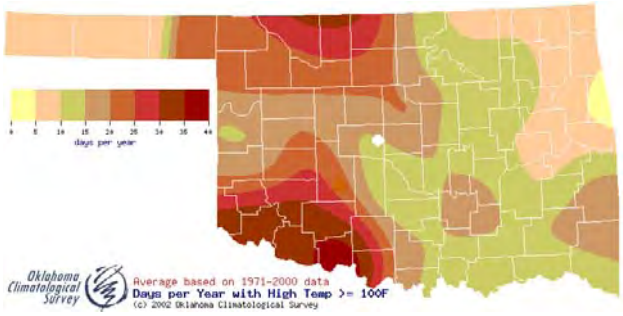
Table 3-12

CANADIAN COUNTY (INCLUDING YUKON) Extreme Heat History 2005 - 2010 Information provided by the National Climatic Data Center (NCDC)					
DATE	DESCRIPTION	PROP. DAMAGE	CROP DAMAGE	CANADIAN CO.	
				FATAL	INJ.
July 2010	**JULY 15-24:** After a rainy beginning, the middle of July was hot and muggy with very little in the way of rainfall. Lows flirted with the 80s while highs were generally in the mid-90s to lower-100s. A ridge of high pressure was the culprit, typical for late July. **JULY 24-28:** The weather continued hot. Isolated storms along that boundary produced some severe weather on the 24th. Lows were in the mid-70s for the most part and the highs climbed into the 90s, although some 80s were scattered around, especially near the rainfall. **JULY 29-31:** The month finished with blazing hot and dry weather. Highs in the 90s and 100s were common under blue skies as the summertime upper-level ridge of high pressure dominated the area.	Unknown	Unknown	0	0
1 Aug 2006	The triple digit heat that began at the end of July continued through at least the first half of August across Oklahoma. Overnight lows also remained high with temperatures only falling into the upper 70s to low 80s	Unknown	Unknown	0	0

CANADIAN COUNTY (INCLUDING YUKON) Extreme Heat History 2005 - 2010 Information provided by the National Climatic Data Center (NCDC)					
DATE	DESCRIPTION	PROP. DAMAGE	CROP DAMAGE	CANADIAN CO.	
				FATAL	INJ.
	most nights.				
16 Jul 2006	Temperatures reached triple digits across the area starting in mid-July and continued through at least the first half of August across Oklahoma. Many locations at times reached 105 degrees or greater with higher heat index values. Overnight lows remained warm for much of this time also with most location's only falling to 75 degrees or higher. The heat caused several streets to buckle across the area.	Unknown	Unknown	0	0
20 Jun 2006	A man collapsed at a house in Yukon on Tuesday June 20 due to the heat. He died from the effects of heat stress the following day in the hospital.	Unknown	Unknown	1	0

Probability of Future Events

While extreme heat is a hazard for Oklahomans, efforts are being made throughout the state to mitigate the effects of the Extreme Heat Hazard. The National Weather Service now issues Excessive Heat Warnings by county through the NOAA Weather Radio. They are issued when the combined effect of high temperatures and high humidity result in daytime heat indices greater than or equal to 105 degrees Fahrenheit and nighttime ambient temperatures greater than or equal to 80 degrees Fahrenheit persisting for two days or longer. The entire State of Oklahoma is at risk for extreme heat. Based on history and public input, the probability of a future extreme heat event in the City of Yukon is "**POSSIBLE**" (see Table 3-2).



TEMPERATURE

Average Annual: 60 degrees

Average Maximum: 72 degrees

Highest: 115 degrees

Data from Oklahoma Climatological Survey

Vulnerability and Impact

The City of Yukon has a significant extreme heat hazard due to its climate. Summers are hot and humid with daytime highs in the upper 80s to the mid-90s. During summer months of July and August, the City of Yukon generally experiences less than three inches of rain.

Increases in electrical power outages in the City of Yukon are often due to high use of air conditioners that cause power “brownouts” or outages. Some elderly citizens do not have air conditioners or fans that work, or do not use them because of high electric costs. Consequently, they often become victims of the severe high temperatures (see Table 3-12). Senior citizens are usually the victims of extreme heat deaths; however, persons with disabilities and the very young are also vulnerable. People working outside are susceptible to extreme temperatures. They need to take preventative measures to care for themselves and know the signs of heat exhaustion and heat stroke. Public education programs are a tremendous asset in teaching the community about the effects of heat and humidity.

Extreme heat often affects roads. Concrete roads sometimes “explode” or crack, and asphalt roads tend to soften with continued heat. Residents utilize these roads when going to work or other daily events. The damaged roads often result in alternate transportation routes having to be found which in some cases results in loss of revenue to merchants and businesses in the City of Yukon until the damage is repaired. Extreme heat can also affect city personnel who work out-of-doors, and critical outside work may have to be reduced or halted during heat situations.

Conclusion

Although the entire City of Yukon is susceptible to extreme heat during which occasional deaths occur, most heat-related fatalities involve elderly citizens who are unable or unwilling to use their air conditioners or fans. The American Red Cross, Salvation Army, business owners, private organizations, and others are making efforts to ensure those in need receive fans or air conditioners and periodic visits to verify their welfare. Additional groups and communities are establishing “cooling stations” and shelters for individuals to use during high heat periods.

References

Federal Emergency Management Agency
National Weather Service - Norman
Oklahoma Climatological Survey

Hazard Profile

Flood

Flood is defined as an overflow or inundation coming from a river or other body of water that causes or threatens damage. Floods are usually a result of heavy, slowly moving thunderstorms or rains extending over a long period. Floods can also occur through dam failure or over-topping. Flash flooding is a short-term water inundation usually resulting from storm water drainage or low water crossings on roadways.

Fortunately, FEMA has mapped most of the known floodplains in the United States and administers the National Flood Insurance Program (NFIP). When the NFIP completes a flood study, the information and maps are assembled into a Flood Insurance Study (FIS). The FIS is a compilation and presentation of flood risk data for specific watercourses, lakes, and coastal flood hazard areas within a community. It also includes causes of flooding. The FIS report and associated maps delineate Special Flood Hazard Areas (SFHAs), designate flood risk zones, and establish base flood elevations (BFEs) based on the flood that has a 1% chance of occurring annually or the 100-year flood.

Riverine flooding occurs when excessive rainfall from areas upstream of the problem area exerts pressure on rivers or drainage channels. Riverine flooding is usually a gradual process which, in many cases, has a warning time from several hours to several days. River water surface elevations exceed the natural banks of the channel and overwhelm the areas within or beyond the floodplain. Riverine flooding has the tendency to remain in flood stage longer than other types of flood hazards. In many cases, riverine flooding may cause greater flood loss due to the length of time the velocity and depth of the water, and the debris associated with the fast moving water, inundates the structures.

Location

The City of Yukon is susceptible to flooding primarily due to flash flooding affecting primarily low-lying areas throughout the city. Thunderstorms occur an average of 47 days per year and predominantly in the spring and summer. The Yukon Public School District has no school campuses or other facilities located within the mapped special flood hazard areas. See FIRM maps located in Appendix C.

Canadian County

Precipitation:

Average Annual: 33.37 inches

Days With Precipitation: 68

Wettest Year: 53.89 inches in 1973

Driest Year: 14.58 inches in 1954

Table 3-13

Precipitation (inches)										
	AVERAGE	EXTREMES (1893-2003)			AVG # DAYS PER MONTH (1971-2000)					
	1971-2000	Monthly Max	Daily Max		any	meas	0.10"+	0.25"+	0.50"+	1.00"+
Jan	1.11"	4.76" (1949)	2.58"	(30th, 1982)	6	4	2	1	1	*
Feb	1.35"	6.34" (1898)	5.40"	(9th, 1898)	6	5	3	2	1	*
Mar	2.72"	8.77" (1973)	3.09"	(11th, 1990)	7	7	5	3	2	1
Apr	2.99"	7.36" (1897)	3.95"	(28th, 1897)	8	7	4	3	2	1
May	5.84"	15.00" (1987)	5.18"	(28th, 1987)	10	10	7	5	4	2
Jun	4.94"	16.50" (1904)	4.70"	(4th, 1995)	9	9	6	4	3	2
Jul	2.66"	10.01" (1975)	6.50"	(1st, 1913)	6	6	4	3	2	1
Aug	2.72"	12.51" (1914)	4.55"	(16th, 1914)	6	6	4	2	2	1
Sep	3.41"	11.41" (1900)	7.08"	(13th, 1961)	7	7	5	3	2	1
Oct	3.02"	11.72" (1959)	4.25"	(20th, 1983)	7	6	4	3	2	1
Nov	1.95"	7.30" (1902)	6.12"	(19th, 1953)	7	6	3	2	1	*
Dec	1.38"	5.17" (1911)	2.54"	(9th, 1911)	6	5	3	2	1	*
Annual	34.08"	16.50" (Jun 1904)	7.08"	(Sep 13, 1961)	85	77	50	33	21	11

Extent

The City of Yukon is flat, level ground conducive to flash flooding when rainfall is too heavy for the drainage system to handle the flow of runoff throughout the city. City officials consider rainfall of one inch per hour a minor severity, and anything over three inches per hour a major event that can cause significant flooding problems from drainage. The Oklahoma Significant Floods – County Map in the following section shows past **significant** flooding throughout the state. It portrays Canadian County in an area of Oklahoma that experienced significant flooding at least three times over a 20-year period. The very flat terrain of the City of Yukon adds to the flash flood potential.

FIRM Zones

FIRMs show different floodplains with different zone designations. These are primarily for insurance rating purposes, but the zone differentiation can be very helpful for other floodplain management purposes. The more common zones are listed in Figure 3-10.

Zone A	The 100-year or base floodplain. There are six types of A Zones: **A** The base floodplain mapped by approximate methods, *i.e.*, BFEs are not determined. This is often called an unnumbered A Zone or an approximate A Zone. **A1-30** These are known as numbered A Zones (*e.g.*, A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format). **AE** The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones. **AO** The base floodplain with sheet flow, ponding, or shallow flooding. Base flood depths (feet above ground) are provided. **AH** Shallow flooding base floodplain. BFEs are provided. **A99** Area to be protected from base flood by levees or Federal Flood Protection Systems under construction. BFEs are not determined. **AR** The base floodplain that results from the decertification of a previously accredited flood protection system that is in the process of being restored to provide a 100-year or greater level of flood protection.
Zone V and VE	**V** The coastal area subject to a velocity hazard (wave action) where BFEs are not determined on the FIRM. **VE** The coastal area subject to a velocity hazard (wave action) where BFEs are provided on the FIRM.
Zone B and Zone X (shaded)	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from the 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
Zone C and Zone X (unshaded)	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood.
Zone D	Area of undetermined but possible flood hazards.

Figure 3-10: Flood Insurance Rate Map Zones

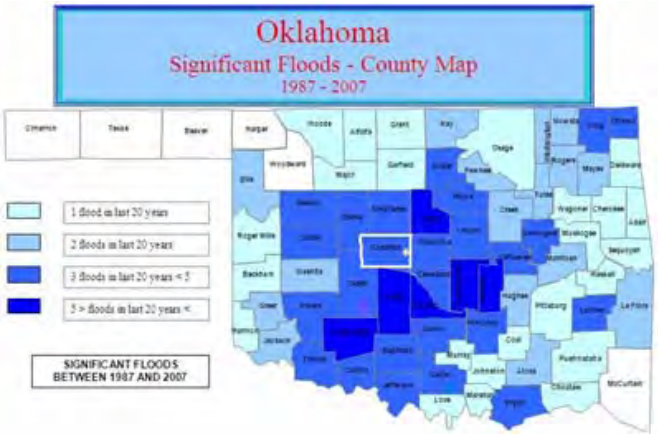
Note that the special Flood Hazard Area (SFHA) includes only A and V Zones.

The example table above shows the different flood zone designations as commonly recognized by the NFIP and used to differentiate between varying special flood hazard areas.

The City of Yukon has had no known repetitive losses or severe loss claims.

Previous Occurrences

The City of Yukon has a history of flooding, primarily flash flooding.



Map compiled from available OEM and FEMA records.

The following table lists flood events over the last five years based on information from NCDC.

Table 3-14

CITY OF YUKON Flood History 2005 - 2010 Information provided by the National Climatic Data Center (NCDC)		
DATE	**LOCATION**	**DESCRIPTION**
9 Aug 2008	3 miles N of Yukon to 2 miles SW of Yukon	Widespread flooding occurred over eastern Canadian County, with the greatest flooding occurring from NW 23rd Street and Richland Avenue to Highway 66 and Banner Road. Five people were rescued by boat here, with three of those from their home and two from their cars. As much as four feet of water was standing over numerous other city and county roads, making them impassable.

CITY OF YUKON Flood History 2005 - 2010 Information provided by the National Climatic Data Center (NCDC)		
DATE	**LOCATION**	**DESCRIPTION**
19 Aug 2007	Yukon	A result of Tropical Storm Erin; Highways 4 and 92 were closed due to high water. At 6:38 AM CDT, a motorist had to be rescued at Mustang Road and Wagner due to the high water. Several other roads in town had to be closed as well due to the flooding. A bridge on Oak Street was severely damaged, requiring significant renovation. Also, extensive farm land was flooded on the north side of town. Two homes at Kingsway Court had 12-18 inches of water in them.
10 Jul 2007	Yukon	Several county roads were closed due to high water over the roadways from continuous heavy rainfall.
10 Jul 2007	Yukon	Several county roads were closed due to high water over the roadways from continuous heavy rainfall. A boundary moved southeast into Oklahoma during the afternoon hours of the 9th. An upper level wave accompanied this front, and combined with afternoon heating helping severe thunderstorms to develop during the afternoon and overnight hours. Thunderstorms also developed on the many outflow boundaries that were created throughout the event. Hail, high winds and flash flooding were reported.
08 May 2007	5 miles SW of Yukon	A high water rescue was reported at SW 15th and Mustang Road and 8 to 12 inches of water reported over the roadway at Sarah Rd. and 10th Street. Water was also rising into homes in the northern portions of Yukon. Widespread flash flooding was reported over central Oklahoma, with rivers rising out of their banks. After a lull in precipitation for a few hours the other disturbance moved over Oklahoma during the late afternoon and evening hours.
09 Jun 2005	Yukon	At 12:59 pm CST, flash flooding was reported by the Yukon, OK police department at two places in the City of Yukon. Flash flooding closed Wagoner Road in Yukon near the intersection of Wagoner Road and 11th Street. In addition, areas along Mustang Road and Sarah Road were closed due to high water.

Probability of Future Events

The City of Yukon is sometimes host to the remnants of hurricanes from the Gulf of Mexico. By the time they arrive in Yukon, however, they have been downgraded to Tropical Depressions.

These storms tend to produce extremely heavy rains over a sustained period and often lead to flooding in the City of Yukon.

Based on history and input from the City of Yukon Hazard Mitigation Planning Team, the potential of flooding in the City of Yukon is "**LIKELY**" (see Table 3-2).

Vulnerability and Impact

Flooding is a destructive force in the City of Yukon whether it occurs from rivers and streams, dam failure, or the flash floods transpiring from overtaxed water drainage. Neither property nor lives are exempt from its ravages. In the City of Yukon, numerous drivers steered their vehicles into flooded roadways and rendered them powerless because the water was higher and swifter than the person anticipated. Flood currents can sweep vehicles from the roadway into inundated ditches or rivers, or wash them downstream when motorists unknowingly drive into water covering "hidden" washed-out roadway. It takes only 12 inches of flood water to float most vehicles. Flooded roadways often force people to find alternate transportation routes. Flooding rivers and streams invade homes and businesses and destroy floors, walls, and contents forcing residents to relocate, which often results in unemployment. Area farmers and ranchers lose thousands of dollars worth of crops and livestock when floodwaters overrun their fields. The impact of their losses negatively affects the City of Yukon's economy.

Conclusion

Flooding in the City of Yukon is a concern, although the most common occurrence is flash flooding when rainfall is exceedingly heavy and storm drains are unable to handle the runoff from the event. Exceedingly heavy rainfall could damage or destroy property within the City of Yukon. Businesses and schools are also susceptible to flooding within the city limits.

References

National Climatic Data Center

National Flood Insurance Program

Oklahoma Water Resources Board

Hail

Hail forms in storm clouds when super-cooled water droplets freeze on contact with condensation nuclei such as dust. The storm's updraft blows the hailstones to the upper part of the cloud. The updraft dissipates and the hailstones fall back into the updraft where they are elevated again. The hailstone gains an ice layer and grows increasingly larger with each ascent. Once a hailstone becomes too heavy for the storm's updraft to support, it falls from the cloud. This up and down movement inside the cloud through cold and warm temperatures causes the droplet to add layers of ice, which can often become quite large. Hail is generally round, oval, or irregularly-shaped; ranges in size from smaller than a pea to larger than a softball; and can be very destructive to buildings, vehicles, and crops.

May 16, 2010

The National Weather Service uses a network of Nexrad Doppler radars to detect hail. Hail size and probability is determined from radar data by a computer showing different algorithms. The combination of this data and an analysis of the radar display is an accurate resource for detecting hail.

Location

The entire City of Yukon is susceptible to hail storms. Usually associated with severe thunderstorms, all structures, vehicles, wildlife, livestock and the entire population is subject to hail damage.

Extent

Hail usually affects a relatively small area and lasts an average of 10 to 20 minutes, but may continue longer in some storms. Hail causes one billion dollars in damage to crops and property each year in the U.S. The peak periods for hailstorms, which are late spring and early summer, coincide with Oklahoma's most active severe storm season.

Table 3-15

Combined NOAA/TORRO Hailstorm Intensity Scale				
Size Code	**Intensity Category**	**Typical Hail Diameter (inches)**	**Approximate Size**	**Typical Damage Impacts**
H0	Hard Hail	up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33-0.60	Marble or Mothball	Slight damage to plants, crops
H2	Potentially Damaging	0.60-0.80	Dime or grape	Significant damage to fruit, crops, vegetation
H3	Severe	0.80-1.20	Nickel to Quarter	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	1.2-1.6	Half Dollar to Ping Pong Ball	Widespread glass damage, vehicle bodywork damage
H5	Destructive	1.6-2.0	Silver dollar to Golf Ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	2.0-2.4	Lime or Egg	Aircraft bodywork dented, brick walls pitted
H7	Very destructive	2.4-3.0	Tennis ball	Severe roof damage, risk of serious injuries
H8	Very destructive	3.0-3.5	Baseball to Orange	Severe damage to aircraft bodywork
H9	Super Hailstorms	3.5-4.0	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	4+	Softball and up	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

The above Torro Hail scale describes the various levels of hail and the resulting typical damage impact. The City of Yukon considers anything with a magnitude of H4 or higher as significant due to the economical hardship it creates for the citizens and visitors in the city. Once the size of hail rises to an H5 degree, it becomes disastrous to equipment, roofs and vehicles left outside unprotected.

Previous Occurrences

Severe thunderstorms frequently produce incidents of hail in Yukon each year.

Table 3 -16

CITY OF YUKON Hail History 2005 - 2010 (Only events with greater than 1.00 inch hail or greater are profiled)		
Date	**Location**	**Magnitude and Description**
16 May 2010	Central Oklahoma including Yukon.	A weakly defined warm front moved slowly north through Oklahoma. A large area of at least golf ball-size hail developed from south of Kingfisher to northwest Oklahoma City, with embedded areas of larger than baseball size. Wind speeds also averaged around 50 mph, but some locations measured winds in excess of 60 mph. Some areas even reported hail still on the ground more than 12 hours later. **(NWS Norman)**
1 May 2009	Yukon	**1.50 -** Thunderstorms from April 30th continued into the early morning hours of May 1st. Large hail was reported over the northern and eastern parts of Canadian county. No damage was reported with the thunderstorms.
10 Feb 2009	Yukon	**2.5 - 2.75** - Hail from 2.5 to 2.75 inches in diameter was reported around Yukon from 1422 to 1425 CST. Thunderstorms developed early in the afternoon, from near the Lawton area, northeast toward the Oklahoma metro area. Thunderstorms became severe relatively quickly as they moved through Caddo and Grady counties, and began to show signs of rotation as they moved toward western Oklahoma City.
1 May 2008	Yukon	**1.25 -** Penny to half-dollar size hail was reported in and around Yukon. A cold front moved southeast into northern Oklahoma late in the evening of the 1st. Also, a dry line retreated slowly westward into west central Oklahoma. Thunderstorms developed along the cold front, but generally stayed below severe levels. More intense thunderstorms developed near the dry line and cold front intersection, and continued building south into central and southern Oklahoma. Large hail and gusty winds were reported along the developing squall line.
30 Mar 2008	3 miles SSE of Yukon	**1.25 -** Hail was reported at the intersection of Interstate 40 and Morgan Road and at SW 15th street and the Kilpatrick Turnpike. A powerful storm system moved toward the plains during the day on the 30th. An area of low pressure had developed over northwest Oklahoma. A dry line was located south of the low. Severe thunderstorms developed on the dry line in western Oklahoma by late afternoon. These thunderstorms became more intense as they moved northeast through the evening into central and northern Oklahoma. These thunderstorms produced large hail, and eventually a few tornados.
24 April 2006	2 miles SW of Yukon	**1.25 – 1.75 -** Hail was reported at Interstate 40 and Banner Road and in the western part of the city.
		Source: National Climatic Data Center

Probability of Future Events

The City of Yukon's citizens and their property are vulnerable to hail storms. When damage occurs, it usually harms structural glass, roofs and vehicles. The City of Yukon Hazard Mitigation Planning Team considered the possibility of future events based on past experience, and concluded severe thunderstorms, including hail, are expected in the future. The entire city is at risk from hail and the probability of future events is "**Highly LIKELY**" (see Table 3-2).

Vulnerability and Impact

Oklahoma, including the City of Yukon, has significant exposure to hail events. Stronger hail incidents are typically associated with severe thunderstorms and often extensively damage glass, roofs, vehicles, and vegetation. Based on the NOAA/TORRO Hailstorm Intensity scale, less intense thunderstorms frequently produce smaller, H2-size hail which may cause slight to significant damage to plants. The National Weather Service (NWS) and the Oklahoma Climatological Survey (OCS) have ongoing, early warning research to improve notification and threat information for the public. In spite of this research and the warning system currently available to the public, people are often injured trying to reach adequate shelter. Hail damage causes frequent roof replacements costs insurance companies and property owners thousands of dollars. Property owners must occasionally find temporary housing or business locations due to the amount of roof damage to their structure. For businesses, this causes loss of production, and in extreme cases, affects employee jobs. Hailstorm damage to vehicles, plants, crops, livestock, and wildlife cause economic loss, as well.

Conclusion

Oklahoma and the City of Yukon have significant exposure to hail events. Government, public, and privately owned property and critical facilities are vulnerable to hail. Damage usually occurs to vegetation, vehicles, and structures. The National Weather Service (NWS) and private organizations have ongoing early warning research to improve notification and threat information for the public. Community awareness is critical in minimizing the effects of hail. An informed public may prevent some of the hailstorm damage, injuries, and deaths.

References

Oklahoma Climatological Survey
National Weather Service (NOAA)
National Climatic Data Center (NCDC)

HAZARD PROFILE

High winds

High Winds are a common feature of thunderstorms, particularly severe thunderstorms. The National Weather Service uses winds in excess of 58 mph as one of the measurements in determining a thunderstorm as severe. The definition of **wind** is the motion of air relative to the earth's surface. High winds can result from thunderstorm inflow and outflow, downburst winds when a storm cloud collapses, strong frontal systems, and gradient winds with high or low pressure systems moving across Oklahoma. High winds have sustaining or gusting speeds reaching 50 mph or greater.

Strong winds can come without thunderstorm activity; however the energy in thunderstorms produces the most damaging winds. Damage usually occurs to power transmission lines and communications towers; however, occasional damage can occur to structures during downburst or microburst events, which occur as a thunderstorm collapses. Wind speeds in these events can quickly reach over 100 mph.

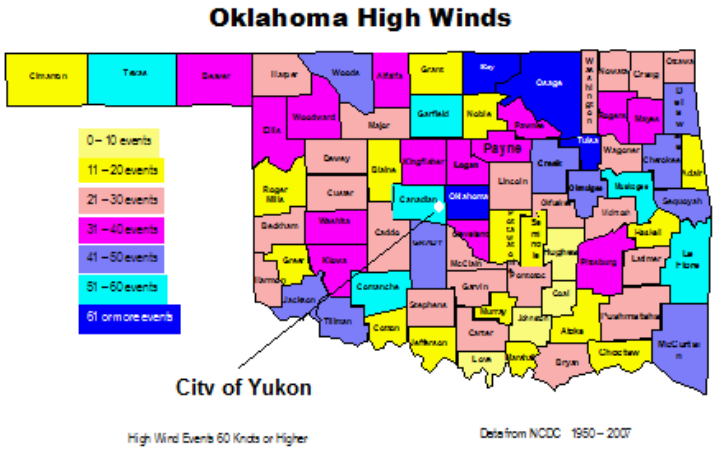
Location

The City of Yukon experiences high winds exposing virtually all structures, infrastructure, and individuals in the area to their effects. High winds exceeding 70 mph and produced by severe thunderstorms heavily affect power systems. The City of Yukon has significant high wind producing thunderstorms due to its location. Because it is situated southeast of the Rocky Mountains and their cool air, north of the moisture-rich Gulf of Mexico, and northeast of the arid Southwest with its dry, hot air, thunderstorms (many producing high winds) are common in Oklahoma and the City of Yukon.

Extent

The City of Yukon considers high wind dangerous if the winds exceed 70 mph. Mobile homes are often negatively affected by winds of this speed. Winds in excess of 80 mph can cause damage to buildings and power service.

The City of Yukon considers winds higher than a Force 10 on the Beaufort scale as excessive and warrants high wind precautions.



Canadian County experiences 51-60 High Wind events average annually.

The Beaufort Wind Scale is a system of estimating and reporting wind speeds. Its basis is the Beaufort Force composed of wind speeds, classifications from the **World Meteorological Organization** (WMO), and descriptions of the visible effects of wind on land and water. The scale was devised by Sir Francis Beaufort (1777-1857), hydrographer to the British Royal Navy.

Table 3-17

Beaufort Wind Scale				
Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway

Beaufort Wind Scale				
Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
6	22-27	Strong Breeze	Larger waves 8-13 ft, whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-20 ft, white foam streaks off breakers	Whole trees moving, resistance felt walking against wind
8	34-40	Gale	Moderately high (13-20 ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Whole trees in motion, resistance felt walking against wind
9	41-47	Strong Gale	High waves (20 ft), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (20-30 ft) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	Exceptionally high (30-45 ft) waves, foam patches cover sea, visibility more reduced	Widespread damage
12	64+	Hurricane	Air filled with foam, waves over 45 ft, sea completely white with driving spray, visibility greatly reduced	Widespread damage. Very rarely experienced on land.

Previous Occurrences

Hundreds of thunderstorms move across Oklahoma each year. Most bring welcome precipitation. However, high winds accompanying thunderstorms are occasionally responsible for injuries, death, and property damage. Table 3-14 reflects examples of thunderstorm events with winds that caused structural damage in the City of Yukon area.

Table 3-18

City of Yukon High Wind History 2005 - 2010			
Date	**Location**	**Description**	**Est. Damage**
29 Aug 2008	Yukon	A **microburst** occurred over eastern Canadian County near Yukon. The estimated 60-70 mph winds caused damage, starting with a collision between an 18-wheeler and two cars on Interstate 40 at Czech Hall Road. In addition, power lines were downed at I-40 and Mustang Road. Two passengers in the	Unknown

		automobiles sustained minor injuries. Interstate 40 was closed because of the debris. Additional damage occurred near the Woodrun Village apartments at Mustang and Reno roads.	
10 Jul 2006	4 miles W of Yukon to 4 miles WNW of Yukon	Two tractor-trailers were blown over near Interstate 40 and Cimarron Road.	$10,000.00
12 Aug 2005	Yukon	The front windows of a furniture store were blown out.	$2,500.00

Data from National Climatic Data Center.

Probability of Future Events

Considering history and the location of Oklahoma between the dry, arid southwest and the moist air from the Gulf of Mexico, Canadian County and the City of Yukon have significant exposure to high wind events. Damage usually occurs to infrastructure, such as power transmission lines and communications towers; however, occasional damage can occur to structures. Early warning research is ongoing through the National Weather Service (NWS) and private organizations to improve notification and threat information for the public. Property damage and possibly even deaths from high wind events are expected in the City of Yukon especially during thunderstorms. The probability of future high wind events is "**HIGHLY LIKELY**" (see Table 3-2).

Vulnerability and Impact

High winds can cause death or injury to humans when mobile homes and buildings collapse under winds of 80 – 100 mph. Economic losses to communities arise when high winds damage crops and structures. Business owners experience financial loss which may jeopardize staff employment until the building can be repaired. Homes damaged by high winds are often uninhabitable and the occupants must relocate. Other damages can occur including downed trees and power lines, blocked traffic lanes, and power outages causing loss of electricity to critical facilities and the general population, and forcing commuters and first responders to find alternate routes to travel. Power outages that occur during severe winter or summer temperatures are especially critical due to the extreme heat hazard from loss of air conditioning and fans, and frigid temperatures from lack of heat in facilities and homes.

High winds frequently cause downed power lines, triggering power outages. When these outages occur, many businesses are forced to close for security reasons and as a result lose business.

Conclusion

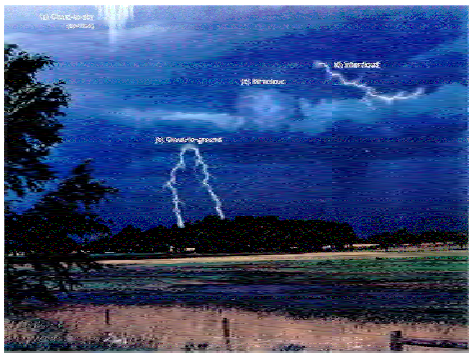
Oklahoma and the City of Yukon have significant exposure to high wind events. Infrastructure damage most often occurs to power transmission lines and communications facilities; however, occasional damage to structures can arise during downbursts. Early warning research is ongoing through the National Weather Service (NWS) and other private organizations to improve notification time and threat information for the public.

References

The National Weather Service (NOAA)
The Storm Prediction Center (SPC)
National Climatic Data Center (NCDC)

Lightning

Lightning is a result of electrical charges accumulating at the base of the clouds until it discharges. Air in the path of lightning expands from heating and causes thunder, which is produced by the electricity passing rapidly through the atmosphere. Four types of lightning as shown in the picture at the right include: **Cloud-to-Sky**, **Intracloud**, **Intercloud**, and the most dangerous, **Cloud-to-Ground**. All types of lightning are dangerous particularly to aircraft flying near thunderstorms. The number one thunderstorm killer each year in the United States is flooding; lightning is number two.



Hazards associated with lightning include the following:

Direct Strike. This is the most dangerous hazard, wherein the person or structure is a direct path for lightning currents to seek ground. The magnitude of the current determines its effects. The typical amperage of 2OkA acting on a ground of 10 ohms creates 200,000V. A large strike can attain l5OkA levels.

Side Strike: This hazard results from the breakup of a direct strike as alternate parallel paths of current flow into the ground via a person or structure. When the initial current encounters resistance to its flow, a potential above ground path develops, and the person or structure's offering resistance becomes the alternate receiver of conduction.

Conducted Strike: This hazard occurs when lightning strikes a conductor and introduces a current into an area some distance from the ground strike point. Unprotected connected equipment is damaged and personnel injured if they become an indirect path in the completion of the ground circuit.

Structure Voltage Gradient: Current passing through two or more structures creates momentary voltage differentials. Poor interconnect bonding may cause a completed circuit potential difference. A grounded person touching an ungrounded object creates the same hazard, for example, and completes the electrical circuit, sometimes with fatal consequences.

Induced Effects: Lightning can induce electric and magnetic fields coupling into structures and into wiring. Magnetic coupling is transformer action, and the common laws for transformers prevail.

Streamer Conductor: The streamer hazard occurs when a lightning leader influences electric behavior of objects on the earth. Even streamers that do not become a part of the main channel can contain significant amounts of current. Streamer current exposure can affect people and sensitive electronics.

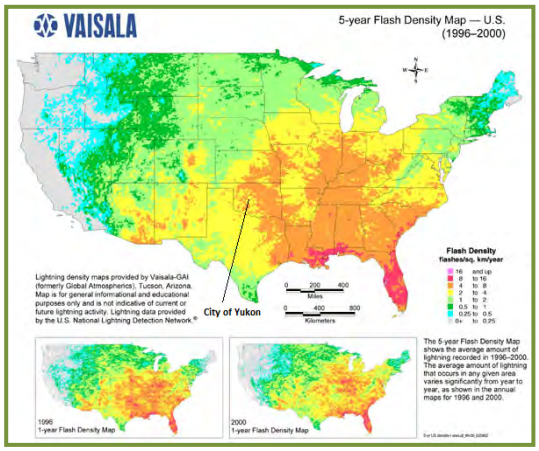
Location

All of the City of Yukon is vulnerable to lightning. Hundreds of thunderstorm events take place across Oklahoma each year. Most bring welcome precipitation, but the lightning that accompanies them occasionally causes significant damage, injury, or death.

Extent

Thunderstorms with lightning can cause wildfires and downed power lines. Consequently,

major crop damage and power outages may occur. Lightning causes thousands of dollars in damages each year to homes, businesses, churches, barns, and other structures. Businesses often are forced to close during power outages and as a result lose business. Thunderstorms with lightning have damaged buildings and power supplies, and downed electrical lines causing power outages. Large trees often succumb to lightning strikes. Each year, lightning causes thousands of dollars in damages to homes, businesses, churches, barns, and other structures in Oklahoma. Businesses forced to close from power outages lose business. Because of the deadly and destructive force of lightning, the City of Yukon considers all lightning events serious and cause for added protective measures. Secondary effects from lightning are many. Examples include forest and grass fires; explosive steam conditions in masonry, trees, and other water-bearing objects; and consequences from a thunder clap startling a person who then may drop a wrench or inadvertently throw a switch.



The Vaisala map to the right shows a flash density of 2-4 flashes/square kilometer/year. Records are not kept in The City of Yukon on every lightning event unless it causes major damage to structures or starts major fires. City officials consider all events which contain lightning to be severe events and warrant evasive actions.

Previous Occurrences

Hundreds of thunderstorm events take place across Oklahoma each year. Many affect the City of Yukon. Most bring welcome precipitation, but the lightning that accompanies them

occasionally causes significant damage, injury, or death. NCDC lists only one lightning event for the City of Yukon due to the damage caused. However, there are lightning events with virtually every thunderstorm event that occurs in Yukon. Only a few cause damage to property.

Table 3-19

CITY OF YUKON High Wind History 2005 - 2010 Information provided by the National Climatic Data Center (NCDC)			
Date	**Location**	**Description**	**Estimated Damage**
04 Jan 2005	3 miles S of Yukon	Lightning struck and destroyed two oil tank batteries in the 600 block of Cemetery Road near Reno Avenue. Residents felt and heard the explosion.	$75,000.00

Probability of Future Events

Considering history and the location of Oklahoma between the dry, arid southwest and the moist air from the Gulf of Mexico, the City of Yukon has significant exposure to lightning events. Damage usually occurs to infrastructure, such as power transmission lines and communications towers; however, occasional damage can occur to structures. Early warning research is ongoing through the National Weather Service (NWS) and private organizations to improve notification and threat information for the public. Property damage and possibly deaths from lightning are expected in the City of Yukon especially during thunderstorms. The probability of future lightning events is "**HIGHLY LIKELY**" (see Table 3-2).

Vulnerability and Impact

During thunderstorms and particularly severe thunderstorms, people are often injured or killed by lightning. They are either struck directly or a nearby lightning strike causes injuries to people close by. The National Lightning Safety Institute released a 35 year study in 1997 concerning statistics for lightning strikes causing injuries or death:

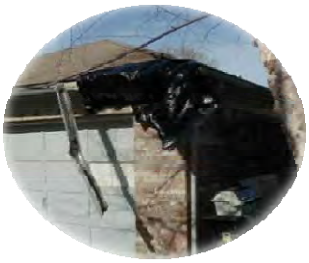
1. **Location of Incident:**
   40% Unreported
   27% Open fields & recreation areas (not golf)

14% under trees (not golf)
8% Water-related (boating, fishing, swimming…)
5% Golf/golf under trees
3% Heavy equipment and machinery-related
2.4% Telephone-related
0.7% Radio, transmitter & antenna-related

2. Gender of victims = 84% male; 16% female
3. Months of most incidents = June 21%, July 30%, Aug 22%
4. Days of week of most incidents = Sun./Wed./Sat.
5. Time of day of most incidents = 2 PM to 6 PM
6. Number of victims = One (91%), two or more (9%)

The National Weather Service publication *Storm Data*, recorded six deaths from lightning strikes between 1998 and 2008 in Oklahoma and ranks Oklahoma in 27th place nationally. According to the National Weather Service, lightning causes an average of 62 deaths and 300 injuries in the United States each year.

In Yukon lightning has the potential for setting fires to buildings causing loss of business, loss of employment, loss of homes, displacing the occupants and businesses. Electrical appliances and electronics often are destroyed by lightning causing costly repairs or replacement.



Lightning is an underrated killer and second only to flood in regard to the number of weather-related deaths in the United States each year. According to the National Weather Service, lightning causes an average of 62 deaths and 300 injuries in the United States each year. In the City of Yukon, lightning is suspected of setting fires to buildings and displacing occupants through loss of business, employment, and homes.
Public education is important in lessening the effects of lightning by encouraging residents to remain inside or in their cars during lightning events.

Conclusion

Thunderstorms cause millions of dollars of damage throughout the United States every year. Lightning is considered one of the top killers in the United States because it sometimes strikes in advance of the thunderstorm that produced it. At particular risk of thunderstorms are outdoor activities such as fishing, sports events, bicycling, all of which are abundant in the City of Yukon.

Mitigation projects exist in this plan (see Chapter four) that can help protect and reduce the effects of lightning on the citizens and visitors of Yukon.

References

National Lightning Safety Institute (NLSI)

National Weather Service (NWS)

National Climatic Data Center (NCDC)

http://www.lightningsafety.com/nlsi_lhm/lightning_risk_ham.html

Tornado

A tornado is a violently rotating column of air in contact with the ground and often visible as a funnel cloud. It either is pendant from a cumuliform cloud or underneath a cumuliform cloud. (*Glickman 2000)*

A tornado spawns from a thunderstorm and is produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. The damage from a tornado is a result of the high wind velocity and wind-blown debris. Tornado season in Oklahoma is generally April through June, although tornados can occur at any time of year. They tend to develop in the afternoons and evenings. Although over 80 percent of all tornados strike between 3:00 PM and 9:00 PM, they can occur at any time of day or night.

Tornados arise most frequently in the United States east of the Rocky Mountains. While 69 percent of the tornados have winds of less than 100 mph, they can be much stronger. Although violent tornados with winds greater than 205 mph account for only two percent of all tornados, they cause 70 percent of all tornado-related deaths. Tornados can develop one at a time or in clusters, and they can vary greatly in length, width, direction of travel, and speed. Tornados can leave a path 50 yards wide or over a mile wide. They may touchdown for only a matter of seconds, or remain in contact with the ground for over an hour.

Location

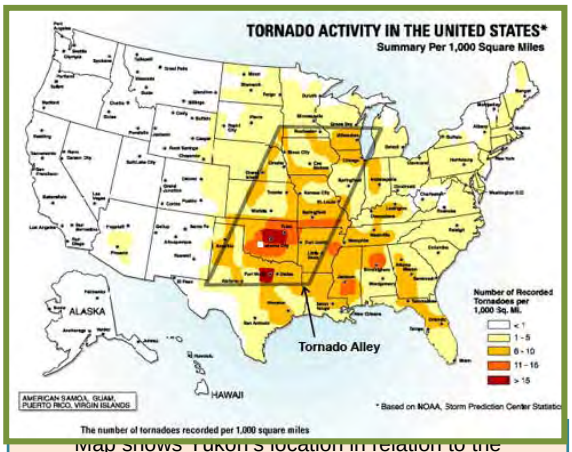
May 10, 2010
West of Yukon

As of August 13, 2010, statistics indicate 1,177 tornados reported in the United States with approximately 561 of them confirmed sightings. Thirty-four of the tornados had verified fatalities. The entire state of Oklahoma, including the City of Yukon is at risk for tornados. Located in notorious “Tornado Alley,” the City of Yukon experienced a small tornado on May 10, 2010.

Canadian County receives its share of tornados, experiencing 81 between January 1950 and May 2010. Information from the **National Climatic Data Center (NCDC)** suggests the large number in all probability is due to its location and to its unique geography that brings together cooler air from the Rocky Mountains, tropical air from the Gulf of Mexico, and dry air from the southwest. When these combine in the correct proportion, tornadic thunderstorms develop. All of the City of Yukon is equally at risk for tornados.

Extent

Meteorologists estimate tornado wind speeds based on the damage they produced. The Enhanced Fujita Scale (EF-Scale) categorizes tornados from a range of EF-0 to EF-5. EF-0 is the weakest, and EF-5 the strongest. The City of Yukon may experience one or all of these levels at any time during the year.



Map shows Yukon's location in relation to the infamous Tornado Alley

Dr. Tetsuya Theodore "Ted" Fujita proposed the Fujita Scale (F-Scale) in 1971. After a tornado, meteorologists study structure damage sustained from the event and use the F-Scale to estimate wind speeds. The Enhanced Fujita Scale made wind speed estimates more accurate than the original scale, and replaced it on February 1, 2007. Meteorologists estimate events from February 2, 2007, to the present using the EF-Scale. References to older storms rely on the original F-Scale. Tables 3-20 and 3-21 show each scale.

Table 3-20

F-Scale Number	Intensity Phrase	Wind Speed (mph)	FUJITA SCALE Type of Damage
F0	Gale tornado	40-72	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.
F1	Moderate tornado	73-112	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	Significant tornado	113-157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
F3	Severe tornado	158-206	Roof and some walls torn off well constructed houses; trains overturned; most trees in forest uprooted
F4	Devastating tornado	207-260	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
F5	Incredible tornado	261-318	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged.
F6	Inconceivable tornado	319-379	These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 wind that would surround the F6 winds. Missiles, such as cars and refrigerators would do serious secondary damage that could not be directly identified as F6 damage. If this level is ever achieved, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies

Table 3-21

Enhanced Fujita Category	Wind Speed (mph)	Enhanced Fujita (EF) Scale Potential Damage
EF0	65-85	**Light damage -** Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF1	86-110	**Moderate damage -** Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135	**Considerable damage -** Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136-165	**Severe damage -** Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	166-200	**Devastating damage -** Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	>200	**Incredible damage -** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd); high-rise buildings have significant structural deformation; incredible phenomena will occur.
		source: http://en.wikipedia.org/wiki/Enhanced_Fujita_Scale

Yukon is an urban community with high concentrations of population; Yukon officials consider a tornado of any size a concern and merits appropriate action be taken. All tornados EF2 and higher are considered severe. The basis of the Fujita Scale is damage and not wind speed or pressure; therefore, it is not entirely accurate. The primary problem is measuring a tornado on the F-Scale after it has occurred. In addition, meteorologists cannot measure the tornado when no damage occurs, or when the tornado travels through an area without features to affect. Nonetheless, the Fujita Scale is a reliable, proven measurement of tornado strength utilized in this plan. The following pictures show examples of damage from various levels of tornadic winds.

F-1 or EF1 damage

F-2 or EF2 damage

F-3 or EF3 damage

F-4 or EF4 damage

F-5 or EF5 damage

Previous Occurrences

Oklahoma's distinction as an epicenter of Tornado Alley is fairly well established, and is a result of the sheer number of tornados the state experiences. Since 1950, Canadian County has experienced 81 tornados. Table 3-22 lists some of the tornados that affected the City of Yukon

An increase in population spread augments the hazard posed by tornados. Along with population growth and the accompanying infrastructure, the threat of tornados striking the populated area increases as does the damage from the event.

Table 3-22

CITY OF YUKON Tornado History 2005 - 2010		
DATE	**LOCATION**	**DESCRIPTION**
10 May 2010	W of Yukon	**EF-0 No damage occurred.**
7 May 2008	1 mile East of Yukon	**EF-1** The tornado developed southwest of Main Street and Mustang Road on the east side of Yukon. The tornadic winds removed part of a residence's roof near this location. Sporadic damage to trees and fences were reported as the tornado moved east northeast**.**
29 Mar 2007	2 mile East of Yukon	**EF-2** The tornado developed around 1505 CST near the intersection of NW 39th Street and Sara Road in western Oklahoma City, and moved north northeast. In this area several homes suffered roof and garage door damage. The tornado continued north along and just west of the Kilpatrick Turnpike. Significant damage was noted along NW 63rd Street, where a home was heavily damaged, several travel trailers and a boat were rolled and damaged. No fatalities were reported, but five direct injuries were reported in western Oklahoma City.
		Data from NCDC and NWS Norman

Probability of Future Events

The conditions and location of Oklahoma between the warm humid air from the Gulf of Mexico, the arid, hot air from New Mexico; and the cool air from the Rocky Mountains are ideal for tornados as proven by their history throughout the state, including the City of Yukon.

Fortunately, better construction practices can limit the damage potential from all but the most violent tornados. The residences and businesses of today are more likely to withstand the damaging winds of weaker tornados than structures built fifty years ago, although some of those structures still stand in the City of Yukon. The inclusion of safe rooms, below ground storm shelters, and hurricane straps in current construction plans has helped reduce the hazard to both life and property.

The National Weather Service is also taking steps to improve warning time. The next step in the long-time weather radars of the National Oceanic and Atmospheric Administration **(**NOAA**)** is Phased Array Radar. Currently under testing at the Norman NWS, these radars using electronic controls of beams and frequencies scan more quickly and, thereby, increase lead times for tornado warnings.

Public input and review by the City of Yukon Hazard Mitigation Planning Team agree that the potential for future tornados in Yukon is "**LIKELY**" (see Table 3-2).

Vulnerability and Impact

Meteorologists consider 69 percent of all tornados weak. Over 82 percent of tornado deaths are due to violent F-4 and F-5 tornados even though only two percent of tornados fall into this category. Singular events dominate tornado deaths by county, and are largely a result of significant F2-F4 tornados.

If an EF-3 or larger tornado hit the center of the City of Yukon, significant damage would occur to the economy of the area. The damage to infrastructure would be enormous with lost power, water, sewer, gas, and communications. Many key businesses would be destroyed or damaged

enough to close for a long time. The major east-west national artery, Interstate 40, and the Kilpatrick Turnpike could also receive damage and block interstate commerce. Drivers would need to find alternate transportation routes. Schools, hospitals, grocery stores, and other critical need and economically important facilities could sustain damage and close for extended periods. Business closings and employee lay-offs from loss of commerce would affect the area. Some businesses never re-open after a tornado. Damage and debris may block roads and bridges. Continuity of government would be severely limited and emergency response greatly hindered.

EF-3 or larger tornados can displace people from their primary residences, damage homes, and cause injuries and fatalities as well as destroy or severely damage vulnerable mobile homes and frame structures. Some residents move and never return leaving empty or debris-riddled lots for someone else to manage. Power and water outages occur with most tornados whether in urban or rural areas. The lack of these services often leads to food spoilage and sanitation problems.

Some residents of the City of Yukon have already built safe rooms or underground tornado shelters, but the community needs more. The City of Yukon also needs safe rooms in the schools throughout the school district.

Conclusion

The Oklahoma Climatological records indicate the residents of Oklahoma face a real danger to both life and property from tornado activity. The tornado fatality trend shows a reduction in tornado casualties in the last 20 years. Although the number of reported tornados has recently increased perhaps from better detection equipment and spotter training, deaths and injuries caused by tornados have decreased. In the City of Yukon, special considerations are given to critical facilities important to citizen survival and emergency response in the community as well as the important interstate travel routes in and around the city.

References

The National Weather Service - Norman (NWS)
The Storm Prediction Center (SPC)
National Climatic Data Center (NCDC)

HAZARD PROFILE

Wildfire

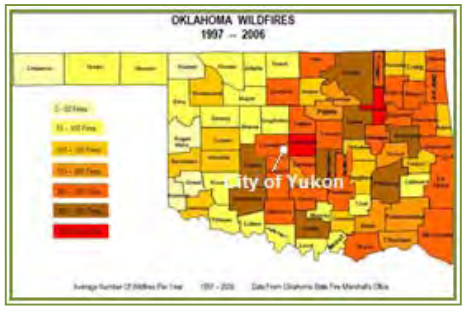
A wildfire is often a raging inferno that rapidly spreads out of control. It happens most frequently in the summer and fall when the brush is dry, and flames can move unchecked through wooded or heavily grassed areas. The fire often begins unnoticed and spreads quickly, lighting brush, trees, and homes. It may start from a campfire not doused properly, a tossed cigarette, burning debris, lightning, or arson.

Weather plays a major role in the birth, growth, and death of a wildfire. Drought leads to extremely favorable conditions for wildfires, as in 2005 and 2006, as do humidity, temperature, and wind. The combination of wind, temperature, and humidity affects the speed with which wildland fires can spread. These conditions change throughout the day and night.

Three classifications are given for wildland fires or wildfires. A **surface fire** is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A **ground fire** usually starts by lightning, and burns on or below the forest floor. **Crown fires** spread rapidly by wind and move quickly by jumping along the tops of trees. Dense smoke filling the area for miles around usually signals wildfires. The most common in Oklahoma are ground fires, which burn along the ground and seldom affect trees with the exception of cedar trees that "explode" in flames when they are involved.

Location

While the City of Yukon does not have a major problem with wildfire, they do have potential for wildfire in and around the city. Some residential areas are located on the outer limits of the community and are more vulnerable to wildland fire. See the Wildland – Urban Interface map in appendic C. Many of these structures are located in wooded areas or high grassland areas. The Yukon Public School campuses are all located within the city limits and are surrounded by businesses or housing additions and have no direct access to wildland areas. The school campuses are not located within the wildland – urban interface area.



Canadian County is in an area averaging 200 – 300 grass and woodland fires annually.

Extent

Yukon experiences a variety of wildfire conditions found in the Keetch-Byram Drought Index (KBDI). Spring usually centers on the 0-200 rating while the July through December months are usually drier and rate in the 400-600 range depending on fuel and moisture. During extreme dry or drought times such as in 2005 and 2006, the City of Yukon may experience a KBDI of 600-800.

The Keetch-Byram Drought Index (KBDI) is a mathematical system for relating current and recent weather conditions to potential or expected fire behavior. This system was originally developed for the southeastern United States and is based primarily on recent rainfall patterns. The KBDI is the most widely used drought index system by fire managers in the south. It is also one of the only drought index systems specifically developed to equate the effects of drought with potential fire activities. The result of this system is a drought index number ranging from zero to 800 that accurately describes the amount of moisture that is missing. A rating of zero defines the point where no moisture is deficient and 800 is the maximum drought possible. A level of 200 or higher on the KBDI is considered severe by the City of Yukon and reason for fire warnings.

The inputs for the Keetch-Byram Drought Index are weather station latitude, mean annual precipitation, maximum dry bulb temperature, and the last 24 hours of rainfall. Table 3-23 reflects the KBDI levels and their relationship to expected fire potential.

Table 3-23

Keetch-Byram *Drought Index* (KBDI) Fire Danger Rating System	
0 – 200	Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.
200 – 400	Fires more readily burn and will carry across an area with no gaps. Heavier fuels will still not readily ignite and burn. Also, expect smoldering and the resulting smoke to carry into and possible through the night.
400 – 600	Fire intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
600 – 800	Fires will burn to mineral soils. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

The range of the index is determined by assuming eight inches of moisture in a saturated soil is readily available to the vegetation. For different soil types, the depth of soil required to hold eight inches of moisture varies (loam=30", clay=25" and sand=80"). A prolonged drought with a high KBDI rating influences fire intensity largely because more fuel is available for combustion (i.e., fuels have a lower moisture content). In addition, the drying of organic material in the soil can lead to increased difficulty in fire suppression.

Previous Occurrences

The City of Yukon experiences wildfires almost monthly. The majority of those fires, however, are small grass fires that are quickly extinguished. The City of Yukon Fire Department is well-equipped and well trained to fight these fires, and is usually able to control them before they become larger. Table 3-24 shows the recent history of grassfires and wildfires in the City of Yukon:

Table 3-24

City of Yukon Wildfire History 2005 - 2010 (Data from Yukon Fire Dept.)			
Year	**Grass, Wildland Events**	**Acres**	**Losses**
2005	66	No information available	$9,000.00
2006	84	No information available	$19,725.00
2007	48	No information available	$3,250.00
2008	77	No information available	$2,500.00
2009	53	No information available	$300.00
2010	20	No information available	$0.00

Probability of Future Events

The State of Oklahoma and Canadian County have a significant wildfire hazard due to the climate, the large rural areas, and the types of fuels present. Canadian County is south of the Snow Belt, leaving its grassy fuels exposed and vulnerable to fire in the dormant season. Located far enough north of the Gulf of Mexico, it is influenced by the continental climate in the winter. Summers are hot and usually dry with daytime highs in the mid-90s, and generally have less than four inches of rain in July and August. Oklahoma recognizes 10 months as fire season. Wildland fuels are prone to burning from July through April. Only May and June are not

considered “fire season.” Most at risk are people who make their homes in woodland settings in or near rural areas. While grass and woodland fires are not a major problem in the City of Yukon, some homes and businesses are located in woodland areas. Adding to the natural problem is an abundance of cedar trees near structures, which along with the natural winds, cause fires to spread quickly. Based on past experience, dry conditions during 10 months of the year, numerous small grass and wildfires, and the wooded areas having a significant amount of tall grasses and weeds, the potential of future grass and wildland fires in the City of Yukon is “**HIGHLY LIKELY**” (see Table 2-3).

Vulnerability and Impact

Some critical facilities, transportation routes, pipelines, electrical transmission lines, and communications towers are located in or near grassy wooded areas. Loss of any of these facilities can result in a critical drain on the resources, and the response and recovery capabilities of the City of Yukon. Wildfires can damage or destroy residences and businesses located in wooded and high grass areas causing occupants to evacuate and possibly relocate. Businesses damaged or lost due to wildfires might close until the area is accessible, repairs are made, or in some instances, the building rebuilt. This situation can result in loss of income for both employees and owners. Residents in healthcare facilities and nursing homes, and individuals suffering from asthma, emphysema or other respiratory ailments may need to evacuate when smoke is extreme. Loss of transportation routes in and around the City of Yukon for a long period could increase travel time and expense important to carriers and commuters. Wildfire damage can impair mail delivery; school bus access; and local, state, and interstate commerce and tourism critical to the economy of the City of Yukon. Wildlife, livestock, and crops could suffer and further hurt the economy of the City of Yukon since many of the area ranches and farms are rural, wooded, and grassy.

Conclusion

While the City of Yukon does not have an immense problem with wildfire because of its urban nature, it does have the potential for major fires particularly along the outer edges of the city. Citizens enjoy living in wooded and grassy areas because of the beauty; however, those areas are the most susceptible to the wildfire threat especially during the dry periods of the year. The City of Yukon Fire Department is well equipped to deal with wildfires, and collaborates with neighboring fire departments in providing mutual aid when a situation warrants the need.

References

Yukon Fire Department Records

HAZARD PROFILE

Winter storms

A winter storm is an event in which the dominant varieties of precipitation are forms that only occur at cold temperatures, such as snow or sleet, or a rainstorm where ground temperatures are cold enough to allow ice to form. A winter storm can range from moderate snow over a few hours to blizzard conditions with high winds. It can have freezing rain or sleet, heavy snowfall with blinding wind-driven snow, and extremely cold temperatures lasting for several days. Winter storms vary in size from affecting several states to involving only a small part of one state.

FLURRIES are snow events with light snow falling for short durations. No accumulation or only a light dusting is all that is expected with little or no effect on the population of the state.

SEVERE WINTER STORM is one that drops four or more inches of snow during a 12–hour period, or six or more inches during a 24-hour span.

WINTER STORM refers to a combination of winter precipitation, including elements such as snow, sleet, and freezing rain.

BLOWING SNOW is wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow that is falling and/or loose snow on the ground and picked up by the wind.

BLIZZARDS, though infrequent in Oklahoma, are due to winds over 35 mph with snow and blowing snow that reduce visibility to near zero.

ICE STORMS occur when freezing rain or sleet falls and freezes immediately on impact.

FREEZING RAIN is rain that falls onto a surface with a temperature below freezing causing it to freeze to surfaces, such as trees, cars, and roads, and forming a coating or glaze of ice. Even small accumulations of ice can cause a significant hazard.

SLEET is rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and cause a hazard to motorists.

WIND CHILL describes the relative discomfort and danger to people from the combination of cold temperatures and wind. The wind chill chart below from the National Weather Service shows wind chill factors derived from both wind speed and temperature.

Location

All of the City of Yukon and the surrounding areas have the potential for winter snow and ice storms. These events can be extremely paralyzing to the community. Even though the terrain is

generally flat, these events can still overwhelm the residents and their ability to travel to work, school, or other areas in the city.

Extent

Heavy snow, sheets of ice, or sleet can immobilize the City of Yukon and strand commuters, stopping the flow of supplies, and disrupting emergency services and interstate commerce traffic. In some instances, large accumulations of snow or ice can cause structural damage, collapse building roofs, uproot trees, snap limbs, and sever power lines.The cost of snow removal, repairing damages, and loss of business largely impacts the economy of the City of Yukon.

Snow and particularly ice often plague the area causing road closures and limited travel. Snow during winter storms in the City of Yukon generally ranges from three to six inches annually. Oklahoma along with Yukon does not have an abundance of snow removal equipment due to the infrequent occurrences of appreciable snow fall. Accumulating snow in the four to six inch range is considered a severe event for the City of Yukon due to the lack of snow removal equipment.

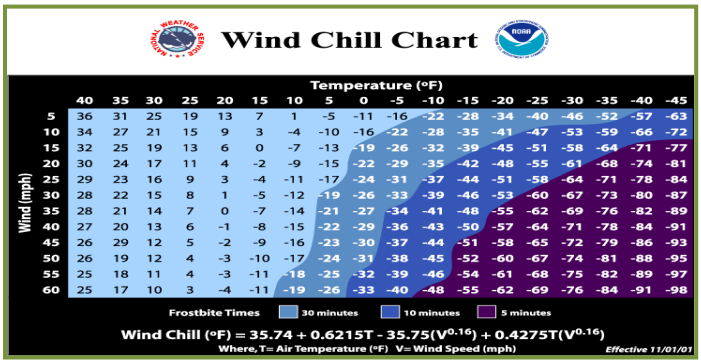
Ice Index	Radial Ice Amount (inches)	Wind (mph)	Damage and Impact Descriptions
1	< 0.25	15-25	Some localized utility interruptions possible, typically lasting only 1 or 2 hours maximum.
	0.25-0.50	< 15	
2	< 0.25	>= 25	Scattered utility interruptions expected, typically lasting less than 8-12 hours maximum.
	0.25-0.50	15-25	
	0.50-1.00	< 15	
3	0.25-0.50	>= 25	Numerous utility interruptions, with some damage to main feeder lines expected with outages lasting from 1-3 days.
	0.50-0.75	15-25	
	0.75-1.00	< 15	
4	0.50-0.75	>= 25	Prolonged & widespread utility interruptions, with extensive damage to main distribution feeder lines and possibly some high voltage transmission lines. Outages expected to last more than 3 to 5 days.
	0.75-1.00	15-25	
	1.00-1.50	< 15	
5	0.75-1.00	>= 25	Catastrophic damage to entire utility systems. Outages could last from one week to several weeks in some areas.
	1.00-1.50	15-25	
	> 1.50	< 15	

The Sperry-Piltz Utility Ice Damage Index. The categories are based upon combinations of precipitation totals, temperature and wind speed.

Any winter event with ice or freezing rain is a serious event warranting travel advisories but when ice accumulations reach the upper limits of or exceed (2) two as shown on the Sperry-Piltz Utility Ice Damage Index the situation is considered a severe ice event.

Wind chill is an important factor in the City of Yukon severe winter weather review. It is the degree to which the body senses the combination of winter winds and freezing temperatures to exposed skin. Wind chill values below -19 degrees are considered extremely dangerous to the population; however, hypothermia can occur at higher temperatures and cause death.

The *Wind Chill* temperature is simply a measure of how cold the wind makes real air temperature feel to the human body. Wind can dramatically accelerate heat loss from the body. A blustery 30-degree day feels just as cold as a calm day with zero-degree temperatures. Paul Allman Siple and Charles Passel created the original Wind Chill Index in 1870. On November 1, 2001, the National Weather Service released a more scientifically accurate equation used today. The table below gives a range of physical intensities from winter storms and their potential effect.



Wind Chill Chart

Wind (mph) \ Temperature (°F)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	29	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes, 10 minutes, 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Unfortunately, wind chill and average wind speed records are not available for the City of Yukon. The National Weather Service issues wind chill advisories when wind chills of -20 degrees to -39 degrees with winds greater than 10 mph are possible. In the City of Yukon, minimum temperatures below 15 degrees with winds exceeding five miles per hour as shown on the wind-chill chart bring local concerns regarding potential harm to people and pets.

Previous Occurrences

A series of major ice storms during the last decade plagued the City of Yukon and Oklahoma. Ice storms are extended freezing rain events with heavy ice accumulations lasting from several hours to many days. The icy cover can down electrical lines and tree limbs causing millions of dollars in damage to the area and widespread power outages. Significant icing events occur with nearly the same frequency as heavy snow events. While ice accumulation is often less than

an inch, storms depositing several inches of ice occur. The winters of 2000-2001 and 2006-2007, each featured a major ice storm that deposited more than three inches of ice in 24 hours across much of Oklahoma including the City of Yukon. See Table 3-25 for historical winter storm occurrences.

Table 3-25

CITY OF YUKON Winter Storm History 2005 - 2010			
DATE	**LOCATION**	**DESCRIPTION**	**ESTIMATED DAMAGE**
20-21 Mar 2010	Canadian Co.	**Winter Weather** Snowfall totals averaged two to three inches across the county. A strengthening upper level storm system moved ESE from NE New Mexico. At the same time, a strong late season cold front moved south across Oklahoma, dramatically dropping temperatures to near or below freezing over a large part of the state. The track of the storm system took a near optimal route for heavy snowfall for areas north of Interstate 40. Rain that formed behind the front quickly changed to a wintry mix, and then to all snow by early morning. Widespread amounts of three to five inches fell from western into central Oklahoma	Unknown
8 Feb 2010	Canadian Co.	**Winter Weather** - Four inches of snow accumulated in and around Calumet. Additional accumulations included two to three inches in and around Yukon. An upper level storm system gradually moved east toward the southern plains. Several disturbances rotated around the main system resulting in several waves of precipitation that overspread Oklahoma. At the surface, temperatures ranged from the lower 30s over northern and far western Oklahoma, to the middle and upper 30s over central and southern Oklahoma. Snow began over western Oklahoma during the early morning hours of the 8th, accumulating up to 3 inches.	Unknown
29 Jan 2010	Canadian Co.	**Winter Weather/Ice Storm** - Up to a half inch of glaze accumulated on exposed, elevated surfaces before changing to sleet.	Unknown

CITY OF YUKON Winter Storm History 2005 - 2010			
DATE	**LOCATION**	**DESCRIPTION**	**ESTIMATED DAMAGE**
		An inch to inch and a half of sleet accumulated on top of the glaze. Snowfall averaged five to six inches around the county, with isolated totals near eight inches. While the storm produced a variety of wintry precipitation, its most significant impacts came with an extended period of heavy freezing rain across southern into parts of central Oklahoma. Significant icing on trees and power lines resulted in widespread damage to trees/power lines.	
27 Mar 2009	Canadian Co.	**Winter Weather -** Two inches of snowfall accumulation was reported in and around Yukon. The precipitation began as a mixture of freezing rain and sleet, causing some roadways to become slick. Several accidents were reported as a result, and one person was killed on I-40. No other injuries were reported. Monetary damage estimates were not given.	Unknown
22 Dec 2007	Canadian Co.	**Winter Weather -** One to two inches of snow fell around the county. Blowing snow created snow drifts over one foot in some areas and visibilities were reduced to near 100 feet at times. Numerous wrecks were reported as a result of the blowing snow and slick roads.	Unknown
09-11Dec 2007	Canadian Co.	**Ice Storm -** A devastating ice storm affected a large swath of Oklahoma beginning on the 9th and continuing through the 11th over parts of the area. The storm left behind a trail of severe damage to trees and power lines, which in turn led to the worst power outage in Oklahoma history (641,000 people impacted). The governor declared a State of Emergency for all 77 Oklahoma counties. Schools, churches, and local businesses had to close, some for several days due to power outages. Final exams at area colleges were also postponed. The local economy took a huge hit as the ice storm hit during a key weekend for holiday	Unknown

CITY OF YUKON Winter Storm History 2005 - 2010			
DATE	**LOCATION**	**DESCRIPTION**	**ESTIMATED DAMAGE**
		sales.	
12 -14 Jan 2007	Canadian Co.	**Winter Storm -** A strong winter storm crippled much of Oklahoma from January 12th through the 14th, spreading snow, freezing rain and sleet across the state. The snow and sleet was confined to northern and western Oklahoma. The freezing rain and sleet occurred mainly over central and southwest Oklahoma	Unknown
28 Jan 2005	Canadian Co.	**Heavy snow** - fell across northern, central, and parts of southwest Oklahoma. Widespread amounts of three to six inches of snow were reported, with locally heavier amounts as high as eight inches reported in northwest Oklahoma. The slick and hazardous roads caused numerous accidents along with school, business, and church closings across the area.	Unknown
		Data from National Climatic Data Center (NCDC)	

Probability of Future Events

The frequency of snow events relates to drought periods because droughts have little moisture regardless the type of precipitation.

Oklahoma's location between the cold winter temperatures of the Rocky Mountains and the moisture from the Gulf of Mexico gives Oklahoma the potential for further ice and snow events. Northwest Oklahoma receives more snow annually than the City of Yukon area; however, heavy accumulations of ice and/or snow are still possible. In recent years, the City of Yukon experienced more damage from ice storms than from snowfall.

The Oklahoma Climatological Survey map below shows the City of Yukon in an area of the state that is subject to 6-8 inches of annual winter precipitation. The probability of the City of Yukon experiencing winter weather is "**HIGHLY LIKELY**" (see Table 3-2)

Canadian County Winter Climate

Average Annual Snowfall: 6.4 inches

Days with snow on ground: 3

Greatest Seasonal Snowfall: 28.5 in (1987-1988)

Greatest Daily Snowfall: 37.3 inches (1948-49)

Data from Oklahoma Climatological Survey

Vulnerability and Impact

Residents in the City of Yukon were plagued with a series of major ice and snowstorms during the last decade. Ice storms typically last several hours to days with heavy ice accumulations. The icy cover can down power lines and tree limbs, causing millions of dollars in damage to vehicles and structures, and producing widespread power outages. These events are extremely paralyzing to affected communities and the citizens.

Strong winds often accompany winter storms creating blizzard conditions with blinding wind-driven snow, severe drifting, and dangerously low wind chill temperatures. Heavy accumulations of ice and strong winds with these intense storms can damage trees, power electrical wires, and communication towers. Many electric and telephone lines in the City of Yukon are above ground. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. In extreme cases, it may become necessary to move elderly, physically-disabled, or very young residents to shelters until power is restored. Some residents may choose to stay with friends or relatives living in unaffected areas rather than going to a public shelter. This is not only inconvenient but the temporary loss of population along with inaccessible roads for essential services cause critical economic shortages to businesses that are able to remain open.

Extreme cold often accompanies a winter storm. Prolonged exposure to the cold can cause frostbite or hypothermia and become life threatening. Infants and young children, elderly residents, and people who work outdoors are most susceptible. Freezing temperatures can cause severe damage to crops and other critical vegetation, and pipes may freeze and burst in

homes and businesses. During power outages caused by icy wires, most furnaces and heating systems will not operate adding more of a threat to citizens.

Structure fires occur more frequently in the winter due to lack of proper safety precautions, and present a greater danger because water supplies may freeze and impede firefighting efforts. Icy roads may also hinder firefighting.

People die of hypothermia from prolonged exposure to the cold. Indigent and elderly people are most vulnerable to winter storms and account for the largest percentage of hypothermia victims largely due to improperly vented or unheated homes. However, the leading cause of death during winter storms is from automobile or other transportation accidents. Even small accumulations of ice may initiate extreme hazards to motorists and pedestrians.

Heavy snow usually immobilizes transportation facilities and strands commuters and school buses, stops the flow of deliveries and supplies, and delays emergency services. Accumulations of snow can collapse weaker buildings, and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and unprotected livestock may die. The costs of snow removal, repairing damages, and loss of business can have large economic impacts on the City of Yukon.

Conclusion

The City of Yukon has a history of winter storms and ice storms. These ranged in severity from heavy snow to severe ice conditions. Winter storms created numerous problems for residents and local government due to loss of work time and revenue, wear and tear on city equipment, and the additional expense in dealing with the situation.

Winter storms will continue to occur, but proper mitigation efforts can alleviate the effects of winter storms on the citizens.

References

National Climatic Data Center
National Weather Service
FEMA disaster records
Arndt, Derek. "The Climate of Oklahoma." *OCS Climate Information Group*. Oklahoma Climatological Survey, 1 Jan. 2003. Web. 1 Sept. 2010. http://cig.mesonet.org/climateatlas/doc60.html.

Long Range Growth And Post Disaster Redevelopment

The City of Yukon is located in the eastern part of Canadian County, which depends on the City of Yukon for its supplies and recreation. Because of the excellent schools and the proximity of the jurisdiction to the Oklahoma City area, the potential for growth within the City of Yukon is excellent.

Although the city limits of Oklahoma City nearly surround the City of Yukon, it has undeveloped land available for housing and businesses. The City of Yukon expects no specific area within the city to undergo development pressure and anticipates continued residential and commercial growth.

Analyzing Development Trends

In reviewing past development and growth in the City of Yukon, it is likely the growth pattern during the near future will show continued development, although slower due to the national economy. The incorporated areas within the city are moderately developed and the possibility of expanding the city limits exists, but is not currently anticipated.

The availability of sewer, water, electricity, utilities, and roads regulates residential growth for any area. The city and private companies provide these services to residents and businesses in the City of Yukon. The availability of electricity and water in the growing City of Yukon is excellent.

Post disaster redevelopment caused by an event will follow normal development patterns. The availability of utilities and roads would show very little permanent change in the redevelopment criteria.

The economic pressures, stability of the area and historical facts contributed to the conclusions reached in this chapter. Growth factors evident from the 2000 census listing the City of Yukon population as 21,043 versus the 2007 census estimate of 22,591 support this position. Expanded emphasis for long range and post disaster redevelopment is unwarranted at this time.

CHAPTER FOUR

MITIGATION STRATEGIES

Changes to Chapter Four

Each section of the plan was analyzed and reviewed by members of the Yukon Hazard Mitigation Planning Team (YHMPT) to determine whether updates to the plan were necessary. Chapter Four was reviewed by members of the YHMPT who determined that updating was required. The following updates were made:

- Goals were reviewed and revised to meet the needs of the City of Yukon and the Yukon Public School District
- NFIP participation and regulation is discussed
- Completed, deleted, deferred and In-progress mitigation actions are detailed
- New mitigation actions added to reflect needs of participating jurisdictions

Mitigation Actions are reformatted into easily reviewable tables.

The mitigation strategy of the City of Yukon is to take cost-effective steps to reduce or eliminate the impact of natural hazards to the citizens and infrastructure of Yukon.

To carry out this strategy, the City will: 1) identify those natural hazards specific to the City, 2) quantify the annual risks and impacts of these hazards, 3) develop overall goals to mitigate these hazards, 4) develop and implement specific action items to meet these goals, and 5) continue to evaluate and update the content and effectiveness of the overall hazard mitigation plan.

The identification of specific natural hazards and the quantification of risks and impacts were made in Chapter Three. Chapter Four will identify the goals the City has developed to mitigate the selected hazards, as well as list specific action items, to carry out these goals.

Yukon Hazard Mitigation Goals

The goals of the previous plan were reviewed at the first meeting of the YHMPT and then again following the hazard analysis and risk assessment and found to be incomplete. The goals were modified to meet the current needs of the City of Yukon and the Yukon School System in mitigating the effects of natural hazards on the citizens of Yukon.

The City of Yukon Hazard Mitigation Planning Team (YHMPT) adopted five main goals by which to reduce or eliminate the impact of natural hazards on the citizens and infrastructure of Yukon. These goals are as follows:

Goal 1: Protect lives and property
Goal 2: Improve ability to monitor and transmit warnings
Goal 3: Expand education, training and public information in regard to all hazards
Goal 4: Ensure continuity of government and critical services
Goal 5: Reduce and/or eliminate flooding in the city of Yukon.

These goals were adopted to help protect the lives and property of the City of Yukon and Yukon Public Schools.

Determination of Action Projects

A Hazard Mitigation Action Committee was formed to review the current mitigation actions and develop mitigation actions to address the hazards profiled in the plan. The members of this team met several times throughout the planning process to develop a list of mitigation actions which were submitted, approved, and prioritized by the YHMPT. (See Appendix A)

Action Plan

This section lists the mitigation action items identified and summarizes the lead implementation agency, proposed time schedule, estimated cost, and the potential funding sources for each action item along with information listing it as being completed, deleted, in-progress, new or deferred to the extent that this information is currently available.

The following action items are the current mitigation actions for the 2010 update of the Yukon Hazard Mitigation Plan. Following the list of current action projects is the listing of projects from the 2004 plan that have been completed and those that have been deleted from the plan. Most

deleted actions are training or educational actions and have been combined within a single action. The actions carried over from the previous plan have been reviewed and updated where necessary to meet the current needs of the community and the Yukon public school district. All other actions are additions to the plan for the 2010 update. Although the projects are prioritized in Chapter Five of this plan, actions are listed here in the order in which they were prioritized, but will be considered for implementation based on funding requirements and local priorities at the time funding becomes available. Special emphasis was placed on the cost – benefit of each action and, where actions scored the same total point values, the action with the highest economical scoring was giver greater priority followed by the social criterion.

Action Project 1 - Evaluate/Upgrade Warning Systems

Description	Evaluate and upgrade outdoor warning systems. Install additional devices as needed and replace obsolete devices with updated more technologically advanced units.
Hazards Addressed	High winds, Tornado
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Emergency Management
Scheduled Completion	18 months once funded
Cost Estimate	$53,000.00 per unit
Funding Sources	HMGP, Homeland Security, Local and School funds
Goal Addressed	Protect lives and property. Improve ability to monitor and transmit warnings. Ensure continuity of government and critical services.
Current Action Status	Evaluation completed, Projects are in progress with NOI's submitted

Action Project 2 - Fire Response Plan

Description	Develop a city wide fire response plan to facilitate the provisioning of water to fire departments during large fires.
Hazards Addressed	Wildfire
Jurisdictions Affected	City of Yukon
Responsible Party	Fire Department
Scheduled Completion	On-going, Contract renewal on an annual basis
Cost Estimate	Personnel
Funding Sources	City funds
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards. Ensure continuity of government and critical services.
Current Action Status	Completed and On-going, Mutual aid contracts are renewed annually.

Action Project 3 - Power Outage Response Plan

Description	Develop a contingency plan for responding to massive power outages caused by severe storms and other natural hazard events. Install generators as needed to maintain power supply during periods of extended power outages.
Hazards Addressed	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Emergency Management, School Superintendant
Scheduled Completion	July 1, 2005
Cost Estimate	$10,000
Funding Sources	HMGP, General budget, Association of Central Oklahoma Governments (ACOG).
Goal Addressed	Protect lives and property. Improve ability to monitor and transmit warnings. Ensure continuity of government and critical services.
Current Action Status	Contingency plan has been developed and projects are currently in progress with N.O.I.'s submitted to the state.

Action Project 4 – Harden Server Equipment Room at EOC

Description	Harden the server/equipment room at the EOC to prevent damage to servers and insure against loss of communications and data loss for EOC operations.
Hazards Addressed	Earthquake, Hail, High winds, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon
Responsible Party	Technology Director
Scheduled Completion	24 months with funding
Cost Estimate	$65,297.00
Funding Sources	HMGP, local funds
Goal Addressed	Ensure continuity of government and critical services.
Current Action Status	New project for plan update

Action Project 5 - Weather Radios for Critical facilities

Description	Supply NOAA Weather Radio to all local government buildings, schools, hospitals, and other facilities as deemed necessary.
Hazards Addressed	Dam Failure, Drought, Earthquake, Extreme heat, Flood, Hail, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Emergency Management, Public safety, School Superintendant
Scheduled Completion	On-going as needed
Cost Estimate	$40.00 per unit
Funding Sources	HMGP, Local funds
Goal Addressed	Protect lives and property. Improve ability to monitor and transmit warnings. Expand education, training and public information in regard to all hazards.
Current Action Status	On-going and continuing as needed.

Action Project 6 – Harden Server Equipment Room at City Hall

Description	Harden the server/equipment room at City Hall to prevent damage to servers and insure against loss of communications and data loss of critical city servers.
Hazards Addressed	Earthquake, Hail, High winds, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon
Responsible Party	Technology Director
Scheduled Completion	24 months with funding
Cost Estimate	$65,297.00
Funding Sources	HMGP, local funds
Goal Addressed	Ensure continuity of government and critical services.
Current Action Status	New project for plan update

Action Project 7 – Community/School Safe Rooms

Description	Install ADA accessible safe-rooms in critical facilities for personnel and citizens protection and in all schools that currently have no adequate protection facilities for staff and students.
Hazards Addressed	High winds, Tornado
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Community Development, School superintendant
Scheduled Completion	24 months with funding
Cost Estimate	$500,000.00 – 3,500,000.00 depending on facility, number of persons, and size needed.
Funding Sources	HMGP, School budget
Goal Addressed	Protect lives and property.
Current Action Status	Deferred due to lack of funding at the local level. Updated to include Yukon school district as a participating jurisdiction.

Action Project 8 - Update/Verify FIRM's/Drainage Study

Description	Acquire accurate or verify accuracy of existing flood plain maps. Maps have been digitalized during prior plan cycle but are still in need of updating. Perform a drainage study to determine most economical and feasible method to mitigate flooding issues throughout the City of Yukon.
Hazards Addressed	Dam Failure, Flood
Jurisdictions Affected	City of Yukon
Responsible Party	Community Development, Floodplain Director
Scheduled Completion	24 months with funding
Cost Estimate	$250,000.00
Funding Sources	HMGP, OWRB, Local funds
Goal Addressed	Expand education, training and public information in regard to all hazards. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	Digital mapping completed 2008, New maps have been adopted. Map updating along with a drainage study is still needed.

Action Project 9 – Debris Management Plan

Description	Develop a community debris management plan.
Hazards Addressed	Dam Failure, Earthquake, Flood, High Winds, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon
Responsible Party	Emergency Manager and Public Works
Scheduled Completion	On-going and changing as requirements necessitate
Cost Estimate	$10,000
Funding Sources	General budget, Federal Emergency Management Agency (FEMA).
Goal Addressed	Ensure continuity of government and critical services.
Current Action Status	In-progress, Debris management plan has been developed and is currently in finalization stage. Debris management plan will be reviewed and updated as different situations warrant changes.

Action Project 10 – Mass Notification System

Description	Obtain a mass communications system such as or similar to CTY connect for the City of Yukon and Connect Ed for Yukon schools to allow for emergency notification to citizens and to parents of school children in emergency situations.
Hazards Addressed	Dam Failure, Drought, Earthquake, Extreme Heat, Flooding, Hail, Lightning, Tornado, High Wind, Wildfire, Winter Storm
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Emergency Management, Local officials, school superintendants
Scheduled Completion	12 months with funding
Cost Estimate	$75,000.00
Funding Sources	HMGP, local, and school funds
Goal Addressed	Protect lives and property. Improve ability to monitor and transmit warnings.
Current Action Status	New project for plan update

Action Project 11 - Develop Haz Mat Response Plan

Description	Assess risks and develop a plan for responding to hazardous materials incidents on major transportation routes throughout the community. Develop GIS mapping and post hazardous material signage along hazardous materials routes.
Hazards Addressed	Hazardous Materials Events
Jurisdictions Affected	City of Yukon
Responsible Party	Fire Department, Public Works, Police Department
Scheduled Completion	On-going
Cost Estimate	$20,000
Funding Sources	HMGP, General budget, Federal Emergency Management Agency (FEMA), Oklahoma Department of Transportation (ODOT).
Goal Addressed	Protect lives and property.
Current Action Status	In progress, action modified to include GIS mapping and signage.

Action Project 12 – Water Line Upgrades

Description	Develop a plan for ongoing replacement of inadequately sized water lines with lines of sufficient size to provide adequate fire protection.
Hazards Addressed	Wildfire
Jurisdictions Affected	City of Yukon
Responsible Party	City administration
Scheduled Completion	In progress
Cost Estimate	$500,000.00
Funding Sources	HMGP, General budget, Oklahoma Department of Commerce
Goal Addressed	Protect lives and property. Ensure continuity of government and critical services.
Current Action Status	In-progress, Lines have been replaced throughout many areas of the city with other areas still in need of replacement.

Action Project 13 - Surge Protection

Description	Provide surge protection/power backup for computers and electronic equipment in critical facilities (e.g. Schools, 911 Center, EOC, police sub-stations, fire stations, and other facilities deemed critical.).
Hazards Addressed	Dam Failure, Earthquake, Extreme heat, Flood, Hail, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Yukon IT, Emergency Management, School Superintendant
Scheduled Completion	On-going as needed
Cost Estimate	$250.00 per unit
Funding Sources	HMGP, City budget, School budget
Goal Addressed	Protect lives and property. Improve ability to monitor and transmit warnings. Ensure continuity of government and critical services.
Current Action Status	On-going as locations are identified. In progress

Action Project 14 - All Hazards Public Information/Education

Description	Develop an all-hazard public information and awareness program. Provide disaster training to city staff and workers where appropriate. Channel 20 (Yukon Public Channel), Distribution of signs and pamphlets, news outlets, etc.
Hazards Addressed	Dam Failure, Drought, Earthquake, Expansive soil, Extreme heat, Flood, Hail, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Emergency Manager, Fire Department, School superintendant
Scheduled Completion	Continuing annually
Cost Estimate	$ 35,000.00 annually
Funding Sources	HMGP, General budget, Federal Emergency Management Agency (FEMA), Association of Central Oklahoma Governments (ACOG).
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	Completed and continuing annually or as needed for personnel changes.

Action Project 15 – GIS and GPS Mapping

Description	Acquire and utilize GIS and GPS technologies to record and maintain information on public infrastructure, private safe rooms and private water wells.
Hazards Addressed	Dam Failure, Drought, Earthquake, Flood, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Community Development, Public Works, School superintendant
Scheduled Completion	On-going and continuing as needed
Cost Estimate	$300,000
Funding Sources	HMGP, General budget, Federal Emergency Management Agency (FEMA).
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards. Ensure continuity of government and critical services.
Current Action Status	In progress, Some GIS and GPS equipment have been acquired, other equipment is still needed, and mapping is currently in progress.

Action Project 16 – Maintain Flood Administrator

Description	The City of Yukon will continue to maintain a floodplain administrator to oversee and monitor construction in the floodplain.
Hazards Addressed	Dam Failure, Flood,
Jurisdictions Affected	City of Yukon
Responsible Party	Local elected officials
Scheduled Completion	On-going and continuing
Cost Estimate	N/A
Funding Sources	Local funds
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	New action project for plan update

Action Project 17 – NFIP Continued Participation

Description	The City of Yukon will maintain their status as a member in good standing with the NFIP.
Hazards Addressed	Dam Failure, Flood
Jurisdictions Affected	City of Yukon
Responsible Party	Floodplain Administer and local elected officials
Scheduled Completion	On-going and continuing
Cost Estimate	N/A
Funding Sources	Local funds
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	New action project for plan update

Action Project 18 – Floodplain Ordinance Compliance

Description	The City of Yukon will continue to regulate and enforce its floodplain regulations and will update said regulations as needed to comply with NFIP requirements.
Hazards Addressed	Dam Failure, Flood
Jurisdictions Affected	City of Yukon
Responsible Party	Floodplain Administrator
Scheduled Completion	Continuing
Cost Estimate	N/A
Funding Sources	Local funds
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	New project for plan update

Action Project 19 – Window Film

Description	Install impact resistant window film on windows of critical facilities to prevent foreign objects from penetrating windows and prevent glass shattering.
Hazards Addressed	Earthquake, Extreme Heat, Hail, Tornado, Wind
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Local elected officials, school superintendants
Scheduled Completion	Continuing as locations are identified as critical facilities
Cost Estimate	$1,000.00 – 75,000.00 depending on facility, number, and size of windows
Funding Sources	HMGP, local, and school funds
Goal Addressed	Protect lives and property.
Current Action Status	New project for plan update

Action Project 20 - Population Mapping

Description	Update 24 hour population mapping for the City of Yukon.
Hazards Addressed	Dam Failure, Drought, Earthquake, Extreme heat, Flood, Hail, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon
Responsible Party	Emergency Management, Fire Department
Scheduled Completion	On-going, Annual Update
Cost Estimate	$10,000.00
Funding Sources	General fund
Goal Addressed	Protect lives and property. Improve ability to monitor and transmit warnings. Expand education, training and public information in regard to all hazards.
Current Action Status	Completed and updated annually

Action Project 21 - Home Fire Protection

Description	Develop a public education program on fire safety in and around the home and workplace. Provide smoke detectors, CO2 monitors, and extinguishers to local citizens.
Hazards Addressed	Wildfire
Jurisdictions Affected	City of Yukon
Responsible Party	Emergency Management, Fire Department
Scheduled Completion	Continuing annually with funding
Cost Estimate	$60,000.00 annually
Funding Sources	HMGP, AFG, Local funds
Goal Addressed	Protect lives and property.
Current Action Status	Project for education has been performed over the past plan cycle. Project has been updated to meet the current needs of the community.

Action Project 22 - Individual Safe Room Rebate Program

Description	Conduct an individual safe-room rebate program for citizens in the City of Yukon.
Hazards Addressed	Hail, High winds, Tornado
Jurisdictions Affected	City of Yukon
Responsible Party	Emergency Management
Scheduled Completion	On-going and continuing as needed and funding becomes available
Cost Estimate	$4,000.00 per installation
Funding Sources	HMGP, General fund
Goal Addressed	Protect lives and property.
Current Action Status	Deferred due to lack of funding at the local level

Action Project 23 - Backup 911/EOC Facilities

Description	Provide planning for alternate / backup facilities for the 911 Center and the Emergency Operations Center.
Hazards Addressed	Dam Failure, Earthquake, Flood, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon
Responsible Party	Emergency Management
Scheduled Completion	18 months with funding
Cost Estimate	$55,000.00
Funding Sources	HMGP, Department of Homeland Security, Local funds
Goal Addressed	Protect lives and property. Improve ability to monitor and transmit warnings. Ensure continuity of government and critical services.
Current Action Status	In-progress, possible alternate locations are being identified

Action Project 24 – NFIP Public Information

Description	Produce and distribute public awareness information regarding flooding, the NFIP and flood insurance.
Hazards Addressed	Dam Failure, Flood
Jurisdictions Affected	City of Yukon
Responsible Party	Floodplain Administrator
Scheduled Completion	On-going
Cost Estimate	$15,000.00 annually
Funding Sources	HMGP, local funds
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	New project for plan update

Action Project 25 - Land Use Ordinances

Description	Develop land-use ordinances to control construction in flood-prone locations.
Hazards Addressed	Dam Failure, Flood
Jurisdictions Affected	City of Yukon
Responsible Party	Floodplain Director, Community Development, Public Works
Scheduled Completion	On-going
Cost Estimate	$5,000.00
Funding Sources	City budget
Goal Addressed	Protect lives and property. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	In-progress, Ordinances are reviewed and updated as needed.

Action Project 26 - Replace Culverts With Bridge

Description	Replace bridge #255 on Oak Ave 0.8 miles east of 11th street with a full span bridge and install rip rap to eliminate erosion.
Hazards Addressed	Flood
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Public Works
Scheduled Completion	18 months with funding
Cost Estimate	$200,000.00
Funding Sources	HMGP, Local budget
Goal Addressed	Protect lives and property. Ensure continuity of government and critical services. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	New project for the 2010 update of the Yukon Hazard Mitigation Plan.

Action Project 27 - Replace Culverts With Bridge

Description	Replace culverts at Bridge #249 on Foreman road 0.5 miles east of Frisco road with a pre-cast concrete box bridge and re-route/re-align the channel to reduce or eliminate flooding.
Hazards Addressed	Flood
Jurisdictions Affected	Yukon, Yukon School District
Responsible Party	Public Works
Scheduled Completion	18 month with funding
Cost Estimate	$200,000.00
Funding Sources	HMGP, Local budget
Goal Addressed	Protect lives and property. Ensure continuity of government and critical services. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	New project for the 2010 update of the Yukon Hazard Mitigation Plan.

Action Project 28 - Expansive Soil Testing

Description	Require soil testing on new construction projects for the existence of expansive soils on roads and critical facilities. Investigate codes/incentives for the construction of new foundations to mitigate expansive soil damage.
Hazards Addressed	Expansive soil
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Community development, Public Works
Scheduled Completion	On-going
Cost Estimate	Minimal
Funding Sources	Local budget
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards.
Current Action Status	Project continuing and modified to meet current needs of community

Action Project 29 - Elevation Bench Marks

Description	Establish elevation benchmarks in developed areas. Obtain elevation certificates for new home construction and major home additions.
Hazards Addressed	Dam Failure, Flood
Jurisdictions Affected	City of Yukon
Responsible Party	Floodplain Director
Scheduled Completion	30 months with funding
Cost Estimate	$250,000.00
Funding Sources	HMGP, OWRB, local funds
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	Project deferred, not a workable project in prior state. Project changed to meet the needs of the City of Yukon. Updated project to require citizens to obtain elevation certificates on new construction or additions.

Action Project 30 - Highway Message Boards

Description	Prepare weather/emergency-warning systems for interstate travelers, such as traveler message/information boards
Hazards Addressed	Dam Failure, Drought, Earthquake, Extreme heat, Flood, Hail, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon
Responsible Party	Elected officials
Scheduled Completion	12 months once funding becomes available
Cost Estimate	$50,000.00 – $400,000.00
Funding Sources	ODOT, HMGP, City budget
Goal Addressed	Protect lives and property. Improve ability to monitor and transmit warnings. Expand education, training and public information in regard to all hazards. Ensure continuity of government and critical services. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	In-progress, planning and research

Action Project 31 - Flood Prone Property Mitigation

Description	Implement structural and non-structural flood mitigation measures for flood-prone properties. Identify and reduce repetitive loss properties, and other measures as needed to reduce or eliminate flooding in the City of Yukon.
Hazards Addressed	Dam Failure, Flood
Jurisdictions Affected	City of Yukon
Responsible Party	Floodplain Director
Scheduled Completion	On-going and continuing as properties and projects are identified
Cost Estimate	To be determined by identified projects
Funding Sources	HMGP, Local funds
Goal Addressed	Protect lives and property. Expand education, training and public information in regard to all hazards. Reduce and/or eliminate flooding in the city of Yukon.
Current Action Status	On-going and continuing as properties and projects are identified

Action Project 32 - Foreign Language Translators

Description	Identify citizens who can serve as foreign language translators.
Hazards Addressed	Dam Failure, Drought, Earthquake, Expansive soil, Extreme heat, Flood, Hail, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon
Responsible Party	Emergency Manager
Scheduled Completion	On-going and continuing
Cost Estimate	$500
Funding Sources	HMGP, General budget, Federal Emergency Management Agency (FEMA).
Goal Addressed	Protect lives and property. Improve ability to monitor and transmit warnings. Expand education, training and public information in regard to all hazards.
Current Action Status	On-going and continuing with personnel changes

Action Project 33 - Hail Resistant Roofing

Description	Provide hail-resistant roofing for community buildings.
Hazards Addressed	Hail
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Community Development, School Superintendant
Scheduled Completion	12 months with funding
Cost Estimate	$1,000,000.00
Funding Sources	HMGP, General fund, School budget
Goal Addressed	Protect lives and property.
Current Action Status	In progress and continuing with roof replacements. Five buildings have had hail resistant roofing installed, others are needed.

Completed Action Projects

The following actions from the Yukon Hazard Mitigation Plan of 2006 have been completed.

Action Project – Haz Mat Teams/Equipment

Description	Develop and reinforce hazardous materials emergency equipment and response teams.
Hazards Addressed	Hazardous Materials Events
Jurisdictions Affected	City of Yukon
Responsible Party	Emergency Manager, Fire Department, Police Department
Scheduled Completion	July 1, 2005
Cost Estimate	$500,000
Funding Sources	General budget, Oklahoma Department of Human Services, Federal Emergency Management Agency (FEMA),
Goal Addressed	Protection of lives and property.
Current Action Status	Completed

Action Project - Reserve Water Supply

Description	Develop a secondary water supply system.
Hazards Addressed	Dam Failure, Drought, Earthquake, Expansive Soil, Flood, High Winds, Lightning, Tornado, Wildfire, Winter Storm
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Public Works
Scheduled Completion	July 1, 2009
Cost Estimate	$125 million
Funding Sources	General budget, Municipal Bonds
Goal Addressed	Protection of lives and property Ensure continuity of government and critical services
Current Action Status	Completed, Three points of water supply now exist.

Action Project - Mass Communications System

Description	Install an emergency communications network for fire, police, 911, EMT and other emergency operations.
Hazards Addressed	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, High winds, Lightning, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon
Responsible Party	Public safety director
Scheduled Completion	2009
Cost Estimate	$20,000.00
Funding Sources	City budget
Goal Addressed	Protection of lives and property. Improve ability to monitor and transmit warnings
Current Action Status	Completed October 2009

Action Project - School Vulnerability Inspection

Description	Inspect community schools for tornado and high wind vulnerability.
Hazards Addressed	High winds, Tornado
Jurisdictions Affected	Yukon Public School District
Responsible Party	School Superintendant, Fire Department
Scheduled Completion	Continuing upon request from School District
Cost Estimate	Personnel
Funding Sources	Local funds
Goal Addressed	Protection of lives and property
Current Action Status	Inspections have been completed, and are repeated upon request. Project in plan to install school safe rooms in facilities currently without adequate protection.

Action Project - Bridge Inspections

Description	Identify and classify bridges and low water crossings.
Hazards Addressed	Dam Failure, Earthquake, Flood, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon
Responsible Party	Public Works, Department of Transportation
Scheduled Completion	2009
Cost Estimate	$4,200.00
Funding Sources	ODOT, Local funds
Goal Addressed	Protection of lives and property. Reduce and or eliminate flooding in the city of Yukon
Current Action Status	Completed, Projects added to plan update for Improvement/Replacement of insufficient bridges/low water crossings.

Action Project - Fire Suppression System

Description	Install fire suppression systems for all city buildings.
Hazards Addressed	Wildfire
Jurisdictions Affected	City of Yukon
Responsible Party	Fire Department, Public Works
Scheduled Completion	2008
Cost Estimate	Unknown
Funding Sources	General fund
Goal Addressed	Protection of lives and property Ensure continuity of government and critical services
Current Action Status	Completed, fire extinguishers/suppression equipment installed in all city buildings. Fire code requirement.

Action Project - Wildfire Response Training

Description	Train and coordinate community fire, police, and public works on how to respond to a wildfire emergency.
Hazards Addressed	Wildfire
Jurisdictions Affected	City of Yukon
Responsible Party	Fire Department
Scheduled Completion	2007
Cost Estimate	Personnel man hours
Funding Sources	Department budgets
Goal Addressed	Protection of lives and property Expand education, training and public information to all hazards
Current Action Status	Completed, Personnel respond in accordance with their departments S.O.P.'s.

Action Project - Drought Identification

Description	Develop and implement plans to identify when a drought begins and ends.
Hazards Addressed	Drought
Jurisdictions Affected	City of Yukon
Responsible Party	Public Works
Scheduled Completion	July 2009
Cost Estimate	$1,000.00
Funding Sources	Yukon general fund
Goal Addressed	Improve ability to monitor and transmit warnings
Current Action Status	Complete. A method exist to measure water levels that once the water level drops below certain levels a water emergency is declared.

Action Project - Pollutant Collection Program

Description	Initiate/continue a city-wide household pollutant collection program, and build a year-round collection site.
Hazards Addressed	Hazardous Materials
Jurisdictions Affected	City of Yukon
Responsible Party	Public Works, EPA
Scheduled Completion	2007 and continuing
Cost Estimate	No extraordinary expense
Funding Sources	Yukon general fund
Goal Addressed	Protection of lives and property
Current Action Status	Complete, The cost of maintaining a collection site was found to be prohibitive so an intercity agreement was obtained with Oklahoma City. A recycling center does exist. Two times annually pollutants are collected and properly disposed of.

Action Project - City of Yukon Evacuation Plan

Description	Review and update warning and evacuation plans for areas at risk from all natural hazards where evacuation may be required.
Hazards Addressed	Dam Failure, Earthquake, Flood, Tornado, Wildfire, Winter storm
Jurisdictions Affected	City of Yukon, Yukon Public School District
Responsible Party	Emergency Management, School superintendant
Scheduled Completion	2008
Cost Estimate	$21,000.00
Funding Sources	Yukon general fund
Goal Addressed	Protection of lives and property
Current Action Status	Complete, the evacuation plan has been developed and, with the new mass communications system in place a method of warning and communications now exist. Review and updating continuing as needed for changing conditions.

Deleted Action Projects

The following actions are being deleted from the plan. Some actions are being combined with like actions such as public awareness and educational projects. Others are being deleted for being un-do-able or the desired results are being attained through other actions.

Action Project - Disaster Training

Description	Provide certified disaster training for city supervisory staff.
Current Action Status	Deleted from plan, Combined with Action Project 14, All Hazards Public Information and Education.

Action Project – Lightning Rods

Description	Install lightning rods for protection of Critical Facilities.
Current Action Status	The action committee determined this action would be ineffective and never pursued therefore it has been deleted from the plan.

Action Project - Hazardous Materials Routing

Description	Update the study for routing of hazardous materials through the community.
Current Action Status	Deleted from plan, Hazardous materials are not profiled in the hazard mitigation plan. Unrelated to Natural Hazards Mitigation.

Action Project - Address Identification

Description	Consider painting street names and house numbers on curbs for identifying addresses when landmarks are absent.
Current Action Status	Deleted from plan. GIS and GPS mapping should fulfill the intended purpose of this project for emergency services.

Action Project - Tree Trimming

Description	Provide for routine trimming of trees to reduce power outages during storms
Current Action Status	Deleted from plan, Local power provider responsible for tree trimming in vicinity of power lines. Local jurisdiction has no control.

Action Project - Heat Emergency Action Plan

Description	Develop a Heat Emergency Action Plan for the community.
Current Action Status	Deleted from plan, Heat emergencies will be covered in EOP.

Action Project - Drought Public Awareness

Description	Provide public awareness designed to communicate the potential severity of a drought and the appropriate public response.
Current Action Status	Action combined with Action Project #14, all-hazard public information and education.

Action Project - Haz Mat Teams/Equipment

Description	Develop and reinforce hazardous materials event equipment and response teams.
Current Action Status	Deleted – Identical to a duplicate action project.

Action Project - First Aid / CPR

Description	Teach community employees the symptoms of common, life-threatening emergencies and how to administer CPR and first aid.
Current Action Status	Deleted, Action combined with Action Project #14, all-hazard public information and education.

Action Project - Winter Weather Damage Prevention

Description	Provide public awareness on effective ways to monitor and avoid ice damage, frozen pipes, and snow loads on roof systems.
Current Action Status	Deleted, Action combined with Action Project #14, all-hazard public information and education.

Action Project - Heat Disorder Education

Description	Educate community employees on the symptoms of heat disorders and how to administer first aid.
Current Action Status	Deleted, Action combined with Action Project #14, all-hazard public information and education.

Action Project - Public Education on Dumping

Description	Provide public awareness programs relative to dumping household chemicals and automotive fluids into the sanitary sewer drain.
Current Action Status	Completed, Channel 20 (Yukon Public Channel), Distribution of signs and pamphlets. Deleted from plan, Action combined with Action Project #14, all-hazard public information and education.

Action Project - Outdoor Warning Education

Description	Educate the public on the different hazards that multi-sound warning sirens signify (e.g., tornado warning vs. flash-flood warning).
Current Action Status	Deleted, Only one tone used for tornado warnings, not a valid project.

Action Project - Day Care Safe Rooms

Description	Install safe-rooms in daycare centers.
Current Action Status	Deleted, Daycares are privately owned facilities over which the city has no control.

Action Project - Vehicle Sheltering

Description	Provide shelter for local government vehicles (e.g., Police, Public Works)
Current Action Status	Deleted, government vehicles are the vehicles on duty to provide protection and observe conditions during hazardous events.

Action Project - Bury Power Lines

Description	Reduce the number of overhead power lines through consolidating existing lines and burying new lines underground.
Current Action Status	Deleted, city has no control over power company.

Action Project - Fire Emergency Plan

Description	Develop a fire emergency plan that assures access by fire vehicles to all areas included in the rural/urban interface fire danger area.
Current Action Status	Removed from plan. This project refers to daily/normal standard practices for the fire department. There is no plan needed.

Action Project - Natural Hazards Education Plans

Description	Develop public information and education plans for responding to natural hazards and hazardous material events.
Current Action Status	Removed from plan, Combined with action project #14

Action Project - Tornado Shelter Programs

Description	Investigate community tornado shelter programs implemented in other cities or states.
Current Action Status	Deleted from plan, Not a valid project

Action Project - Lightning Warning

Description	Add lightning warning to the current warning siren system.
Current Action Status	Deleted, Only one tone is used on siren warning system in order to avoid confusion.

Action Project - Upgrade Equipment

Description	Upgrade communities' equipment and vehicles for combating ice storm damage / adverse impact to public infrastructure.
Current Action Status	Deleted, not a fundable project.

Action Project - Foundation Construction

Description	Investigate codes/incentives for the construction of new foundations to mitigate expansive soil damage.
Current Action Status	Deleted, Combined with project #28.

Action Project - Evacuation Plans

Description	Continue education and get funding to inform people on proper evacuation plans for city buildings, offices, and homes.
Current Action Status	Deleted, Combined with action project #20.

Action Project - Fire Extinguishers In Community Facilities

Description	Make sure fire extinguishers are strategically placed and properly maintained in all community facilities.
Current Action Status	Deleted, duplicated action. Complete, Combined with completed project.

Action Project - Fire Hydrant Backflow Preventers

Description	Apply for mitigation funding for fire hydrant meter backflow preventers.
Current Action Status	Deleted, not a practical project

Action Project - Wildfire Evacuation

Description	Develop a contingency plan for evacuating population endangered by a wildfire.
Current Action Status	Combined with action project #20

Action Project - Tornado/Earthquake Construction

Description	Provide public and builder awareness that construction techniques for mitigating tornado damage also mitigate earthquake damage.
Current Action Status	Deleted, Combined with action project #14

Action Project - Dam Release Rate Mapping

Description	Develop computerized GIS modeling program for mapping appropriate cubic feet per second (CFS) dam release rates.
Current Action Status	Deleted, Combined with action project #15

Action Project - Safer Community Partnerships

Description	Establish working partnerships involving local government leaders, civic, business, and volunteer groups to create a safer community.
Current Action Status	Deleted, normal city communications, not an actual project.

Action Project - Security And Surveillance

Description	Provide security and surveillance equipment for police and fire stations.
Current Action Status	Deleted. Police station completed, Fire station to be constructed

Action Project - Floodplain Mitigation For Homeowners

Description	Evaluate appropriate mitigation measures for homes located in the floodplain.
Current Action Status	Deleted, not an actual working project. Mitigation measures are determined on a one by one property basis.

Action Project - Community Safe Rooms / Storm Shelters

Description	Install community safe-rooms / storm shelters.
Current Action Status	Deleted, combined with Action #7

Action Project - Building Codes

Description	Investigate adopting building codes / incentives leading to construction that is more resistant to tornados and high winds.
Current Action Status	Deleted, building codes for the City of Yukon meet/exceed state codes.

Action Project - Code Requirements For Shingles

Description	Insure that community building code requires proper shingle installation.
Current Action Status	Deleted, The City of Yukon will follow state code requirements

Action Project - Whole House Surge Suppression

Description	Provide educational demonstrations and information on whole-house surge protection technology.
Current Action Status	Deleted, Combined with action project #14

Action Project - Lightning Public Awareness

Description	Educate the community about proper lightning safety through public service announcements and other media outlets.
Current Action Status	Deleted, Combined with action project #14

Action Project - Storm Spotters At Recreational Facilities

Description	Designate individuals at city recreation facilities who are educated in storm spotting and who have the authority to take proper action.
Current Action Status	Deleted, The action committee determined that this action would be better addressed in the EOP.

Action Project - Winterizing Structures

Description	Investigate winterizing exposed elements of residential and commercial structures.
Current Action Status	Deleted, The committee determined this was not a valid project for the city of Yukon at this time.

Action Project - Debris Management Plan Update

Description	Update the debris management plan.
Current Action Status	Deleted, current debris management plan is in final stages of development and will be updated as situations mandate changes are needed. Combined with action project #9

Action Project - Public Awareness Distribution Materials

Description	Obtain funding for providing public awareness materials to vulnerable populations through participating community agencies.
Current Action Status	Deleted, combined with action project #14

Action Project - Building Code Foundation Piers

Description	Require foundation piers as part of the building code.
Current Action Status	Deleted, Project action committee determined this action would never gain acceptance or approval of citizens or elected officials for implementation.

Action Project - Wildfire Risk Warnings

Description	Develop a warning plan based on drought conditions and moisture measurements to alert officials of increased risk of wildfire.
Current Action Status	Deleted, the City of Yukon monitors and uses the system already in place and provided by the State of Oklahoma. No logical reason found to duplicate efforts.

Action Project - Public Awareness On Fire Resistant Materials

Description	Investigate and raise public awareness of fire-resistant materials for buildings.
Current Action Status	Deleted, this action project combined with action project #14

Action Project - Controlled Burns Public Education

Description	Provide public education on controlled burns and use of fire-retardant vegetation.
Current Action Status	Deleted, this action project combined with action project #14

Action Project - Earthquake Building Codes

Description	Consider adopting residential building codes that require earthquake-resistant construction, such as using foundation piers.
Current Action Status	Deleted, Yukon follows state building code requirements. Project action committee determined this action would never gain acceptance or approval of citizens or elected officials for implementation.

NFIP Participation

The City of Yukon is a member of the National Flood Insurance Program. The City of Yukon became a member on September 28, 1979 with the FIRM identified September 28, 1978. The current Effective Map date is September 26, 2008. The City of Yukon will maintain their member status in the NFIP and update their floodplain ordinances to meet or exceed the minimum standards as set forth by the NFIP as needed.

There are seven identified Hazard Mitigation Action Projects identified in the Yukon Hazard Mitigation Plan incorporating flood plain activity. Those projects, listed below, are listed in the order in which they were prioritized.
The seven action items are:

- #8 Update/Verify FIRM maps
- #16 Maintain a floodplain administrator
- #17 NFIP Continued participation
- #18 Floodplain ordinance compliance
- #24 NFIP public information
- #25 Land use ordinances
- #31 Flood prone property mitigation

The City of Yukon is a participating member of the NFIP and as such, the citizens of Yukon are eligible to purchase flood insurance through the NFIP. This is an economical advantage to the citizens of Yukon. Flood insurance through independent insurance carriers would be prohibitive due to cost if available at all. Yukon will continue their participation in the NFIP and continue to maintain and update floodplain ordinances in line with NFIP requirements. Flood plain ordinances will continue to be enforced in Special Flood Hazard Areas (SFHA's). City officials will continue to promote and encourage flood insurance and public participation in the NFIP.

Permitting for structures in the City of Yukon is required by ordinance. All construction within the city limits is required to be permitted. In order to receive the required permit, the proper documentation is required. If the property is located in the SFHA a site elevation certificate is required and the structure must comply with floodplain ordinances by being elevated.

Any request for a permit that is received is compared to the flood plain map and consideration for issuing of the permit is based upon meeting requirements set by the city floodplain ordinances.

Chapter Five

Prioritization

CHANGES TO CHAPTER 5

Each section of the plan was analyzed and reviewed by members of the Yukon Hazard Mitigation Planning Team (YHMPT) to determine whether updates to the plan were necessary. Chapter Five was reviewed by members of the YHMPT who determined that updating was required. The following updates were made:

- ✓ Prioritization was changed from a statement that projects were prioritized to use of the STAPLEE Method as provided in the FEMA publication #386 “How-To guides”.

For the 2010 update of the Yukon Hazard Mitigation Plan, the STAPLEE Method was followed to prioritize the action items described in chapter 4.

The following table was provided to the Hazard Mitigation Action Committee and was used as guidance in the prioritization process.

Evaluation Category	S.T.A.P.L.E.E. Prioritization Method
Social	Is this project socially acceptable to the general public? Will the public at large be in favor of completing this project?
Technical	What kind of technical problems could arise? Do you need an engineering study? Land owners consent? Historical, EPA, restrictions? Etc. Does the jurisdiction have staff with the technical knowledge that will be required to complete this project?
Administrative	Does your jurisdiction have the people with the expertise needed to oversee this project and see that it is completed correctly and that funds are administered properly?
Political	Will the local elected government officials approve of this project and back it with the authority of their office?
Legal	Is there anything illegal involved in this project? Would this project result in a lawsuit or legal issues?
Economic	Is this project economically feasible? The jurisdiction will be responsible for approximately 25% of the cost of this project in cash or in-kind contributions. (Time, donated resources) Will the benefit of this project be greater than the cost of the project? Special emphasis was given to cost benefit analysis during prioritization.
Environmental	What will the environmental impact of this project be? How will it affect the environment or your neighbors?

Using the above criteria, evaluate each of the following action projects from one (1) to four (4) using your opinion of how each criterion applies to each project. One (1) is least desirable, and Four (4) is the most desirable.

Projects were prioritized from the highest to the lowest score received. Special emphasis was placed on the cost – benefit of each action and, where actions scored the same total point values, the action with the highest economical scoring was given greater priority followed by the social criterion.

Mitigation Items	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Totals	Priority
Evaluate / upgrade outdoor warning systems	34	30	32	33	22	24	27	202	1
Fire response plan	31	30	29	27	27	28	27	199	2
Power outage response plan	34	26	29	32	25	23	25	194	3
Harden EOC Server Equipment Room	26	26	29	27	25	27	23	183	4
Weather radios for critical facilities	32	28	27	27	23	24	22	183	5
Harden City Hall Server Equipment Room	26	26	29	28	25	26	22	182	6
Community / School saferooms	31	28	28	26	21	25	22	181	7
Update/verify FIRMS, Perform drainage study	26	26	28	27	22	25	27	181	8
Debris management plan	28	25	27	27	21	24	29	181	9
Community/School Mass Communications Systems	27	26	26	27	23	24	28	181	10
Hazard material response plan	31	19	26	29	24	21	30	180	11
Water line upgrade/resizing	30	26	27	24	19	24	24	174	12
Surge protection / power backup	27	30	25	27	21	22	22	174	13
All hazards public information/education	29	24	28	27	21	21	23	173	14
GIS and GPS mapping	23	27	24	25	23	26	22	170	15
Maintain a floodplain administrator	22	28	27	26	22	22	22	169	16
NFIP continued participation	24	27	26	25	20	23	23	168	17
Floodplain ordinance compliance	25	26	26	25	17	21	24	164	18

Mitigation Items	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Totals	Priority
Window Film Schools and Critical Facilities	25	25	26	23	21	21	23	164	19
24 hour population mapping	24	28	27	23	20	21	21	164	20
Home fire protection / CO2 monitors and extinguishers	24	28	24	21	23	20	24	164	21
Individual saferoom rebate program	28	22	24	25	19	26	18	162	22
Locate/identify backup 911 / EOC facilities	26	27	25	27	17	20	18	160	23
NFIP Public Information	25	25	24	25	14	19	22	157	24
Land use ordinances	21	24	26	22	17	20	24	154	25
Replace culverts with bridge on Oak Ave	23	22	21	23	18	22	20	149	26
Replace culverts with bridge on Foreman Rd	23	21	22	22	18	20	19	145	27
Expansive soil testing, road and new facility projects	19	22	22	20	16	20	23	142	28
Elevation bench marks	22	23	21	20	14	19	20	139	29
Highway message boards	22	20	22	21	16	19	16	136	30
Flood prone property mitigation	20	21	19	19	19	18	19	135	31
Identify foreign language translators	13	14	16	18	18	12	15	106	32
Hail resistant roofing	17	19	20	18	18	16	16	124	33

CHAPTER SIX

Plan Maintenance

Changes to Chapter Six

Each section of the plan was analyzed and reviewed by members of the Yukon Hazard Mitigation Planning Team (YHMPT) to determine whether updates to the plan were necessary. Chapter Six was reviewed by the YHMPT who determined that updating was required. The following updates were made:

- ✓ Chapter Six reformatted

During the past five year period the plan maintenance section of the 2004 Hazard Mitigation Plan was carried out as written. During the time since the 2004 plan was approved; many of the action projects have been completed and noted for the five year update. Possible action projects to be added to the plan were noted and have been included in this update.

Monitoring, Evaluating, and Updating Plan:

The City of Yukon Emergency Manager is the chairman of the YHMPT and will perform any necessary monitoring site visits on a monthly basis. He or she will also be the lead contact for phone calls, scheduling of meetings, and will:

- Monitor the hazard analysis for changes and additions.
- Monitor objectives and determine if they meet current and expected hazardous conditions.
- Determine if there were any implementation problems, such as social, technical, administrative, political, legal, economic, and environmental or coordination issues with other agencies.

Additionally the Emergency Management Director will give the City Manager a monitoring update report annually. The report will highlight the results of the previously mentioned activities. The plan will remain an active and relevant document with continued public participation.

The Emergency Management Director will evaluate the Natural Hazard Mitigation Plan every year to determine the effectiveness and/or progress of mitigation actions and the implementation of other actions.

Items covered during the evaluation process should include:

- Evaluate magnitude of risk and determine if it has changed.
- Evaluate current resources and determine if they are appropriate for implementing mitigation actions.
- Determine if there were any implementation problems, such as technical, political, legal, or coordination issues with other agencies.
- Evaluate goals, objectives, and current or expected conditions
- Evaluate how other agencies and partners have participated.
- Evaluate mitigation actions and determine if outcome occurred as expected.
    - Was the intended purpose of the original mitigation action met?
    - Was the mitigation action met in the proposed timeline?
    - Did the listed agencies participate in the mitigation action?
    - Did mitigation action stay within the proposed budget?

The plan will continue to be monitored, evaluated and updated annually during the five-year cycle and anytime there is a disaster to determine the effectiveness in or changes to programs that might affect mitigation priorities. Beginning on the fourth year, the Yukon Emergency Management Director will make all plan revisions final and submit the updated Hazard Mitigation Plan to the State of Oklahoma Hazard Mitigation Division and FEMA for review and approval six months before the end of the fifth year so that the jurisdiction will maintain eligibility.

Implementation Through Existing Programs:

The Emergency Management Director is responsible for monitoring the Emergency Operations Plan and integrating the Hazard Mitigation Plan into it along with any updates on an annual basis. Each year as the EOP was reviewed and updated, the hazard analysis and proposed future changes from the hazard mitigation plan was considered and where appropriate integrated into the EOP. The Emergency Management Director is in continual contact with other city department directors to ensure changes that may affect departmental SOP's or city codes and ordinances are updated along with the hazard mitigation plan as needed. The Emergency Management Director gives the Yukon City Manager monitoring reports annually. Changes from the Hazard Mitigation Plan, Emergency Operations Plan, SOP's, and city codes and ordinances are incorporated as needed. As changes are made they are incorporated into other plans at

their regularly scheduled updates and noted in the HMP for change at the five year update. Changes made to the EOP are submitted to the City Manager for review and approval before being sent to the State Emergency Management Office. None of the changes made to the EOP since the development of the 2004 Hazard Mitigation Plan have proven to be relevant to the HMP and therefore no changes have been incorporated. The plan will remain an active and relevant document with continued public participation.

Continued Public Participation and Involvement:

Public participation is an important part of the planning process and public input or the lack there of can be instrumental in the success or failure of the plan. The public will be invited to participate in annual open forum meetings and will be notified through legal newspaper notices, mailings, and personal invitations by phone. The public input will be reviewed and where appropriate, incorporated in the Hazard Mitigation Plan, consistent with the update schedule.

City of Yukon

Oklahoma

Appendices

APPENDICES

Appendix A – Plan Organization:

- Mailing List
- Letters of Invitation
- Meeting Roster/Minutes
- Meeting Notices/Publicity

Appendix B – Maps

- Yukon City Limits
- Yukon School Districts
- Yukon Fire Station Locations
- Yukon Wild land Urban Interface (WUI)
- Canton Lake Dam location from City of Yukon
- Canton Dam Inundation Zone
- FIRM Maps

Appendix C – Critical Facilities: Not for Public Distribution

Appendix A- Plan Organization

List of Hazard Mitigation Planning Team Members

Frosty Peak
Emergency Management Director
City of Yukon

John Bridges
Fire/EMS Coordinator
City of Yukon

Matthew Maly
Public Works Utility Manager
City of Yukon

Mitchell Hart
Community Development
City of Yukon

Scarlet Owen
Community Development
City of Yukon

Anna Waggoner
Stormwater Department
City of Yukon

Laura Fried
Executive Director
American Red Cross

Sandy Meier
Executive Director
Chamber of Commerce

Dennis Adler
Citizen
Parkland Addition

Ward Larson
City Council
City of Yukon

Kent Mathers
Assistant Superintendent
Yukon Public Schools

Gary Cooper
Technology Director
City of Yukon

Mucio Macedo
Citizen/NW Coordinator
Rosewood Home Owners Assoc.

Leon Corn
Builder/Developer
River Birch Estates

Cheryl Drabek
Citizen/Contact Person
Von Elm East Neighborhood Watch

Cam Dooley
Citizen
Von Elm Subdivision

Donna Alloway
Campus Director
Canadian Valley Technology Center

James Crosby
City Manager
City of Yukon

Corby Poursabe
EM Assistant
Yukon Emergency Management

List of Hazard Mitigation Project Committee

J.R. Reed
Public Works
City of Yukon

Mitchell Hort
Community Development Director
City of Yukon

Anna Waggoner
GIS/Stormwater
City of Yukon

Gary Cooper
Technical Director
City of Yukon

Scarlet Owen
Community Development
City of Yukon

Corby Poursabe
EM Assistant
Yukon Emergency Management

John L. Bridges
EMS Trainer
Yukon Fire Department

Dana Deckard
Administration
City of Yukon

Matthew Maly
Public Works Utility Manager
City of Yukon

John Taylor
Fire Inspector
City of Yukon Fire Department

Teresa Kemerley/Stover
Coordinator
City of Yukon Public Works

Ward Larson
City Council
City of Yukon

Kent Mathers
Assistant Superintendent
Yukon Public Schools

Scott Heinz
Assistant Principal
Yukon Public Schools

Floyd Sisk
Captain
Yukon Fire Department

Frosty Peak-Chairman
Director
City of Yukon Emergency Management

Action Project Committee members appointed at March 29, 2010 Meeting

This committee was formed from knowledgeable and expert members of the Yukon Mitigation Planning Team to work primarily on developing action projects that would be most beneficial to the citizens of Yukon. They met on March 29, 2010 (see below) and completed a recommended list of action projects to be presented to the YMPT at their meeting on June 15, 2010. The project list was approved and is listed in Chapter 5.

Frosty Peak
Emergency Management Director
City of Yukon

John Bridges
Fire/EMS Coordinator
City of Yukon

Matthew Maly
Public Works Utility Manager
City of Yukon

Mitchell Hart
Community Development
City of Yukon

Scarlet Owen
Community Development
City of Yukon

Anna Waggoner
Stormwater Department
City of Yukon

Laura Fried
Executive Director
American Red Cross

Sandy Meier
Executive Director
Chamber of Commerce

Dennis Adler
Citizen
Parkland Addition

Ward Larson
City Council
City of Yukon

Kent Mathers

Gary Cooper

Assistant Superintendent
Yukon Public Schools

Mucio Macedo
Citizen/NW Coordinator
Rosewood Home Owners Association

Cheryl Drabek
Citizen/Contact person
Von Elm East Neighborhood Watch

Donna Alloway
Campus Director
Canadian Valley Technology Center

Corby Poursabe
EM Assistant
Yukon Emergency Management
Dana Deckard
Administration
City of Yukon

Teresa Kemerley/Stover
Public Works Coordinator
City of Yukon

Floyd Sisk
Captain
Yukon Fire Department

Technology Director
City of Yukon

Leon Corn
Builder/Developer
River Birch Estates

Cam Dooley
Citizen
Von Elm Subdivision

James Crosby
City Manager
City of Yukon

J.R. Reed
Public Works Department
City of Yukon
John Taylor
Fire Inspector
City of Yukon

Scott Heinz
Assistant Principal
Yukon Public Schools

LETTERS OF INVITATION

February 2, 2010

_____
_____
_____

Dear _____;

The City of Yukon Council, the City of Yukon Planning/Grants Department, Emergency Management and Hazard Mitigation Specialists, LLC are joining with the citizens of Yukon to write a Natural Hazard Mitigation Plan. The process has already begun as the Council recently hired a consulting firm, Hazard Mitigation Specialists LLC to assist in developing our plan. We are inviting you and an alternate of your choosing to be a member of this very important team.

This plan provides a guide for the next five years for projects that are designed to reduce or eliminate the effects of natural disasters on the citizens of Yukon. The individuals on this team will be the "workhorses" and community experts who can provide critical local information to the success of this plan and projects developed.

Since this plan includes the City of Yukon and Yukon Public Schools, our planning team will involve a selection of people from different areas of Yukon which will allow all areas to be examined. Time to complete this plan is very short. It is anticipated it will be necessary to hold 3-4 meetings over the next few months to accomplish this project. Our first meeting will be a public meeting on Tuesday, February 9, 2010 at 2:00 P.M. in the Community Room of the Yukon Police Department.

If you are willing to serve on this very vital team, please attend this first meeting if at all possible. If you have any questions, please contact me at 405-350-5413. This is an important service to the City of Yukon and the Yukon Public Schools.

Sincerely,

Frost Peak

Yukon Emergency Management Director

2/10/2010

_____
_____
Yukon, Oklahoma 73099

Dear _____;

The City of Yukon Council, the City of Yukon Planning/Grants Department, Emergency Management and Hazard Mitigation Specialists, LLC are joining with the citizens of Yukon to write a Natural Multi-Hazard Mitigation Plan.

The Introductory Meeting was February 9, 2010, at 2:00 P.M. At that meeting several individuals agreed to participate in helping developing that plan. If you took an agreement at the last meeting, please bring your signed agreement to this meeting or drop it off at City Hall.

We need your help and we have room for new members. This plan will provide a guide for the next five years for projects designed to reduce or eliminate the effects of natural disasters on the citizens of Yukon. The plan, once approved, will allow the City and the Public School Systems to be eligible to apply for Mitigation Funding.

The plan includes the City of Yukon, Yukon Public Schools and our planning team. This team will involve a selection of people from the different areas of Yukon.

At this second meeting the team will start to develop the critical local information needed to insure the success of the plan. It will be necessary to hold several meetings to complete this project. This second public meeting will be held on Tuesday, March 9th at 2:00 P.M. in the Yukon Police Department Community Room.

If you have any questions, please contact me at 405-350-5413. This is an important service to the City of Yukon and the Yukon Public Schools.

Sincerely,

Frost Peak
Yukon Emergency Management Director

NOTE: notices of additional meetings of the HMP Team were e-mailed to participants instead of mailing letters.

3/25/2010

Dear YHMPT Committee Member;

RE: *Committee meeting 03-29-2010*

We have scheduled the first meeting of your **Project Committee** to develop the YHGMP recommendations at 2:00 PM Monday, March 29, 2010 at the Yukon Police Department Community Room.

The consultants from Hazard Mitigation, LLC will be there to assist us and answer questions.

Thank you again for your participation in developing our plan.

Respectfully,

Frost Peak
Yukon Emergency Management Director

NOTE: notices of additional meetings of the HMP Project Committee were e-mailed to participants instead of mailing letters.

CONTACT MAILING LIST

Mr. Jim Crosby
PO Box 850500
Yukon, OK 73085

Mayor Bob Bradway
521 Mark Ave.
Yukon, OK 73099

Representative Colby Schwartz
12228 SW 7th Circle
Yukon, OK 73099

Congressman Frank Lucas
10952 NW Expressway, Ste 8
Yukon, OK 73099

Vice Mayor Earline Smaistria
200 E. Beech Ave.
Yukon, OK 73099

Council Member Ward Larson
2520 W. Olympic Drive
Yukon, OK 73099

Council Member Dewayne Maxey
PO Box 850500
Yukon, OK 73085

Council Member John Tipps
325 Carlsbad Court
Yukon, OK 73099

Mr. Conrad Dudderar
110 S. 5th Ave.
Yukon, OK 73099

Ms. Klare Ly
100 S. Ranchwood Blvd.
Yukon, OK 73099

Mr. Doug Shivers
PO Box 850500
Yukon, OK 73085

Mr. Michael Maimfeldt
PO Box 850500
Yukon, OK 73085

Mr. Mitchell Hort
528 W. Main
Yukon, OK 73099

Mr. Mike Segler
501 West Main Street
Yukon, OK 73099

Ms. Anna Waggoner
532 W. Main
Yukon, OK 73099

Mr. James Moore
1201 Health Center Parkway
Yukon, OK 73099

Mr. John Bridges
960 E. Main Street
Yukon, OK 73099

Deputy Chief John Corn
100 S. Ranchwood Blvd
Yukon, OK 73099

Mr. Bill Denton
600 Maple
Yukon, OK 73099

Mr. Fred Rhodes
600 Maple
Yukon, OK 73099

Mr. Leon Corn
1301 River Birch Drive
Yukon, OK 73099

Ms. April Stewart
1200 Garth Brooks Blvd
Yukon, OK 73099

Chief Richard King
302 South Fifth Street
Yukon, OK 73099

Mr. Gary Wieczorek
100 S. Ranchwood Blvd.
Yukon, OK 73099

Mr. Robbie Williams
3020 NW 149th Street
Oklahoma City, OK 73134

Mr. J.R. Reed
904 Industrial Dr.
Yukon, OK 73099

Mr. Kent Mathers
600 Maple
Yukon, OK 73099

Mr. John Nail
901 Stone Creek Blvd
Yukon, OK 73099

Mr. C. Sherman Huff
11 Palm Ave
Yukon, OK 73099

Mr. David Pena
1200 Garth Brooks Blvd
Yukon, OK 73099

Mr. Larry Travis
2400 S. Cornwell Dr.
Yukon, OK 73099

Ms. Kathy Short
1110 South Cornwell Drive
Yukon, OK 73099

Ms. Joan Wolfe
1129 Cameo Drive
Yukon, OK 73099

Mr. Bill Bradley
6505 East Highway 66
El Reno, OK 73036

Major General Myles Deering
3535 Northeast Military Circle
Oklahoma City, OK 73111

Mr. Bill Penka
PO Box 53365
Oklahoma City, OK 73152

Mr. G. Randy Keller
100 East Boyd Street, Ste N131
Norman, OK 73019

Mr. Randy Wright
401 Elm Street
Yukon, OK 73099

Ms. Tracy Chlouber
2730 North Mustang Road
Yukon, OK 73099

Mr. Doug Tippens
2500 S. Cornwell Drive
Yukon, OK 73099

Ms. Donna Alloway
1701 South Czech Hall Road
Yukon, OK 73099

Mr. Mike Foster
121 David L. Boren Blvd.
Suite 2400
Norman, OK 73072

Mr. Al Armendariz
1445 Ross Avenue, Ste 1200
Dallas, Texas 75202

Col. Van M. Guillotte
3600 N. Martin Luther King Blvd.
Oklahoma City, OK 73136

Mr. Hardy Watkins
120 N. Robinson, 6th Floor
Oklahoma City, OK 73102

Ms. Sandy Meir
510 Elm Avenue
Yukon, OK 73099

Ms. Cheryl Drabek
4713 Elk Run
Yukon, OK 73099

Mr. Bill Martin
11216 Sturbridge
Yukon, OK 73099

Ms. Laurie Mason Fried
PO Box 906
El Reno, OK 73036

Mr. Mucio Macedo
1017 Tea Rose
Yukon, OK 73099

Mr. Ken Smith
1136 Snow Mass
Yukon, OK 73099

Mr. Don Hardaway
Yukon, OK 73099

MEETING ROSTER/MINUTES

HMP Team Meeting 2/9/2010

NAME OF ORGANIZATION: YUKON HAZARD MITIGATION PLANNING TEAM **PURPOSE OF MEETING:** Introduction for Development of a new Hazard Mitigation Plan **DATE/TIME:** February 9, 2010 **LOCATION:** Yukon Police Department Community Room **CHAIRPERSON:** Mr. Frosty Peak		
Topic	**Discussion/Action**	**Person Responsible/ Contributors**
1. Introduction	Introduction of contractor hired to help Yukon develop a new Hazard Mitigation Plan	Frosty Peak
2. Why are we here?	Reviewed purpose of a Hazard Mitigation Plan and definitions and the need for input from local officials and citizens. Expressed importance of involvement. Introduced the Agreement to Serve form and asked that all that were willing to serve to fill out the form.	David Van Nostrand Judy Soos Steve Somerlott Hazard Mitigation Specialists, L.L.C.
3. Goals and Action Projects	Due to the urgency of the Yukon Plan, the team was introduced to the purpose of the goals and action projects. Only a few suggestions were made at this meeting however they were asked to consider the possibilities before the next meeting and bring their ideas with them.	David Van Nostrand Judy Soos Steve Somerlott
4. Adjournment	The meeting was adjourned	Frosty Peak

	YUKON HAZARD MITIGATION PLANNING TEAM MEETING 2/9/2010		
	Name	**Representing**	**Position**
1	Jerry Reed	City of Yukon	Public Works
2	Mucio Macedo	Citizen/NW Coordinator	Rosewood Home Owners Assoc.
3	Cheryl Drabek	Citizen/Contact Person	VonElm East Neighborhood Watch
4	Mitchell Hart	City of Yukon	Community Development
5	David Pena	Target	General Manager
6	Anna Waggoner	City of Yukon	GIS/Stormwater
7	Gary Cooper	City of Yukon	Technical Director
8	Scarlet Owen	City of Yukon	Community Development
9	Michael Maimfeldt	City of Yukon	City Treasurer
10	Tracy Chlouber	Ranchwood Nursing Home	Administrator
11	Ken Smith	Yukon	Citizen
12	Laura Fried	American Red Cross	Executive Director
13	Doug Tippens	Bank of Commerce	President/CEO
14	Klare Ly	Yukon Police	Community Affairs

	YUKON HAZARD MITIGATION PLANNING TEAM MEETING 2/9/2010		
	Name	**Representing**	**Position**
15	Corby Poursabe	Yukon EM	EM Assistant
16	Steve Somerlott	Hazard Mitigation Specialists, L.L.C.	Co/Manager
17	Jennifer Koebrick	Cheyenne & Arapaho EM	Deputy Director
18	James Nimrod	Cheyenne & Arapaho EM	Director
19	Joan Wolfe	Victorian Estates	Administrator
20	William Allen	Victorian Estates	Mental Health

21	John Bridges	Yukon FD	EMS Trainer
22	Johns Corn	Yukon PD	Deputy Chief
23	Leon Corn	River Birch Estates	Builder/Developer
24	Craig Kerr	OK Military Dept.	Deputy Director
25	Dennis Adler	Yukon	Citizen
26	Ward Larson	City of Yukon	City Council
27	Kent Mathers	Yukon Public Schools	Assist. Superintendent

	YUKON HAZARD MITIGATION PLANNING TEAM MEETING 2/9/2010		
	Name	**Representing**	**Position**
29	Cam Dooley	Yukon	Citizen
30	Donna Alloway	Canadian Valley Technology Center	Campus Director
31	Jim Powell	Yukon Review	Staff Writer
32	James Crosby	City of Yukon	City Manager
33	Jan Scott	City of Yukon Parks/Rec	Director
34	Brent Going	Integris Canadian Valley Hospital	Safety Officer
35	Floyd Sisk	Yukon FD	Captain
36	David Van Nostrand	Hazard Mitigation Specialists, L.L.C.	Co/Manager
37	Frosty Peak	City of Yukon	Emergency Management
38	Judy Soos	Hazard Mitigation Specialists, L.L.C.	Planner

HMP Team Meeting 3/9/2010

NAME OF ORGANIZATION: YUKON HAZARD MITIGATION PLANNING TEAM **PURPOSE OF MEETING:** Hazard Mitigation Plan **DATE/TIME:** March 9, 2010 **LOCATION:** Yukon Police Department Community Room **CHAIRPERSON:** Mr. Frosty Peak		
Topic	**Discussion/Action**	**Person Responsible/ Contributors**
5. Introduction	Reviewed purpose of a Hazard Mitigation Plan	David Van Nostrand
6. Why are we here?	Reviewed projects from previous Hazard Mitigation Plan	Steve Somerlott
7. Goals and Action Projects	Discussed Goals and Action Plans	Steve Somerlott Judy Soos
8. Adjournment	The meeting was adjourned	Frosty Peak

	YUKON HAZARD MITIGATION PLANNING TEAM MEETING 3/9/2010		
	Name	**Representing**	**Position**
1	David Van Nostrand	Hazard Mitigation Specialists, L.L.C.	Co/Manager
2	Frosty Peak	City of Yukon	Emergency Management
3	Corby Poursabe	City of Yukon	EM Assistant
4	John Taylor	Yukon FD	Fire Inspector
5	Leon Corn	City of Yukon	Builder/Developer
6	John Bridges	Yukon FD	Fire/EMS Coordinator
7	Dennis Adler	Parkland Addition	Citizen

8	Ward Larsen	City of Yukon	City Council
9	Matt Maly	City of Yukon	Public Works Utility Manager
10	James Crosby	City of Yukon	City Manager
11	Scarlett Owen	City of Yukon	Community Development
12	Anna Waggoner	City of Yukon	Stormwater Manager
13	Sandy Meier	Chamber of Commerce	Executive Director
14	Laura Fried	American Red Cross	Executive Director

	YUKON HAZARD MITIGATION PLANNING TEAM MEETING 3/9/2010		
	Name	**Representing**	**Position**
15	Cam Dooley	Von Elm Subdivision	Citizen
16	Scott Heinz	Yukon Public Schools	Assistant Principal
17	Teresa Kemerly/Stover	Yukon Public Works	Coordinator
18	Jerry Reed	Yukon Public Works	PW Director
19	Cheryl Drabek	Von Elm East Neighborhood Watch	Citizen/Contact Person
20	Candace Macedo	Rosewood Home Owners Assoc.	NW Coordinator
21	Mucio Macedo	Rosewood Home Owners Assoc.	NW Coordinator
22	Jan Scott	City of Yukon Parks/Rec	Director
23	Gary Cooper	City of Yukon	Technical Director
24	Brent Going	Integris Canadian Valley Hospital	Safety Officer
25	Steve Somerlott	Hazard Mitigation Specialists, L.L.C.	Co/Manager
26	Judy Soos	Hazard Mitigation Specialists, L.L.C.	Planner

HMP Team Meeting 3/29/2010

NAME OF ORGANIZATION: YUKON HAZARD MITIGATION PROJECT COMMITTEE MEETING **PURPOSE OF MEETING:** Hazard Mitigation Plan **DATE/TIME:** March 29, 2010 **LOCATION:** Yukon Police Department Community Room **CHAIRPERSON:** Mr. Frosty Peak		
Topic	**Discussion/Action**	**Person Responsible/ Contributors**
1. Introduction	Reviewed proposed projects of Hazard Mitigation Plan	Steve Somerlott
2. Why are we here?	Discussed Goals with Action Plans of Hazard Mitigation Plan. Reviewed previous proposed projects and update goals.	Steve Somerlott
3. Goals and Action Projects	Projects continued	Steve Somerlott Judy Soos
4. Adjournment	The meeting was adjourned	Frosty Peak

	YUKON HAZARD MITIGATION PLANNING TEAM MEETING 3/29/2010		
	Name	**Representing**	**Position**
1	John Bridges	Yukon FD	Fire/EMS Coordinator
2	J.R. Reed	City of Yukon PW	Public Works Director
3	Matt Maly	City of Yukon	Public Works Utility Manager

4	Teresa Kemerly/Stover	Yukon Public Works	Coordinator
5	John Taylor	Yukon FD	Fire Inspector
6	Gary Cooper	City of Yukon	Technical Director
7	Ward Larsen	City of Yukon	City Council
8	Kent Mathers	Yukon Public Schools	Assistant Principal
9	Cheryl Drabek	Von Elm East Neighborhood Watch	Citizen/Contact Person
10	Frosty Peak	City of Yukon EM	EM Director
11	Steve Somerlott	Hazard Mitigation Specialists, L.L.C.	Co/Manager
12	Judy Soos	Hazard Mitigation Specialists, L.L.C.	Planner
13	Scott Heinz	Yukon Public Schools	Assistant Principal
14	Corby Poursabe	City of Yukon	EM Assistant

HMP Team Meeting 4/13/2010

NAME OF ORGANIZATION: YUKON HAZARD MITIGATION PLANNING TEAM MEETING

PURPOSE OF MEETING: Hazard Mitigation Plan

DATE/TIME: April 13, 2010

LOCATION: Yukon Police Department Community Room

CHAIRPERSON: Mr. Frosty Peak

Topic	Discussion/Action	Person Responsible/ Contributors
5. Introduction	Reviewed purpose projects of the Hazard Mitigation Plan	Steve Somerlott
6. Why are we here?	Discussed Goals and Action Plans	David Van Nostrand Steve Somerlott
7. Goals and Action	Projects continued	Steve Somerlott

Projects		
8. Adjournment	The meeting was adjourned	Frosty Peak

	YUKON HAZARD MITIGATION TEAM MEETING 4/13/2010		
	Name	**Representing**	**Position**
1	David Van Nostrand	Hazard Mitigation Specialists, L.L.C.	Co/Manager
2	Steve Somerlott	Hazard Mitigation Specialists, L.L.C.	Co/Manager
3	Corby Poursabe	City of Yukon	EM Assistant
4	John Taylor	Yukon FD	Fire Inspector
5	Anna Waggoner	City of Yukon	Stormwater Manager
6	Scarlett Owen	City of Yukon	Community Development
7	Mitchell Hart	City of Yukon	Community Development
8	Jerry Reed	Yukon Public Works	PW Director
9	Floyd Sisk	Yukon FD	Captain
10	Matt Maly	City of Yukon	Public Works Utility Manager
11	Cheryl Drabek	Von Elm East Neighborhood Watch	Citizen/Contact Person
12	Gary Cooper	City of Yukon	Technical Director
13	Candace Macedo	Rosewood Home Owners Assoc.	NW Coordinator
14	Brent Going	Integris Canadian Valley Hospital	Safety Officer

	YUKON HAZARD MITIGATION TEAM MEETING 4/13/2010		
	Name	**Representing**	**Position**
15	Laura Fried	American Red Cross	Executive Director
16	Kent Mathers	Yukon Public Schools	Assistant Principal
17	Sandy Meier	Chamber of Commerce	Executive Director
18	Randy Lewis	OG&E	Manager
19	Ward Larsen	City of Yukon	City Council
20	Dennis Adler	Parkland Addition	Citizen
21	Frosty Peak	City of Yukon EM	EM Director

HM Project Committee Meeting 4/22/2010

NAME OF ORGANIZATION: YUKON HAZARD MITIGATION PROJECT COMMITTEE MEETING **PURPOSE OF MEETING:** Hazard Mitigation Plan **DATE/TIME:** April 22, 2010 **LOCATION:** Yukon Police Department Community Room **CHAIRPERSON:** Mr. Frosty Peak		
Topic	**Discussion/Action**	**Person Responsible/ Contributors**
9. Introduction	Reviewed purpose projects of the Hazard Mitigation Plan	Steve Somerlott
10. Why are we here?	Discussed Critical Facilities	Judy Soos
11. Goals and Action Projects	Projects continued	Steve Somerlott Judy Soos
12. Adjournment	The meeting was adjourned	Frosty Peak

	YUKON HAZARD MITIGATION PROJECT COMMITTEE MEETING 4/22/2010		
	Name	**Representing**	**Position**
1	John Bridges	City of Yukon FD	Fire/EMS Coordinator
2	J. R. Reed	City of Yukon	Public Works
3	Matt Maly	City of Yukon	Public Works Utility Manager
4	Teresa Kemerly/Stover	Yukon Public Works	Coordinator
5	John Taylor	City of Yukon FD	Fire Inspector
6	Gary Cooper	City of Yukon	Technical Director
7	Ward Larsen	City of Yukon	City Council
8	Kent Mathers	Yukon Public Schools	Assistant Principal
9	Cheryl Drabek	Von Elm East Neighborhood Watch	Citizen/Contact Person
10	Frosty Peak	City of Yukon EM	EM Director
11	Steve Somerlott	Hazard Mitigation Specialists, L.L.C.	Co/Manager
12	Judy Soos	Hazard Mitigation Specialists, L.L.C.	Planner
13	Corby Poursabe	City of Yukon	EM Assistant
14	Anna Waggoner	City of Yukon	Stormwater Manager
15	Mitchell Hart	City of Yukon	Community Development
16	Dana Deckard	City of Yukon	Administrative

	YUKON HAZARD MITIGATION PROJECT COMMITTEE MEETING 4/22/2010		
	Name	**Representing**	**Position**
15	Scarlett Owen	City of Yukon	Community Development
16	Jerry Reed	City of Yukon	Public Works
17	Teresa Kemerly/Stover	Yukon Public Works	Coordinator
18	Kevin Jones	City of Yukon FD	Fire Chief
19	Floyd Sisk	Yukon FD	Captain

HMP Team Meeting 5/11/2010

NAME OF ORGANIZATION: YUKON HAZARD MITIGATION PLANNING TEAM MEETING **PURPOSE OF MEETING:** Hazard Mitigation Plan **DATE/TIME:** May 11, 2010 **LOCATION:** Yukon Police Department Community Room **CHAIRPERSON:** Mr. Frosty Peak		
Topic	**Discussion/Action**	**Person Responsible/ Contributors**
13. Introduction	Reviewed purpose projects of the Hazard Mitigation Plan	James Crosby City Manager
14. Why are we here?	Discussed Project Prioritization (S.T.A.P.L.E.E.)	Steve Somerlott Judy Soos Hazard Mitigation Specialists, L.L.C.
15. Goals and Action Projects	Projects continued	David Van Nostrand Steve Somerlott Judy Soos
16. Adjournment	The meeting was adjourned	Frosty Peak

	YUKON HAZARD MITIGATION TEAM MEETING 4TH MEETING 5/11/2010		
	Name	**Representing**	**Position**
1	John Bridges	City of Yukon FD	Fire/EMS Coordinator
2	J. R. Reed	City of Yukon	Public Works
3	Matt Maly	City of Yukon	Public Works Utility Manager

4	Teresa Kemerly/Stover	Yukon Public Works	Coordinator
5	John Taylor	City of Yukon FD	Fire Inspector
6	Gary Cooper	City of Yukon	Technical Director
7	Ward Larsen	City of Yukon	City Council
8	Kent Mathers	Yukon Public Schools	Assistant Principal
9	Cheryl Drabek		
10	Frosty Peak	City of Yukon EM	EM Director
11	Steve Somerlott	Hazard Mitigation Specialists, L.L.C.	Co/Manager
12	Judy Soos	Hazard Mitigation Specialists, L.L.C.	Planner
13	Corby Poursabe	City of Yukon	EM Assistant
14	Anna Waggoner	City of Yukon	Stormwater Manager
15	Mitchell Hart	City of Yukon	Community Development
16	Dana Deckard	City of Yukon	Administrative

	YUKON HAZARD MITIGATION TEAM MEETING - 4TH MEETING 5/11/2010		
	Name	**Representing**	**Position**
15	Scarlett Owen	City of Yukon	Community Development
16	Jerry Reed	Yukon Public Works	PW Director
17	Teresa Kemerly/Stover	Yukon Public Works	Coordinator
18	Kevin Jones	City of Yukon FD	Fire Chief
19	Floyd Sisk	Yukon FD	Captain

HM Project Committee Meeting 6/15/2010

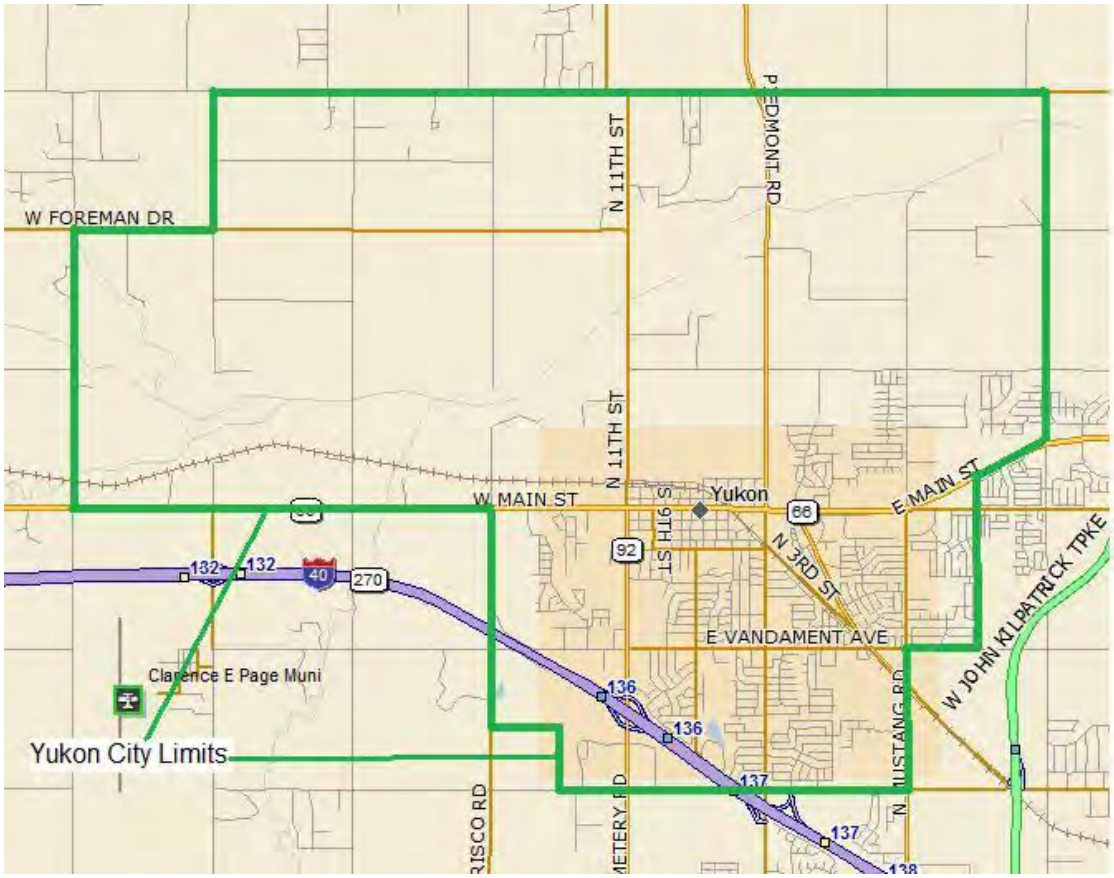
NAME OF ORGANIZATION: YUKON HAZARD MITIGATION PLANNING TEAM/PROJECT COMMITTEE MEETING **PURPOSE OF MEETING:** Hazard Mitigation Plan **DATE/TIME:** June 15, 2010 **LOCATION:** Yukon Police Department Community Room **CHAIRPERSON:** Mr. Frosty Peak		
Topic	**Discussion/Action**	**Person Responsible/ Contributors**
17. Introduction	Reviewed purpose projects of the Hazard Mitigation Plan	Steve Somerlott
18. Why are we here?	Reviewed and Discussed any additional projects.	David Van Nostrand
19. Goals and Action Projects	Projects continued	Steve Somerlott
20. Adjournment	The meeting was adjourned	Frosty Peak

	YUKON HAZARD MITIGATION PROJECT COMMITTEE MEETING 6/15/2010		
	Name	**Representing**	**Position**
1	David Van Nostrand	Hazard Mitigation Specialists, L.L.C.	Co/Manager
2	Frosty Peak	City of Yukon EM	EM Director
3	Corby Poursabe	City of Yukon	EM Assistant
4	Gary Cooper	City of Yukon	Technical Director

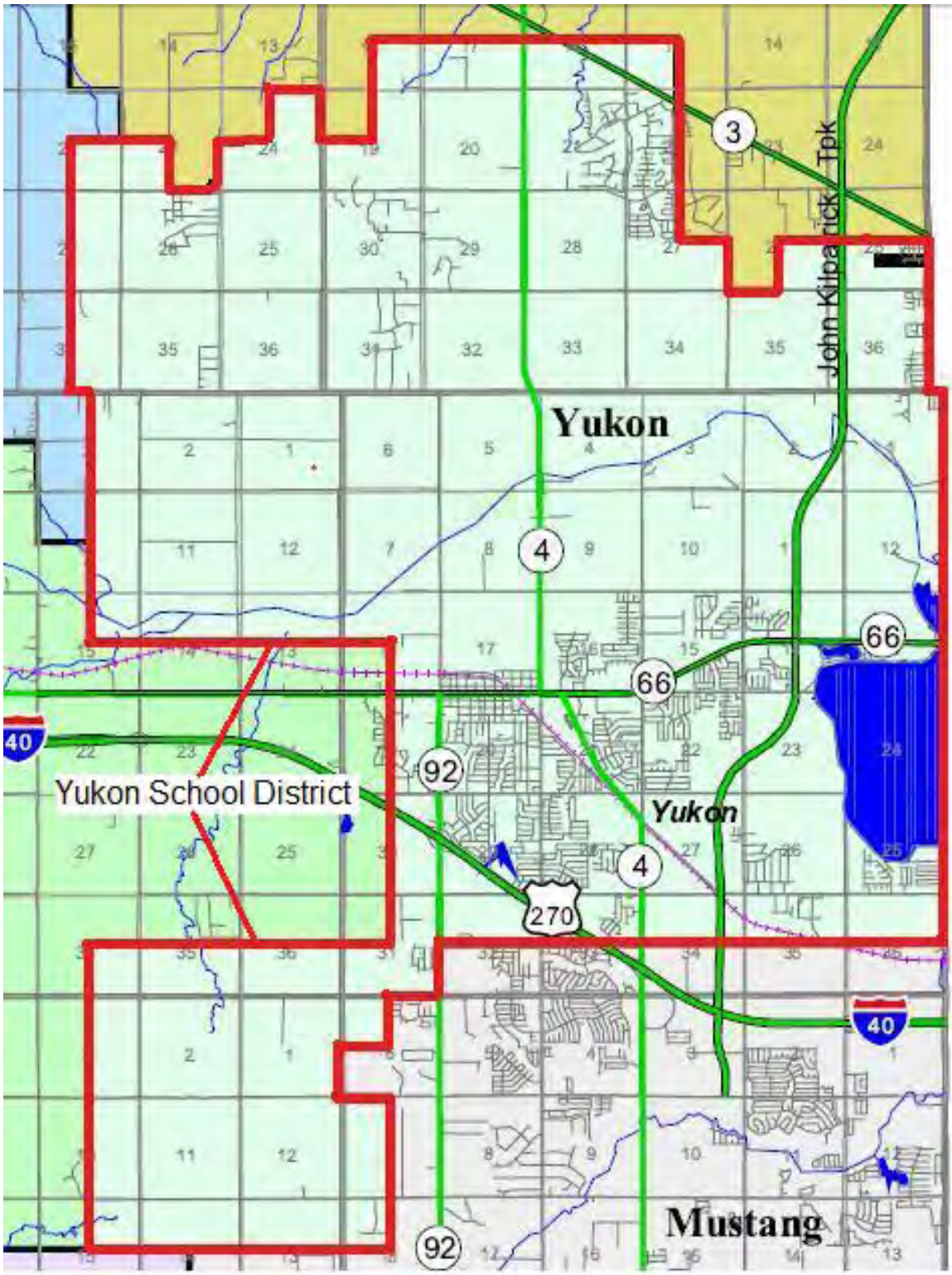
5	John Bridges	City of Yukon FD	Fire/EMS Coordinator
6	Matt Maly	City of Yukon	Public Works Utility Manager
7	Anna Waggoner	City of Yukon	Stormwater Manager
8	Dana Deckard	City of Yukon	Administrative
9	Mitchell Hart	City of Yukon	Community Development
10	John Taylor	City of Yukon FD	Fire Inspector
11	Kent Mathers	Yukon Public Schools	Assistant Principal
12	Steve Somerlott	Hazard Mitigation Specialists, L.L.C.	Co/Manager

Appendix B- Maps

YUKON CITY LIMITS



YUKON SCHOOL DISTRICT



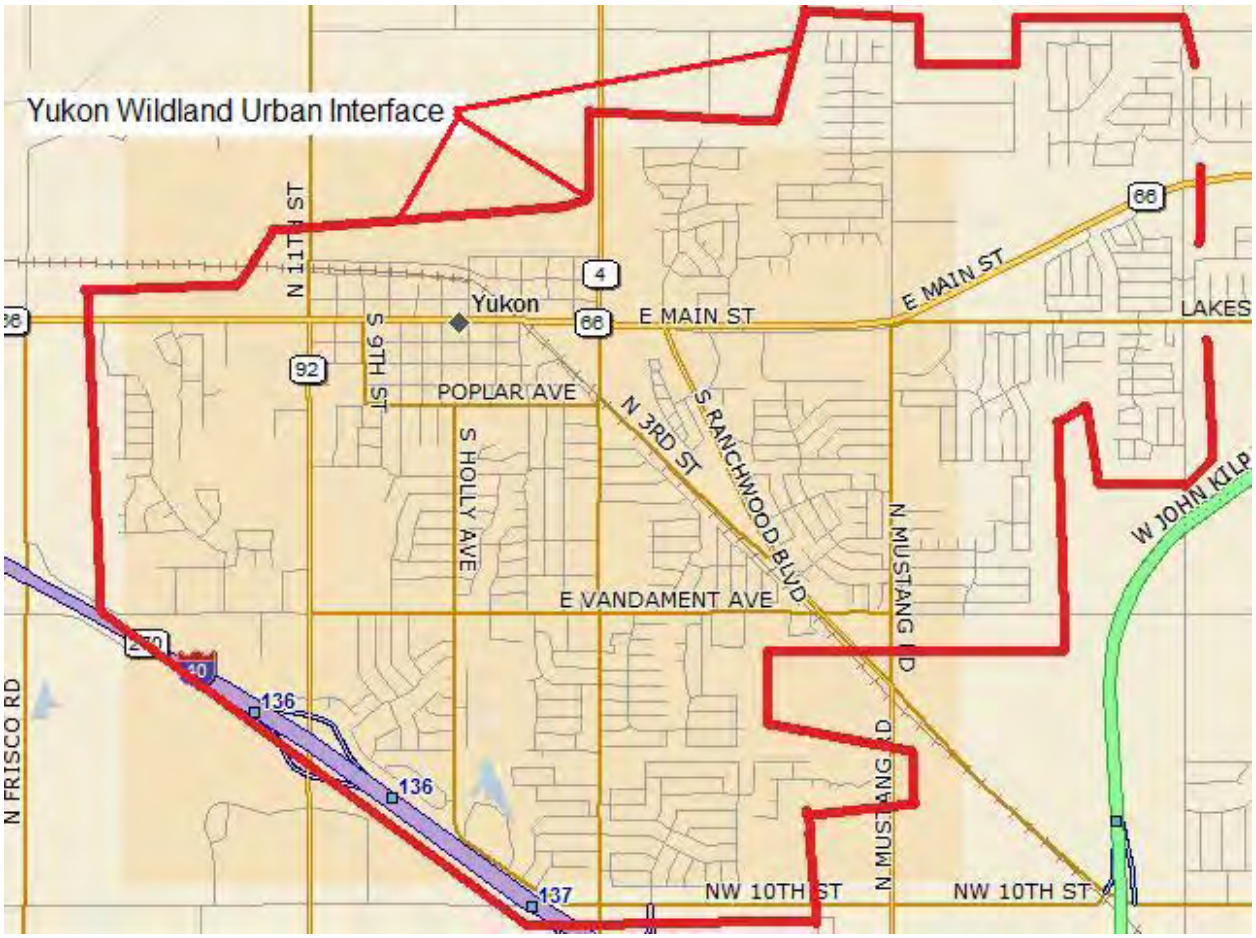
YUKON FIRE STATION LOCATIONS

Fire Station # 1
302 South Fifth Street
Yukon, Oklahoma 73099

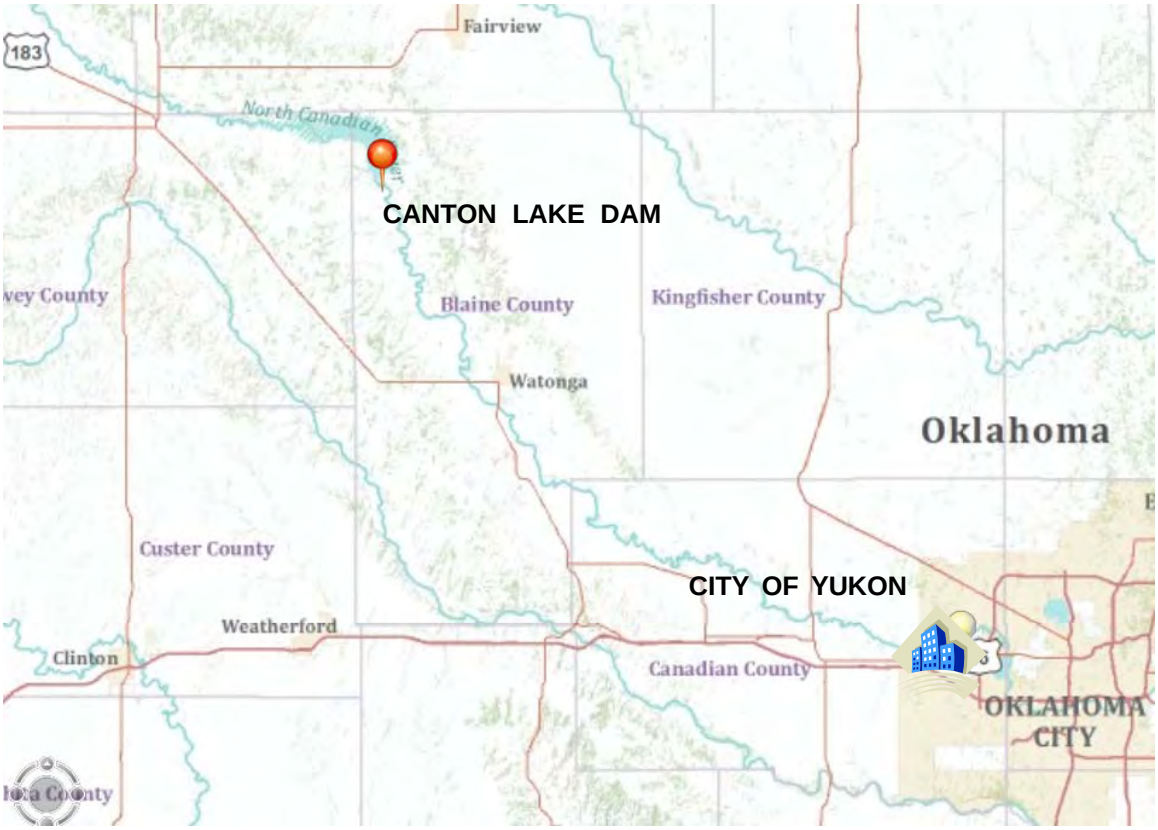
Fire Station # 2
102 S. Ranchwood
Yukon, Oklahoma 73099

Fire Training Center
960 E. Main St.
Yukon, Oklahoma 73099

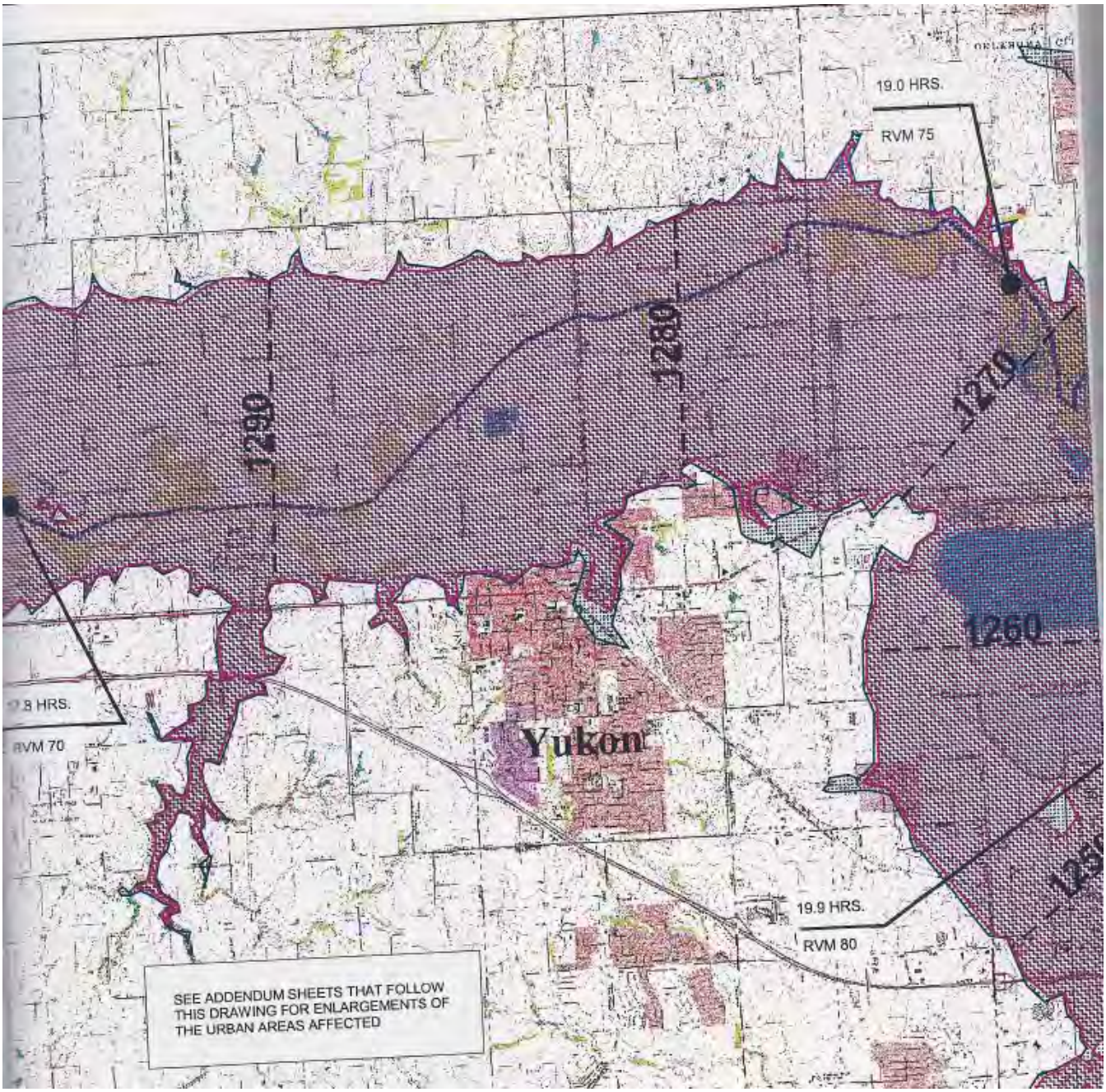
YUKON WILDLAND URBAN INTERFACE (WUI)



CANTON LAKE LOCATION FROM CITY OF YUKON



Corps of Engineer Inundation Map for City of Yukon



FEMA FIRM MAPS FOR CITY OF YUKON

State : OKLAHOMA **County :** CANADIAN COUNTY **Community :** YUKON,CTY/CANADIAN CO

Get Community Kit

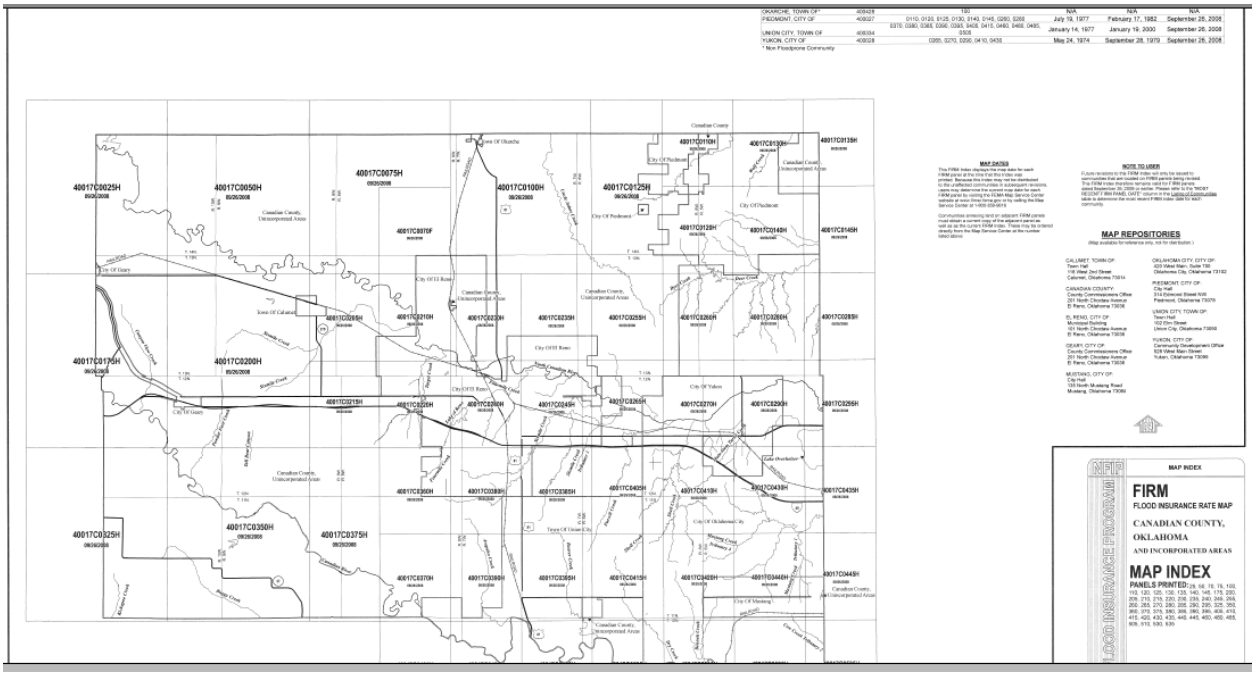
Index maps, if available, are now located at the top of the list below.

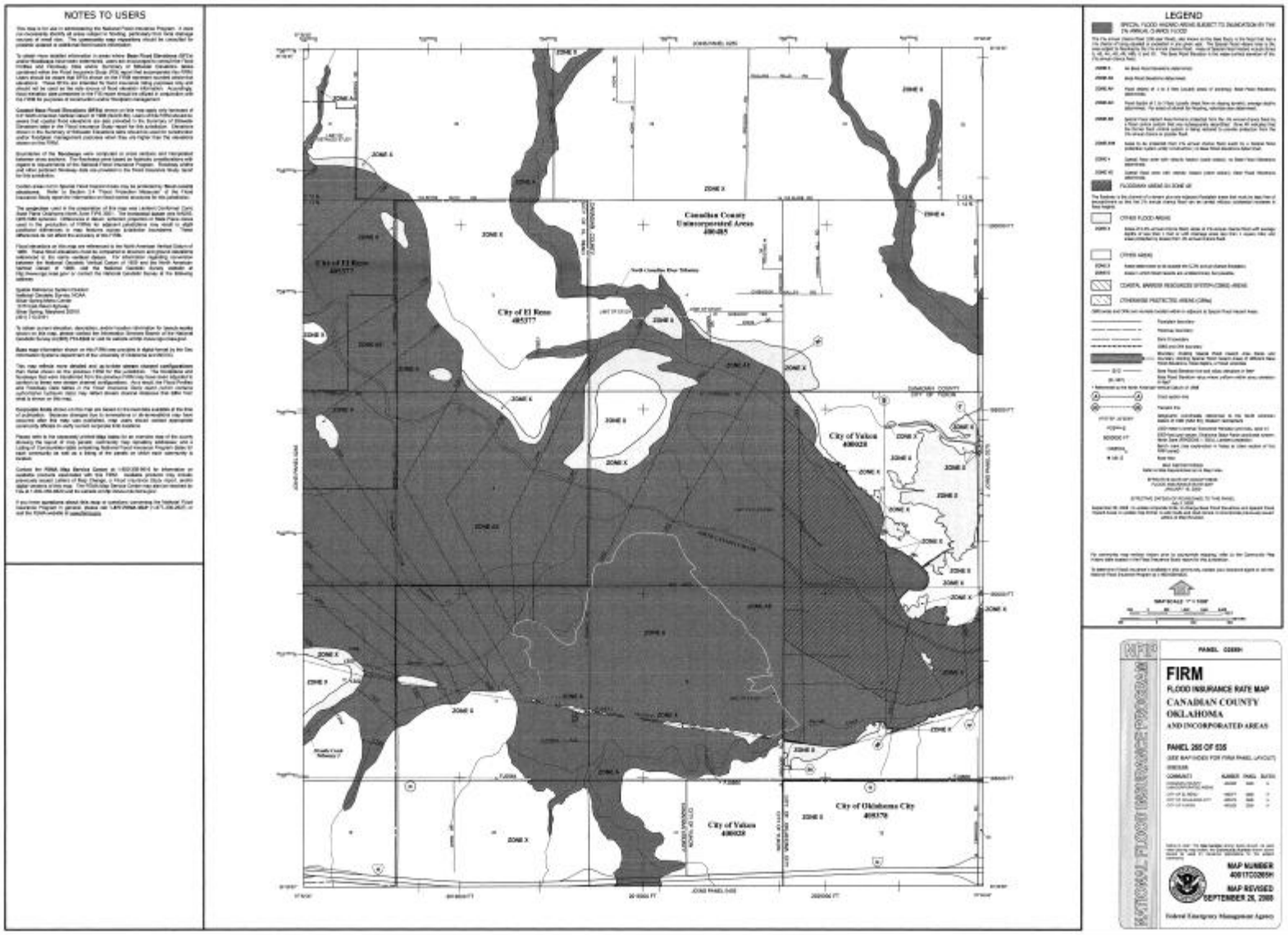
Click the *View* button to view a map or to make a FIRMette. To purchase a map, click the *Buy* button to show pricing information. If you would like all the maps for the community, then click the *Get Community Kit* link above. Please be aware that some maps may have been amended by Letter of Map Change (LOMC) since publication. These maps have a "plus" sign in the "Show LOMC" column. Please note, that only LOMCs issued from June 1, 1997 through August 15, 2010 are available for viewing. To determine if additional LOMCs have been issued for a map, contact your local government office responsible for floodplain management. Flood Boundary and Floodway Maps may also have been produced for this community. To view or order these, select the Flood Insurance Studies link on the catalog page.

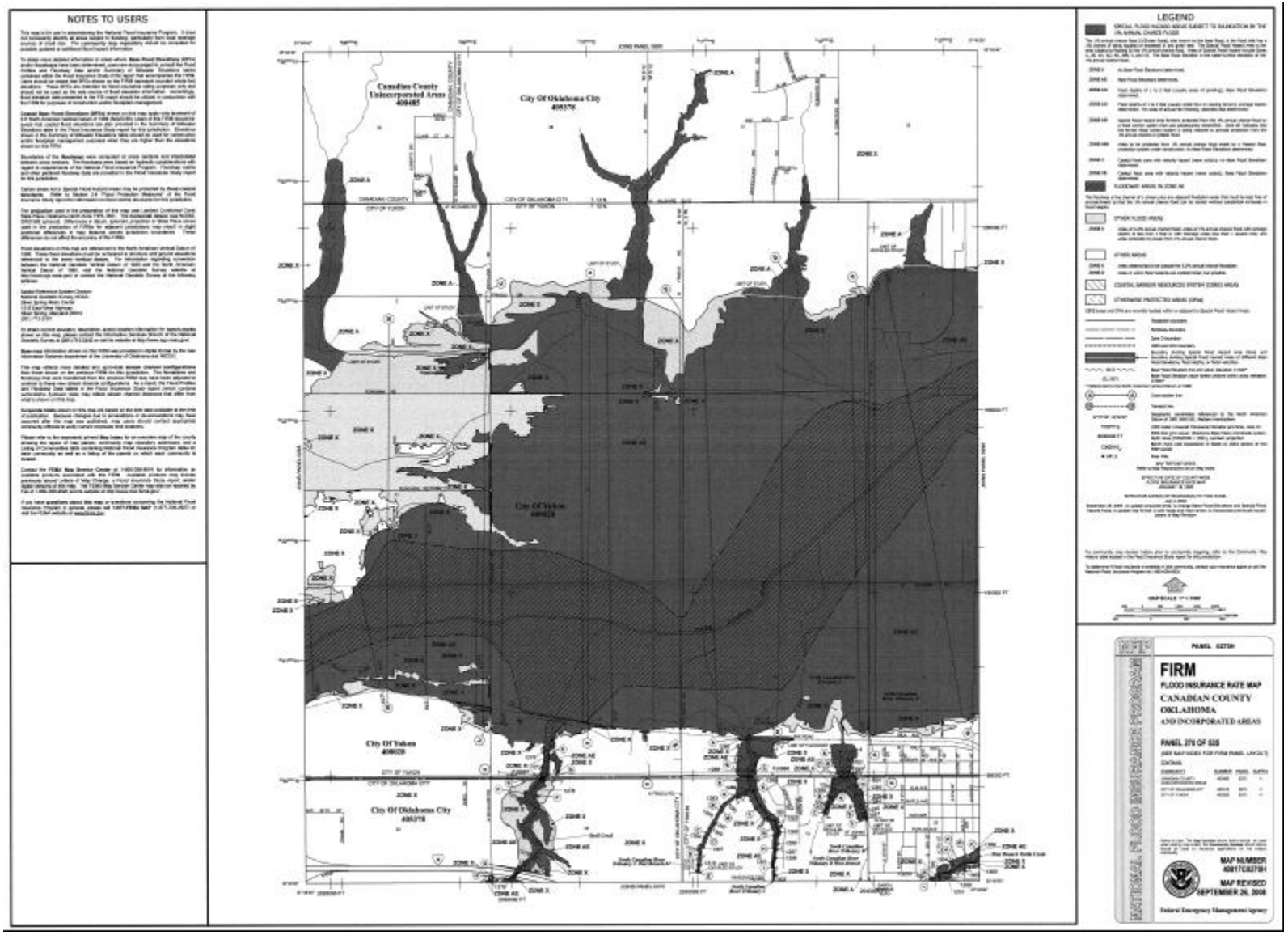
A total of 6 items found. Displaying map item 1 through 6. **Sort by:** Item Id: Lowest First

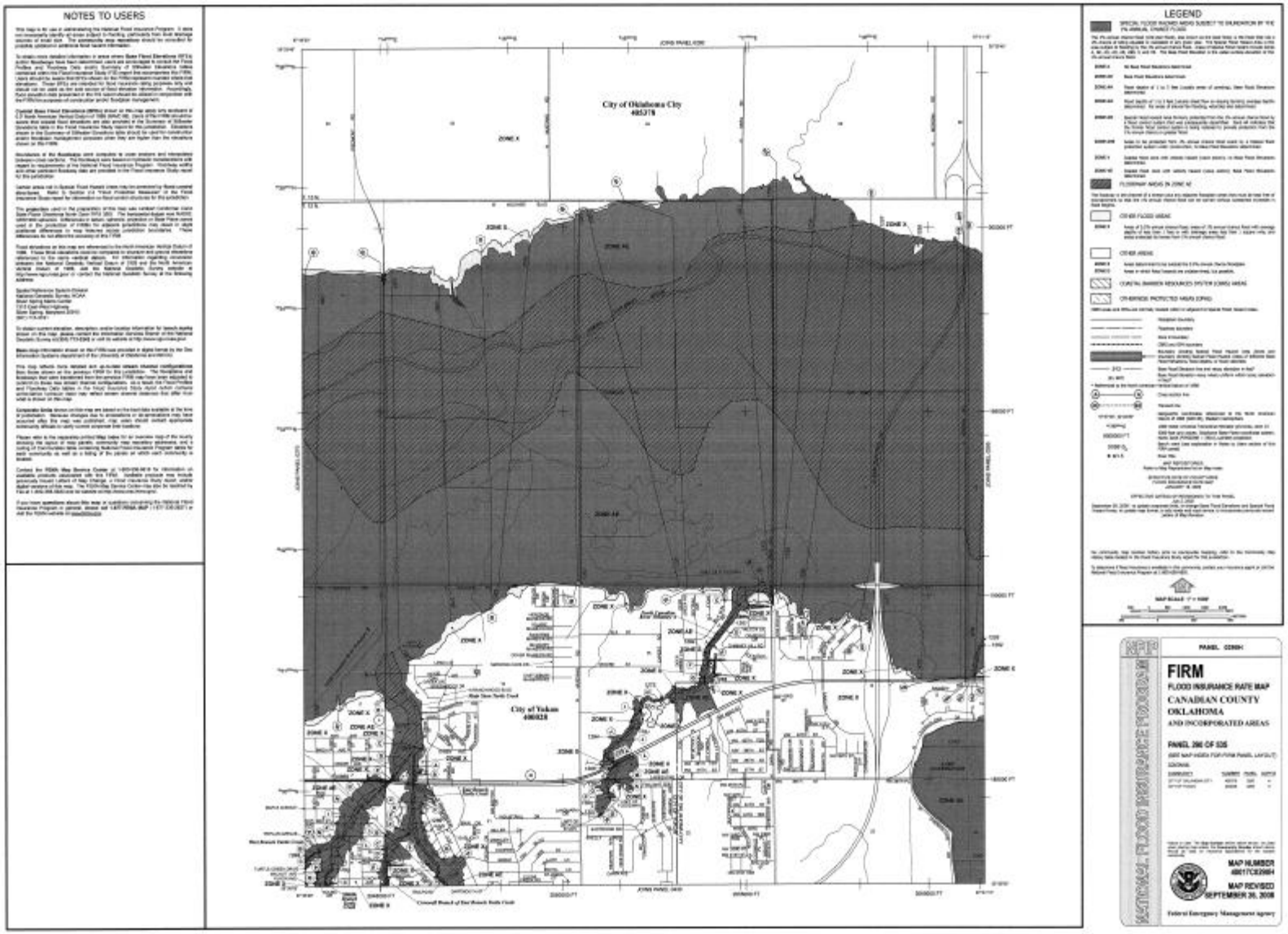
Item ID	Item Name	Effective Date	Show LOMC	File Size (Mb)	View	Buy
40017CIND0B	FLOOD INSURANCE RATE MAP (FIRM)	09/26/2008		1.0 Mb		
40017C0265H	FLOOD INSURANCE RATE MAP (FIRM)	09/26/2008	+	8.5 Mb		
40017C0270H	FLOOD INSURANCE RATE MAP (FIRM)	09/26/2008	+	9.8 Mb		
40017C0290H	FLOOD INSURANCE RATE MAP (FIRM)	09/26/2008	+	10.1 Mb		
40017C0410H	FLOOD INSURANCE RATE MAP (FIRM)	09/26/2008		1.5 Mb		
40017C0430H	FLOOD INSURANCE RATE MAP (FIRM)	09/26/2008	+	1.4 Mb		

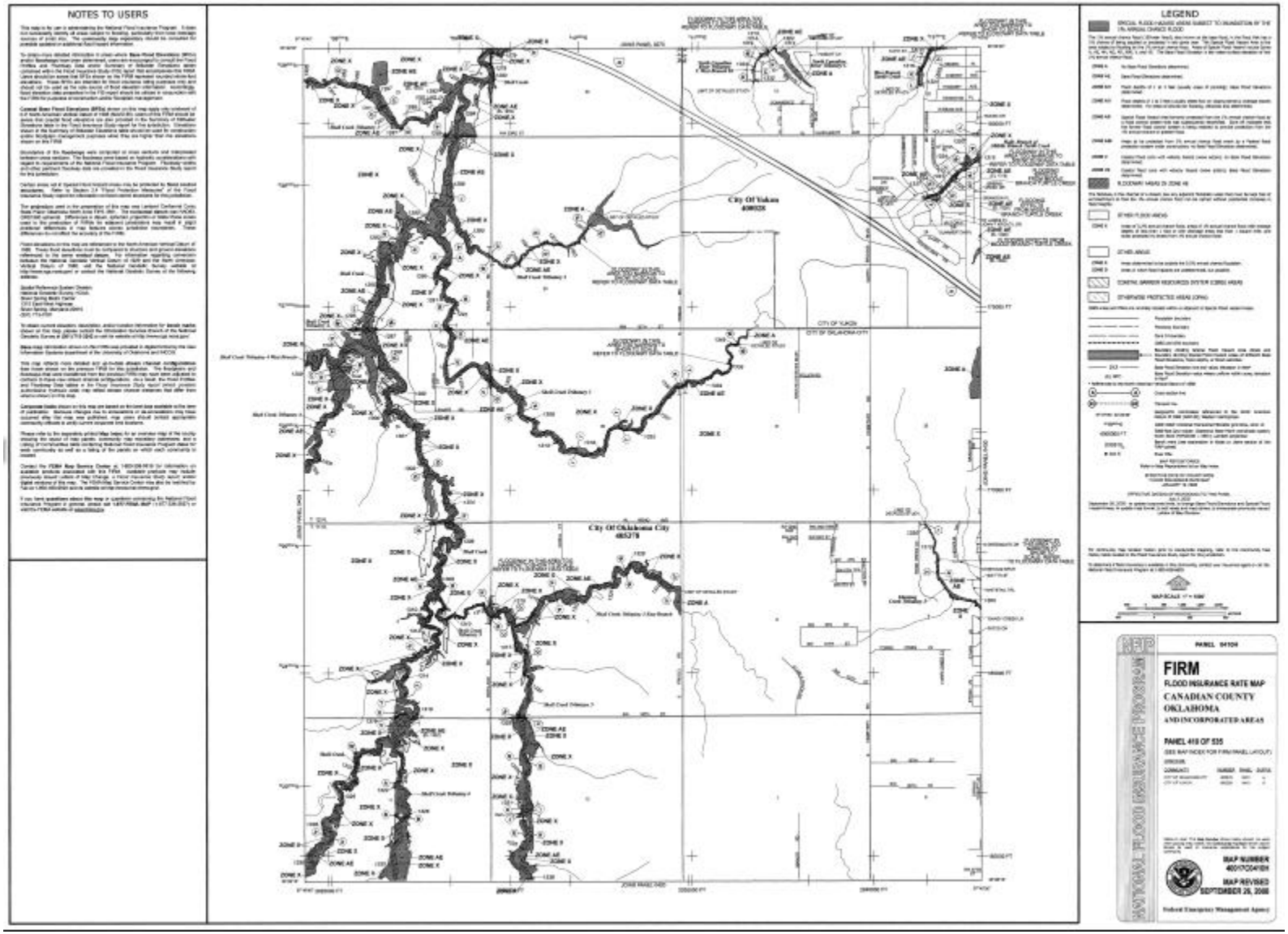
* designates unincorporated areas




NOTES TO USERS
Canadian County
Unincorporated Areas
City of El Reno
City of Yukon
City of Oklahoma City
LEGEND
FIRM
FLOOD INSURANCE RATE MAP
CANADIAN COUNTY
OKLAHOMA
AND INCORPORATED AREAS
PANEL 265 OF 535
MAP NUMBER
MAP REVISED
SEPTEMBER 26, 2008
Federal Emergency Management Agency


NOTES TO USERS
LEGEND
Canadian County Unincorporated Areas
City Of Oklahoma City
City Of Yukon
FIRM
FLOOD INSURANCE RATE MAP
CANADIAN COUNTY
OKLAHOMA
AND INCORPORATED AREAS
PANEL 276 OF 525
MAP NUMBER
MAP REVISED
SEPTEMBER 26, 2008
Federal Emergency Management Agency


NOTES TO USERS
LEGEND
City of Oklahoma City
405378
City of Yukon
400028
ZONE X
ZONE AE
ZONE AO
ZONE VE
PANEL 0295H
FIRM
FLOOD INSURANCE RATE MAP
CANADIAN COUNTY
OKLAHOMA
AND INCORPORATED AREAS
PANEL 295 OF 525
MAP NUMBER
40017C0295H
MAP REVISED
SEPTEMBER 26, 2008
Federal Emergency Management Agency


NOTES TO USERS
LEGEND
City Of Yukon
City Of Oklahoma City
FIRM
FLOOD INSURANCE RATE MAP
CANADIAN COUNTY
OKLAHOMA
AND INCORPORATED AREAS
PANEL 410 OF 535
MAP NUMBER
MAP REVISED
SEPTEMBER 26, 2008
Federal Emergency Management Agency

NOTES TO USERS
LEGEND
City Of Yukon
City Of Oklahoma City
FIRM
FLOOD INSURANCE RATE MAP
CANADIAN COUNTY
OKLAHOMA
AND INCORPORATED AREAS
MAP NUMBER
MAP REVISED
SEPTEMBER 26, 2008

Appendix C- Critical Facilities

Not for public Review

Estimating Potential Losses – All Hazards

Members of the Yukon Hazard Mitigation Planning Team utilized GIS modeling, field inspections, available historical data, individual interviews of residents, as well as county, state and federal agency resources in order to estimate potential value and subsequently potential loss should the county experience any of the hazard events. Critical facilities were identified and are presented in Appendix C.

Information regarding each facility was considered when estimating potential losses. This information included: (1) age of the facility; (2) type of construction (wood/brick/stone/metal); (3) location (metropolitan/urban/rural); and (4) availability and proximity to emergency response facilities.

For some hazards, the probability for the hazard event to occur may have been likely or highly likely, but because of the age and type of construction, the potential for damage / loss would not have been significant. For example, drought and extreme heat may be highly likely, but no damage would be anticipated for a relatively new brick structure.

All of the information given above was analyzed against mitigation actions which have been taken during the intervening periods of time and may have lessened the potential for losses. However, in many cases, no actions have been identified which have had significant impact. Using these factors, the committee identified potential hazard mitigation action projects.

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: COUNCIL CHAMBERS & COURT BUILDING

FACILITY LOCATION: 12 S. 5th STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'25.474"N 97°45'02.564"W

WHY CRITICAL: Continuity of government

☐ **Emergency Service** X **Government** ☐ **Health Service** ☐ **Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1939	1991	1	IIB - Concrete & block	7,107

Building value: $11,114,582

Contents value: $44,651

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	557,962	PGA 4-6%
Expansive soil	X		2.00%	223,185	
Extreme heat				0	
Flooding				0	
Hail	X		3.00%	334,777	
High winds	X		3.00%	334,777	
Lightning	X		5.00%	557,962	
Tornado	X	Heavy	90.00%	10,043,310	Zone IV
Wildfires				0	
Winter storms	X		15.00%	1,673,885	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: CITY HALL

FACILITY LOCATION: 500 W. MAIN STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'28.174"N 97°45'03.178"W

WHY CRITICAL: Continuity of government

☐ **Emergency Service** X **Government** ☐ **Health Service** ☐ **Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1963	19XX	1	IIB	8,290

Building value: $1,393,227

Contents value: $297,669

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	84,545	PGA 4-6%
Expansive soil	X		2.00%	33,818	
Extreme heat				0	
Flooding				0	
Hail	X		3.00%	50,727	
High winds	X		3.00%	50,727	
Lightning	X		5.00%	84,545	
Tornado	X	Heavy	90.00%	1,521,806	Zone IV
Wildfires				0	
Winter storms	X		15.00%	253,634	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: COMMUNITY DEVELOPMENT

FACILITY LOCATION: 528 W. MAIN STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'28.190"N | 97°45'04.850"W

WHY CRITICAL: Liaison with community agencies

☐ Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
19XX	1998	2	5B	1,400

Building value: $222,916

Contents value: $45,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	$5,358.32	PGA 4-6%
Expansive soil	X		2.00%	$5,358.32	
Extreme heat					
Flooding				$0.00	
Hail	X		2.00%	$5,358.32	
High winds	X		5.00%	$13,395.80	
Lightning	X		5.00%	$13,395.80	
Tornado	X	Heavy	85.00%	$227,728.60	Zone IV
Wildfires				0	
Winter storms	X		10.00%	$26,791.60	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: COURT CLERK, P&R, STORM WATER OFFICES

FACILITY LOCATION: 532 W. MAIN STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'28.028"N 97°45'05.384"W

WHY CRITICAL: Continuity of government

☐ **Emergency Service** X **Government** ☐ **Health Service** ☐ **Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1936		2	IIB	7,107

Building value: $1,188,144

Contents value: $33,109

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	24,425	PGA 4-6%
Expansive soil	X		2.00%	24,425	
Extreme heat				0	
Flooding				0	
Hail	X		2.00%	24,425	
High winds	X		5.00%	61,063	
Lightning	X		5.00%	61,063	
Tornado	X	Heavy	85.00%	1,038,065	Zone IV
Wildfires				0	
Winter storms	X		10.00%	122,125	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: FIRE STATION #1

FACILITY LOCATION: 302 S. 5th STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'16.128"N | 97°45'02.904"W

WHY CRITICAL: Fire protection / EMS

X Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1975		1	IV	7,121

Building value: $1,170,310

Contents value: $74,285

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	24,892	PGA 4-6%
Expansive soil	X		2.00%	24,892	
Extreme heat				0	
Flooding				0	
Hail	X		2.00%	24,892	
High winds	X		5.00%	62,230	
Lightning	X		5.00%	62,230	
Tornado	X	Heavy	75.00%	933,446	Zone IV
Wildfires				0	
Winter storms	X		10.00%	124,460	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: FIRE STATION #2

FACILITY LOCATION: 102 S. RANCHWOOD BLVD.

COUNTY: CANADIAN

GPS LOCATION: 35°30'20.509"N | 97°44'15.856"W

WHY CRITICAL: Fire protection / EMS

X Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1975		1	IIB	3,248

Building value: $543,024

Contents value: $38,102

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	11,623	PGA 4-6%
Expansive soil	X		2.00%	11,623	
Extreme heat				0	
Flooding				0	
Hail	X		2.00%	11,623	
High winds	X		5.00%	29,056	
Lightning	X		5.00%	29,056	
Tornado	X	Heavy	85.00%	493,957	Zone IV
Wildfires				0	
Winter storms	X		10.00%	58,113	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: FIRE TRAINING CENTER

FACILITY LOCATION: 960 E. MAIN STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'24.317"N | 97°43'37.211"W

WHY CRITICAL: Fire protection / EMS

X Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1985		1	5B	2,250

Building value: $188,700

Contents value: $61,800

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	5,010	PGA 4-6%
Expansive soil	X		2.00%	5,010	
Extreme heat				0	
Flooding				0	
Hail	X		2.00%	5,010	
High winds	X		5.00%	12,525	
Lightning	X		5.00%	12,525	
Tornado	X	Heavy	75.00%	187,875	Zone IV
Wildfires				0	
Winter storms	X		10.00%	25,050	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: POLICE STATION

FACILITY LOCATION: 100 S. RANCHWOOD BLVD.

COUNTY: CANADIAN

GPS LOCATION: 35°30'22.221"N 97°44'18.155"W

WHY CRITICAL: Law enforcement

X Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2008		1	IIB	26,000

Building value: $4,386,000

Contents value: $1,545,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	118,620	PGA 4-6%
Expansive soil	X		2.00%	118,620	
Extreme heat				0	
Flooding	X			0	500 Year
Hail	X		2.00%	118,620	
High winds	X		5.00%	296,550	
Lightning	X		5.00%	296,550	
Tornado	X	Heavy	70.00%	4,151,700	Zone IV
Wildfires				0	
Winter storms	X		10.00%	593,100	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: RADIO REPEATER BUILDING

FACILITY LOCATION: 2 Von Elm

COUNTY: CANADIAN

GPS LOCATION: 35°29'10.284"N | 97°44'34.223"W

WHY CRITICAL: Communications (government and emergency)

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1970		1	IIB	30

Building value: $1,547

Contents value: $17,860

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	388	PGA 4-6%
Expansive soil	X		2.00%	388	
Extreme heat				0	
Flooding				0	
Hail	X		2.00%	388	
High winds	X		15.00%	2,911	
Lightning	X		25.00%	4,852	
Tornado	X	Heavy	80.00%	15,526	Zone IV
Wildfires				0	
Winter storms	X		20.00%	3,881	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: YUKON CULTURE CENTER

FACILITY LOCATION: 601 OAK

COUNTY: CANADIAN

GPS LOCATION: 35°30'18.842"N | 97°45'09.092"W

WHY CRITICAL: Historical data

☐ **Emergency Service** | X **Government** | ☐ **Health Service** | ☐ **Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1911	1975	2	IIB	27,571

Building value: $2,229,163

Contents value: $26,531

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	45,114	PGA 4-6%
Expansive soil	X		2.00%	45,114	
Extreme heat				0	
Flooding				0	
Hail	X		2.00%	45,114	
High winds	X		15.00%	338,354	
Lightning	X		25.00%	563,924	
Tornado	X	Heavy	80.00%	1,804,555	Zone IV
Wildfires				0	
Winter storms	X		20.00%	451,139	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: BOX CAR MUSEUM

FACILITY LOCATION: 25 N. 3rd STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'31.282"N | 97°44'51.695"W

WHY CRITICAL: Historical data

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** ☐ **Resource** X **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1992		1		

Building value: $5,100

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	102	PGA 4-6%
Expansive soil	X		2.00%	102	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	510	
High winds	X		20.00%	1,020	
Lightning	X		25.00%	1,275	
Tornado	X	Heavy	95.00%	4,845	Zone IV
Wildfires				0	
Winter storms	X		25.00%	1,275	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: ANIMAL SHELTER

FACILITY LOCATION: 701 INLA

COUNTY: CANADIAN

GPS LOCATION: 35°30'43.035"N 97°45'09.965"W

WHY CRITICAL:

☐ Emergency Service	XGovernment	☐ Health Service	☐ Utility	☐ Resource	X Other PUBLIC HEALTH

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1999		1	IIB	5,566

Building value: $600,760

Contents value: $59,534

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	13,206	PGA 4-6%
Expansive soil	X		2.00%	13,206	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	66,029	
High winds	X		15.00%	99,044	
Lightning	X		10.00%	66,029	
Tornado	X	Heavy	85.00%	561,250	Zone IV
Wildfires				0	
Winter storms	X		25.00%	165,074	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: MABLE FRY LIBRARY & DALE ROBERTSON CENTER

FACILITY LOCATION: 1200 LAKESHORE DRIVE

COUNTY: CANADIAN

GPS LOCATION: 35°30'24.273"N 97°43'25.372"W

WHY CRITICAL:

☐ Emergency Service | X Government | ☐ Health Service | ☐ Utility | ☐ Resource | ☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1992		1	IIB	33,000

Building value: $4,458,326

Contents value: $869,195

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	106,550	PGA 4-6%
Expansive soil	X		2.00%	106,550	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	532,752	
High winds	X		15.00%	799,128	
Lightning	X		10.00%	532,752	
Tornado	X	Heavy	85.00%	4,528,393	Zone IV
Wildfires				0	
Winter storms	X		25.00%	1,331,880	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: JACKIE COOPER GYM

FACILITY LOCATION: 1024 E. MAIN STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'24.896"N | 97°43'33.618"W

WHY CRITICAL: Potential shelter

☐ Emergency Service	X Government	☐ Health Service	☐ Utility	X Resource	X Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1999		1	IIB	15,300

Building value: $2,117,705

Contents value: $119,068

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	44,735	PGA 4-6%
Expansive soil	X		2.00%	44,735	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	223,677	
High winds	X		20.00%	447,355	
Lightning	X		10.00%	223,677	
Tornado	X	Heavy	85.00%	1,901,257	Zone IV
Wildfires				0	
Winter storms	X		25.00%	559,193	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: COMMUNITY CENTER

FACILITY LOCATION: 2200 S. HOLLY

COUNTY: CANADIAN

GPS LOCATION: 35°28'55.649"N | 97°44'56.297"W

WHY CRITICAL: Potential shelter

☐ Emergency Service	X Government	☐ Health Service	☐ Utility	X Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1974		1	IIB	18,000

Building value: $2,229,163

Contents value: $39,292

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	45,369	PGA 4-6%
Expansive soil	X		2.00%	45,369	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	226,846	
High winds	X		20.00%	453,691	
Lightning	X		10.00%	226,846	
Tornado	X	Heavy	85.00%	1,928,187	Zone IV
Wildfires				0	
Winter storms	X		25.00%	567,114	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: PUBLIC WORKS OFFICE

FACILITY LOCATION: 904 INDUSTRIAL DRIVE

COUNTY: CANADIAN

GPS LOCATION: 35°30'17.285"N 97°43'45.851"W

WHY CRITICAL: Government response and recovery

☐ Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2000		1	IIB	5,000

Building value: $557,291

Contents value: $79,591

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	12,738	PGA 4-6%
Expansive soil	X		2.00%	12,738	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	63,688	
High winds	X		20.00%	127,376	
Lightning	X		10.00%	63,688	
Tornado	X	Heavy	85.00%	541,350	Zone IV
Wildfires				0	
Winter storms	X		25.00%	159,221	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: W&S DISTRIBUTION OFFICE & SHOP

FACILITY LOCATION: 900 INDUSTRIAL DRIVE

COUNTY: CANADIAN

GPS LOCATION: 35°30'17.290"N 97°43'47.033"W

WHY CRITICAL: Government response and recovery capability

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2000		1	IIB	5,000

Building value: $557,291

Contents value: $106,121

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	13,268	PGA 4-6%
Expansive soil	X		2.00%	13,268	
Extreme heat				0	
Flooding				0	
Hail	X	Heavy	10.00%	66,341	
High winds	X		20.00%	132,682	
Lightning	X		10.00%	66,341	
Tornado	X		85.00%	563,900	Zone IV
Wildfires				0	
Winter storms	X		25.00%	165,853	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: FLEET MAINTENANCE OFFICE & SHOP

FACILITY LOCATION: 1035 INDUSTRIAL DRIVE

COUNTY: CANADIAN

GPS LOCATION: 35°30'21.527"N | 97°43'43.859"W

WHY CRITICAL: Fuel and maintenance for emergency vehicles

☐ **Emergency Service** | X **Government** | ☐ **Health Service** | ☐ **Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1970		1	IIB	5,400

Building value: $752,343

Contents value: $265,302

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	20,353	PGA 4-6%
Expansive soil	X		2.00%	20,353	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	101,765	
High winds	X		20.00%	203,529	
Lightning	X		10.00%	101,765	
Tornado	X	Heavy	85.00%	864,998	Zone IV
Wildfires				0	
Winter storms	X		25.00%	254,411	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: PARK MAINTENANCE OFFICE & SHOP

FACILITY LOCATION: 848 E. MAIN STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'20.784"N | 97°43'47.766"W

WHY CRITICAL: Maintenance for emergency vehicles and shelter operations

☐ Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1980		1	IIB	14,214

Building value: $633,082

Contents value: $1,545,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	43,562	PGA 4-6%
Expansive soil	X		2.00%	43,562	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	217,808	
High winds	X		20.00%	435,616	
Lightning	X		10.00%	217,808	
Tornado	X	Heavy	85.00%	1,851,370	Zone IV
Wildfires				0	
Winter storms	X		25.00%	544,521	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: SANITATION OFFICE & SHOP

FACILITY LOCATION: 501 ASH

COUNTY: CANADIAN

GPS LOCATION: 35°30'40.874"N | 97°45'02.519"W

WHY CRITICAL: Continuity of utility service; public health potential

☐ Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1976		1	IIB	6,534

Building value: $668,749

Contents value: $79,591

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	37,417	PGA 4-6%
Expansive soil	X		5.00%	37,417	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	74,834	
High winds	X		25.00%	187,085	
Lightning	X		10.00%	74,834	
Tornado	X	Heavy	85.00%	636,089	Zone IV
Wildfires				0	
Winter storms	X		25.00%	187,085	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: STREET DEPARTMENT OFFICE & SHOP

FACILITY LOCATION: 501 ASH

COUNTY: CANADIAN

GPS LOCATION: 35°30'43.676"N | 97°45'06.868W

WHY CRITICAL: Maintenance for emergency vehicles; debris management

☐ Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1983		1	IIB	2,460

Building value: $126,234

Contents value: $1,904

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	6,407	PGA 4-6%
Expansive soil	X		5.00%	6,407	
Extreme heat				0	
Flooding	X			0	500 year
Hail	X		10.00%	12,814	
High winds	X		25.00%	32,035	
Lightning	X		10.00%	12,814	
Tornado	X	Heavy	85.00%	108,917	Zone IV
Wildfires				0	
Winter storms	X		25.00%	32,035	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: ROAD SALT STORAGE

FACILITY LOCATION: 501 ASH

COUNTY: CANADIAN

GPS LOCATION: 35°30'43.485"N 97°45'09.421"W

WHY CRITICAL:

☐ Emergency Service | X Government | ☐ Health Service | ☐ Utility | ☐ Resource | ☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1985		1	IIB	1,978

Building value: $4,458

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	223	PGA 4-6%
Expansive soil	X		5.00%	223	
Extreme heat				0	
Flooding	X			0	
Hail	X		10.00%	446	
High winds	X		25.00%	1,115	
Lightning	X		10.00%	446	
Tornado	X	Heavy	85.00%	3,789	Zone IV
Wildfires				0	
Winter storms	X		25.00%	1,115	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: SANITATION TRANSFER STATION

FACILITY LOCATION: 501 ASH

COUNTY: CANADIAN

GPS LOCATION: 35°30'42.646"N 97°45'03.648"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2006		1	IIB	5,300

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil	X		5.00%	0	
Extreme heat				0	
Flooding	X			0	500 year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: FUEL TANKS

FACILITY LOCATION: 501 ASH

COUNTY: CANADIAN

GPS LOCATION: 35°30'42.547"N 97°45'04.429"W

WHY CRITICAL:

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
		1		1,375

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil	X		5.00%	0	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER BOOSTER STATION

FACILITY LOCATION: 12601 NW 10th STREET

COUNTY: CANADIAN

GPS LOCATION: 35°28'44.901"N 97°45'07.442"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2002		1	IIB	600

Building value: $401,197

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	20,060	PGA 4-6%
Expansive soil	X		5.00%	20,060	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	40,120	
High winds	X		25.00%	100,299	
Lightning	X		10.00%	40,120	
Tornado	X		85.00%	341,017	Zone IV
Wildfires				0	
Winter storms	X		25.00%	100,299	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: OKC BOOSTER STATION #22

FACILITY LOCATION: 7504 SW 29TH STREET

COUNTY: OKLAHOMA

GPS LOCATION: 35°26'06.33"N 97°38'42.36"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
		1	IIB	

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil	X		5.00%	0	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER PUMP HOUSE

FACILITY LOCATION: S. CORNWELL & SEQUOIA PARK

COUNTY: CANADIAN

GPS LOCATION: 35°28'57.403"N | 97°44'33.716"W

WHY CRITICAL:

☐ **Emergency Service** | X **Government** | ☐ **Health Service** | X **Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1976		1	IIB	472

Building value: $24,354

Contents value: $3,810

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	1,408	PGA 4-6%
Expansive soil	X		5.00%	1,408	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	2,816	
High winds	X		25.00%	7,041	
Lightning	X		10.00%	2,816	
Tornado	X	Heavy	85.00%	23,939	Zone IV
Wildfires				0	
Winter storms	X		25.00%	7,041	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER STANDPIPE

FACILITY LOCATION: 2 VON ELM AVENUE

COUNTY: CANADIAN

GPS LOCATION: 35°29'10.588"N 97°44'34.017"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **X Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
				66,845

Building value: $318,944

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	15,947	PGA 4-6%
Expansive soil			5.00%	15,947	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	31,894	
High winds	X		25.00%	79,736	
Lightning	X		10.00%	31,894	
Tornado	X	Heavy	85.00%	271,102	Zone IV
Wildfires				0	
Winter storms			25.00%	79,736	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER STANDPIPE

FACILITY LOCATION: W. VANDAMENT

COUNTY: CANADIAN

GPS LOCATION: 35°29'33.724"N | 97°46'08.578"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1980				133,690

Building value: $383,162

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	19,158	PGA 4-6%
Expansive soil			5.00%	19,158	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	38,316	
High winds	X		25.00%	95,791	
Lightning	X		10.00%	38,316	
Tornado	X	Heavy	85.00%	325,688	Zone IV
Wildfires				0	
Winter storms			25.00%	95,791	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER TOWER

FACILITY LOCATION: 12601 NW 10th STREET

COUNTY: CANADIAN

GPS LOCATION: 35°28'46.286"N 97°45'05.702"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1998				133,690

Building value: $1,211,303

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	60,565	PGA 4-6%
Expansive soil			5.00%	60,565	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	121,130	
High winds	X		25.00%	302,826	
Lightning	X		10.00%	121,130	
Tornado	X	Heavy	85.00%	1,029,608	Zone IV
Wildfires				0	
Winter storms			25.00%	302,826	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER TOWER

FACILITY LOCATION: 2802 MUSTANG ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°30'08.307"N 97°43'27.975"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1980				133,690

Building value: $940,360

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	47,018	PGA 4-6%
Expansive soil			5.00%	47,018	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	94,036	
High winds	X		25.00%	235,090	
Lightning	X		10.00%	94,036	
Tornado	X	Heavy	85.00%	799,306	Zone IV
Wildfires				0	
Winter storms			25.00%	235,090	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER TOWER

FACILITY LOCATION: 940 POPLAR STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'13.289"N 97°45'27.788"W

WHY CRITICAL:

☐ **Emergency Service** x **Government** ☐ **Health Service** x **Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
				10,695

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms			25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #1

FACILITY LOCATION: 0.5 mile E of ROCKWELL & 200' S of SW 29TH

COUNTY: OKLAHOMA

GPS LOCATION: 35°26'01.928"N 97°37'39.387"W

WHY CRITICAL:

☐ Emergency Service	XGovernment	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	1,118

Building value: $74,676

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	3,734	PGA 4-6%
Expansive soil			5.00%	3,734	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	7,468	
High winds			25.00%	18,669	
Lightning	X		10.00%	7,468	
Tornado	X	Light	85.00%	63,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	18,669	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #2

FACILITY LOCATION: 2 blocks S of SW 29th & 300' W of MACARTHUR BLVD.

COUNTY: OKLAHOMA

GPS LOCATION: 35°26'03.387"N 97°37'10.900"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	800

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #3

FACILITY LOCATION: 1.0 mile S of SW 29th & 200' W of MACARTHUR BLVD.

COUNTY: OKLAHOMA

GPS LOCATION: 35°25'28.584"N 97°37'12.185"W

WHY CRITICAL:

☐ **Emergency Service** | **XGovernment** | ☐ **Health Service** | **X Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	

Building value: $66,875

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	3,344	PGA 4-6%
Expansive soil			5.00%	3,344	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	6,688	
High winds			25.00%	16,719	
Lightning	X		10.00%	6,688	
Tornado	X	Light	85.00%	56,844	Zone IV
Wildfires	X			0	
Winter storms			25.00%	16,719	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #4

FACILITY LOCATION: SW 44th 600' W of MACARTHUR BLVD.

COUNTY: OKLAHOMA

GPS LOCATION: 35°25'17.188"N 97°37'11.947"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	1,344

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #5

FACILITY LOCATION: SW 44th SE of HWY 152

COUNTY: OKLAHOMA

GPS LOCATION: 35°25'15.323"N 97°36'24.209"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	1,296

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #6

FACILITY LOCATION: E of MERIDIAN & N of SW 44th

COUNTY: OKLAHOMA

GPS LOCATION: 35°25'15.436"N | 97°35'59.750"W

WHY CRITICAL:

☐ **Emergency Service** | **XGovernment** | ☐ **Health Service** | **X Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	78

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #7

FACILITY LOCATION: 3998 SW 44th STREET

COUNTY: OKLAHOMA

GPS LOCATION: 35°25'15.578"N | 97°35'21.431"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	78

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #8

FACILITY LOCATION: 5000 S. PORTLAND

COUNTY: OKLAHOMA

GPS LOCATION: 35°24'53.244"N 97°34'57.050"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **XUtility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	1,296

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #9

FACILITY LOCATION: 3 blocks E of PORTLAND & S of SW 59th STREET

COUNTY: OKLAHOMA

GPS LOCATION: 35°24'21.205"N 97°34'44.849"W

WHY CRITICAL:

☐ Emergency Service	XGovernment	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	1,296

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #10

FACILITY LOCATION: N of SW 74th & W of HWY 62

COUNTY: OKLAHOMA

GPS LOCATION: 35°23'54.224"N | 97°34'40.625"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1980		1	IIB	1,296

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #11

FACILITY LOCATION: N of SW 74th & W of HWY 62

COUNTY: OKLAHOMA

GPS LOCATION: 35°23'31.577"N | 97°34'29.421"W

WHY CRITICAL:

☐ **Emergency Service** | **XGovernment** | ☐ **Health Service** | **X Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1980		1	IIB	1,225

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #12

FACILITY LOCATION: W of HWY 62 & 1 mile S of SW 74th STREET

COUNTY: OKLAHOMA

GPS LOCATION: 35°23'04.459"N | 97°34'28.712"W

WHY CRITICAL:

☐ **Emergency Service** | X **Government** | ☐ **Health Service** | X **Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1981		1	IIB	1,200

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #13

FACILITY LOCATION: W of HWY 62 & N OF 89th STREET

COUNTY: CLEVELAND

GPS LOCATION: 35°22'39.165"N 97°34'32.666"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1981		1	IIB	1,200

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #14

FACILITY LOCATION: 9724 S. PORTLAND

COUNTY: CLEVELAND

GPS LOCATION: 35°22'14.477"N 97°34'42.085"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	XUtility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1984		1	IIB	1,512

Building value: $53,500

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,675	PGA 4-6%
Expansive soil			5.00%	2,675	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,350	
High winds			25.00%	13,375	
Lightning	X		10.00%	5,350	
Tornado	X	Light	85.00%	45,475	Zone IV
Wildfires	X			0	
Winter storms			25.00%	13,375	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WATER WELL #15

FACILITY LOCATION: 10536 S. PORTLAND

COUNTY: CLEVELAND

GPS LOCATION: 35°21'45.795"N 97°35'00.166"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1984		1	IIB	1,428

Building value: $50,156

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,508	PGA 4-6%
Expansive soil			5.00%	2,508	
Extreme heat				0	
Flooding				0	
Hail	X		10.00%	5,016	
High winds			25.00%	12,539	
Lightning	X		10.00%	5,016	
Tornado	X	Light	85.00%	42,633	Zone IV
Wildfires	X			0	
Winter storms			25.00%	12,539	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP CONTROL BUILDING

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'30.461"N 97°45'05.404"W

WHY CRITICAL:

☐ Emergency Service	XGovernment	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	1,985

Building value: $111,458

Contents value: $478,302

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	29,488	PGA 4-6%
Expansive soil			5.00%	29,488	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	58,976	
High winds	X		25.00%	147,440	
Lightning	X		10.00%	58,976	
Tornado	X	Heavy	85.00%	501,296	Zone IV
Wildfires				0	
Winter storms	X		25.00%	147,440	Snow loading

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP STORM PUMP STATION

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'29.405"N 97°45'06.211"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **XUtility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1993		1	IIB	510

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP SCREW PUMPS & GRIT CHAMBER

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'29.558"N 97°45'07.287"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **X Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	1,926

Building value: $465,406

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	23,270	PGA 4-6%
Expansive soil			5.00%	23,270	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	46,541	
High winds	X		25.00%	116,352	
Lightning	X		10.00%	46,541	
Tornado	X	Heavy	85.00%	395,595	Zone IV
Wildfires				0	
Winter storms	X		25.00%	116,352	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP BLOWER BUILDING

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'30.977"N 97°45'09.360"W

WHY CRITICAL:

☐ Emergency Service | X Government | ☐ Health Service | X Utility | ☐ Resource | ☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1996		1	IIB	1,500

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP SLUDGE PUMPS

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'31.924"N 97°45'09.154"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **X Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	700

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Light	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP PRESS BUILDING

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'31.782"N 97°45'09.954"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **X Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2000		1	IIB	1,450

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP DIGESTER & PUMP HOUSE

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'33.126"N 97°45'10.157"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB	5,266

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Light	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP CLARIFIER #1

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'32.566"N 97°45'05.702"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **XUtility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2008		1		8,490

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP CLARIFIER #1 PUMP CONTROL BUILDING

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'33.168"N 97°45'06.478"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **XUtility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2008		1	IIB	652

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP CLARIFIER #2

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'32.468"N 97°45'07.130"W

WHY CRITICAL:

☐ **Emergency Service** X **Government** ☐ **Health Service** X**Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1		3,420

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP CLARIFIER #3

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'32.506"N 97°45'08.311"W

WHY CRITICAL:

☐ **Emergency Service** X **Government** ☐ **Health Service** X **Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1		3,420

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP AERATION BASIN

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'31.855"N 97°45'07.726"W

WHY CRITICAL:

☐ **Emergency Service** X **Government** ☐ **Health Service** X**Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1		33,124

Building value: $510,033

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	25,502	PGA 4-6%
Expansive soil			5.00%	25,502	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	51,003	
High winds	X		25.00%	127,508	
Lightning	X		10.00%	51,003	
Tornado	X	Light	85.00%	433,528	Zone IV
Wildfires				0	
Winter storms			25.00%	127,508	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP CHLORINE / DE-CHLORINATE BUILDINGS

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'33.005"N 97°45'07.690"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1	IIB / 5B	1,350

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP SHOP & STORAGE BUILDING

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'31.568"N 97°45'05.388"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
		1	IIB / 5B	720

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Heavy	85.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP PORTABLE POWER PLANT

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'31.102"N 97°45'05.343"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	X Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1979		1		288

Building value: $42,716

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	2,136	PGA 4-6%
Expansive soil			5.00%	2,136	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	4,272	
High winds	X		25.00%	10,679	
Lightning	X		10.00%	4,272	
Tornado	X	Heavy	85.00%	36,309	Zone IV
Wildfires				0	
Winter storms	X		25.00%	10,679	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP SLUDGE COMPOST AREA

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'34.225"N 97°45'11.386"W

WHY CRITICAL:

☐ Emergency Service	X Government	☐ Health Service	XUtility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2000		1		44,800

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail	X		10.00%	0	
High winds	X		25.00%	0	
Lightning	X		10.00%	0	
Tornado	X	Light	85.00%	0	Zone IV
Wildfires				0	
Winter storms			25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WWTP STORM LAGOON

FACILITY LOCATION: 501 W. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'33.950"N 97°45'16.591"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **X Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1993		1		330,625

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure	X			0	Lagoon dike wall failure
Drought				0	
Earthquake	X	Very Light	5.00%	0	PGA 4-6%
Expansive soil			5.00%	0	
Extreme heat				0	
Flooding	X			0	100 Year
Hail			10.00%	0	
High winds			25.00%	0	
Lightning			10.00%	0	
Tornado		Light	85.00%	0	Zone IV
Wildfires				0	
Winter storms			25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #1

FACILITY LOCATION: 1220 E. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'19.906"N | 97°42'55.787"W

WHY CRITICAL:

☐ **Emergency Service** | **XGovernment** | ☐ **Health Service** | **X Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1980	19XX?	1	Concrete	

Building value: $42,079

Contents value: $214,322

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	5,128	PGA 4-6%
Expansive soil	X	Very Light	2.00%	5,128	
Extreme heat				0	
Flooding	X		5.00%	12,820	500 year
Hail	X		5.00%	12,820	
High winds				0	
Lightning	X		5.00%	12,820	
Tornado	X		50.00%	128,201	Zone IV
Wildfires				0	
Winter storms	X		25.00%	64,100	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #2

FACILITY LOCATION: 2506 BIGHORN CANYON

COUNTY: CANADIAN

GPS LOCATION: 35°28'46.003"N | 97°44'21.346"W

WHY CRITICAL:

☐ **Emergency Service** | **XGovernment** | ☐ **Health Service** | **X Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1980		1		

Building value: $137,771

Contents value: $104,027

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	4,836	PGA 4-6%
Expansive soil	X	Very Light	2.00%	4,836	
Extreme heat				0	
Flooding	X		5.00%	12,090	
Hail	X		5.00%	12,090	
High winds				0	
Lightning	X		5.00%	12,090	
Tornado	X		50.00%	120,899	Zone IV
Wildfires				0	
Winter storms	X		25.00%	60,450	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #3

FACILITY LOCATION: STONE MILL

COUNTY: CANADIAN

GPS LOCATION: 35°29'03.558"N 97°43'33.945"W

WHY CRITICAL:

☐ **Emergency Service** X **Government** ☐ **Health Service** X **Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2005		1		

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	0	PGA 4-6%
Expansive soil	X	Very Light	2.00%	0	
Extreme heat				0	
Flooding	X		5.00%	0	
Hail	X		5.00%	0	
High winds				0	
Lightning	X		5.00%	0	
Tornado	X		50.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #4

FACILITY LOCATION: 1140 LAKESHORE DRIVE

COUNTY: CANADIAN

GPS LOCATION: 35°30'27.791"N 97°43'20.785"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **X Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1983		1		

Building value: $13,771

Contents value: $82,775

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	1,931	PGA 4-6%
Expansive soil	X	Very Light	2.00%	1,931	
Extreme heat				0	
Flooding	X		5.00%	4,827	100 Year
Hail	X		5.00%	4,827	
High winds				0	
Lightning	X		5.00%	4,827	
Tornado	X		50.00%	48,273	Zone IV
Wildfires				0	
Winter storms	X		25.00%	24,137	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #5

FACILITY LOCATION: 1015 KALI

COUNTY: CANADIAN

GPS LOCATION: 35°30'36.763"N 97°45'34.272"W

WHY CRITICAL:

☐ Emergency Service | X Government | ☐ Health Service | X Utility | ☐ Resource | ☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
	19XX?	1		

Building value: $11,476

Contents value: $91,966

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	2,069	PGA 4-6%
Expansive soil	X	Very Light	2.00%	2,069	
Extreme heat				0	
Flooding	X		5.00%	5,172	
Hail	X		5.00%	5,172	
High winds				0	
Lightning	X		5.00%	5,172	
Tornado	X		50.00%	51,721	Zone IV
Wildfires				0	
Winter storms	X		25.00%	25,861	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #6

FACILITY LOCATION: 1224 E. VANDAMENT

COUNTY: CANADIAN

GPS LOCATION: 35°29'36.660"N | 97°43'10.916"W

WHY CRITICAL:

☐ **Emergency Service** | **XGovernment** | ☐ **Health Service** | **X Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1994	2002	1		

Building value: $13,771

Contents value: $103,999

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	2,355	PGA 4-6%
Expansive soil	X	Very Light	2.00%	2,355	
Extreme heat				0	
Flooding	X		5.00%	5,889	
Hail	X		5.00%	5,889	
High winds				0	
Lightning	X		5.00%	5,889	
Tornado	X		50.00%	58,885	Zone IV
Wildfires				0	
Winter storms	X		25.00%	29,443	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #7

FACILITY LOCATION: 501 ASH

COUNTY: CANADIAN

GPS LOCATION: 35°30'43.616"N 97°45'01.506"W

WHY CRITICAL:

☐ Emergency Service | X Government | ☐ Health Service | X Utility | ☐ Resource | ☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2006		1		

Building value: $22,292

Contents value: $42,448

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	1,295	PGA 4-6%
Expansive soil	X	Very Light	2.00%	1,295	
Extreme heat				0	
Flooding	X		5.00%	3,237	
Hail	X		5.00%	3,237	
High winds				0	
Lightning	X		5.00%	3,237	
Tornado	X		50.00%	32,370	Zone IV
Wildfires				0	
Winter storms	X		25.00%	16,185	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #8

FACILITY LOCATION: HEALTH CENTER PARKWAY

COUNTY: CANADIAN

GPS LOCATION: 35°28'51.680"N 97°45'59.256"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **X Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2000		1		

Building value: $22,292

Contents value: $84,897

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	2,144	PGA 4-6%
Expansive soil	X	Very Light	2.00%	2,144	
Extreme heat				0	
Flooding	X		5.00%	5,359	
Hail	X		5.00%	5,359	
High winds				0	
Lightning	X		5.00%	5,359	
Tornado	X		50.00%	53,595	Zone IV
Wildfires				0	
Winter storms	X		25.00%	26,797	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #9

FACILITY LOCATION: LEGACY LAKES

COUNTY: CANADIAN

GPS LOCATION: 35°29'28.208"N 97°43'33.435"W

WHY CRITICAL:

☐ **Emergency Service** **XGovernment** ☐ **Health Service** **XUtility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2005		1		

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	0	PGA 4-6%
Expansive soil	X	Very Light	2.00%	0	
Extreme heat				0	
Flooding	X		5.00%	0	
Hail	X		5.00%	0	
High winds				0	
Lightning	X		5.00%	0	
Tornado	X		50.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LIFT STATION #10

FACILITY LOCATION: 400 Pearl Street

COUNTY: CANADIAN

GPS LOCATION: 35°31'15.27"N | 97°44'08.39"W

WHY CRITICAL:

☐ **Emergency Service** | X **Government** | ☐ **Health Service** | X**Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2009		1		

Building value: _____ Contents value: _____

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Very Light	2.00%	0	PGA 4-6%
Expansive soil	X	Very Light	2.00%	0	
Extreme heat				0	
Flooding	X		5.00%	0	100 Year
Hail	X		5.00%	0	
High winds				0	
Lightning	X		5.00%	0	
Tornado	X		50.00%	0	Zone IV
Wildfires				0	
Winter storms	X		25.00%	0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WARNING SIREN #1

FACILITY LOCATION: 1800 block of E. WAGNER ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°31'19.962"N 97°42'32.000"W

WHY CRITICAL:

X **Emergency Service** | X **Government** | ☐ **Health Service** | ☐ **Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2002				

Building value: $37,023

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake				0	PGA 4-6%
Expansive soil				0	
Extreme heat				0	
Flooding				0	100 Year
Hail	X		25.00%	9,256	
High winds	X		70.00%	25,916	
Lightning	X		50.00%	18,512	
Tornado	X	Heavy	85.00%	31,470	Zone IV
Wildfires				0	
Winter storms	X		50.00%	18,512	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WARNING SIREN #2

FACILITY LOCATION: 615 ANNAWOOD; NE side of park

COUNTY: CANADIAN

GPS LOCATION: 35°30'54.152"N 97°43'56.585"W

WHY CRITICAL:

X **Emergency Service** | X **Government** | ☐ **Health Service** | ☐ **Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2002				

Building value: $37,023

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake				0	PGA 4-6%
Expansive soil				0	
Extreme heat				0	
Flooding				0	
Hail	X		25.00%	9,256	
High winds	X		70.00%	25,916	
Lightning	X		50.00%	18,512	
Tornado	X	Heavy	85.00%	31,470	Zone IV
Wildfires				0	
Winter storms	X		50.00%	18,512	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WARNING SIREN #3

FACILITY LOCATION: 2700 N. MUSTANG ROAD

COUNTY: CANADIAN

GPS LOCATION: 35°30'08.403"N 97°43'28.353"W

WHY CRITICAL:

X **Emergency Service** XGovernment ☐ **Health Service** ☐ **Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2002				

Building value: $37,023

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake				0	PGA 4-6%
Expansive soil				0	
Extreme heat				0	
Flooding				0	
Hail	X		25.00%	9,256	
High winds	X		70.00%	25,916	
Lightning	X		50.00%	18,512	
Tornado	X	Heavy	85.00%	31,470	Zone IV
Wildfires				0	
Winter storms	X		50.00%	18,512	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WARNING SIREN #4

FACILITY LOCATION: 12 S. 5th STREET

COUNTY: CANADIAN

GPS LOCATION: 35°30'24.843"N 97°45'02.853"W

WHY CRITICAL:

X **Emergency Service** XGovernment ☐ **Health Service** ☐ **Utility** ☐ **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2002				

Building value: $37,023

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake				0	PGA 4-6%
Expansive soil				0	
Extreme heat				0	
Flooding				0	
Hail	X		25.00%	9,256	
High winds	X		70.00%	25,916	
Lightning	X		50.00%	18,512	
Tornado	X	Heavy	85.00%	31,470	Zone IV
Wildfires				0	
Winter storms	X		50.00%	18,512	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WARNING SIREN #5

FACILITY LOCATION: 500 E. VANDAMENT

COUNTY: CANADIAN

GPS LOCATION: 35°29'23.371"N | 97°44'06.357"W

WHY CRITICAL:

X **Emergency Service** | X**Government** | ☐ **Health Service** | ☐ **Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2002				

Building value: $37,023

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake				0	PGA 4-6%
Expansive soil				0	
Extreme heat				0	
Flooding				0	
Hail	X		25.00%	9,256	
High winds	X		70.00%	25,916	
Lightning	X		50.00%	18,512	
Tornado	X	Heavy	85.00%	31,470	Zone IV
Wildfires				0	
Winter storms	X		50.00%	18,512	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WARNING SIREN #6

FACILITY LOCATION: FIRST PLACE BLVD.

COUNTY: CANADIAN

GPS LOCATION: 35°29'43.327"N 97°45'42.502"W

WHY CRITICAL:

XEmergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2002				

Building value: $37,023

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake				0	PGA 4-6%
Expansive soil				0	
Extreme heat				0	
Flooding				0	
Hail	X		25.00%	9,256	
High winds	X		70.00%	25,916	
Lightning	X		50.00%	18,512	
Tornado	X	Heavy	85.00%	31,470	Zone IV
Wildfires				0	
Winter storms	X		50.00%	18,512	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WARNING SIREN #7

FACILITY LOCATION: 2100 block of S. HOLLY

COUNTY: CANADIAN

GPS LOCATION: 35°29'10.151"N 97°45'04.474"W

WHY CRITICAL:

X Emergency Service	X Government	☐ Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2003				

Building value: $37,023

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake				0	PGA 4-6%
Expansive soil				0	
Extreme heat				0	
Flooding				0	
Hail	X		25.00%	9,256	
High winds	X		70.00%	25,916	
Lightning	X		50.00%	18,512	
Tornado	X	Heavy	85.00%	31,470	Zone IV
Wildfires				0	
Winter storms	X		50.00%	18,512	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: WARNING SIREN #8

FACILITY LOCATION: NW of 1608 GARTH BROOKS BLVD.

COUNTY: CANADIAN

GPS LOCATION: 35°28'57.254"N 97°45'40.988"W

WHY CRITICAL:

X **Emergency Service** | X**Government** | ☐ **Health Service** | ☐ **Utility** | ☐ **Resource** | ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2005				

Building value: $37,023

Contents value: $0

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake				0	PGA 4-6%
Expansive soil				0	
Extreme heat				0	
Flooding				0	
Hail	X		25.00%	9,256	
High winds	X		70.00%	25,916	
Lightning	X		50.00%	18,512	
Tornado	X	Heavy	85.00%	31,470	Zone IV
Wildfires				0	
Winter storms	X		50.00%	18,512	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: CIRCLE K WEST

FACILITY LOCATION: 1256 Garth Brooks

COUNTY: CANADIAN

GPS LOCATION: 35°29' 46.2268" N | 97° 45' 36.9338" W

WHY CRITICAL: Fuel and groceries

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** X **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1995		1	Brick	2,000

Building value: $250,000

Contents value: $250,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	25,000	
Expansive soil				0	
Extreme heat	X	Low	5.00%	25,000	
Flooding				0	
Hail	X	Low	10.00%	50,000	
High winds	X	Low	5.00%	25,000	
Lightning	X	Low	5.00%	25,000	
Tornado	X	High	85.00%	425,000	
Wildfires				0	
Winter storms	X	Low	20.00%	100,000	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: MURPHY USA

FACILITY LOCATION: 1212 S Garth Brooks

COUNTY: CANADIAN

GPS LOCATION: 35° 30' 24.1974" N | 97° 45' 45.1588" W

WHY CRITICAL: Fuel

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** X **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
ca 1995		1	Steel overhand / concrete bldg	400

Building value: $70,000

Contents value: $30,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	5,000	
Expansive soil				0	
Extreme heat	X	Low	5.00%	5,000	
Flooding				0	
Hail	X	Low	10.00%	10,000	
High winds	X	Low	5.00%	5,000	
Lightning	X	Low	5.00%	5,000	
Tornado	X	High	85.00%	85,000	
Wildfires				0	
Winter storms		Low	20.00%	20,000	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: CIRCLE K EAST

FACILITY LOCATION: 1100 Lake Shore

COUNTY: CANADIAN

GPS LOCATION: 35° 30' 28.2467" N | 97° 42' 38.9758" W

WHY CRITICAL: Fuel, groceries

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** x **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1990	1	Brick		4,800

Building value: $360,000

Contents value: $225,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure	X	Low	15.00%	87,750	
Drought				0	
Earthquake	X	Low	5.00%	29,250	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	87,750	
Hail	X		10.00%	58,500	
High winds	X		10.00%	58,500	
Lightning	X		5.00%	29,250	
Tornado	X		85.00%	497,250	
Wildfires				0	
Winter storms				0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: CIRCLE K SOUTH

FACILITY LOCATION: 1301 S Cornwell

COUNTY: CANADIAN

GPS LOCATION: 35° 29' 36.037" N | 97° 44' 33.0702" W

WHY CRITICAL: Fuel, food

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** X **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
1990		1	Brick	4,800

Building value: $320,000

Contents value: $225,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	27,250	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	81,750	
Hail	X		10.00%	54,500	
High winds	X		10.00%	54,500	
Lightning	X		5.00%	27,250	
Tornado	X		85.00%	463,250	
Wildfires				0	
Winter storms				0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: 7-11 EAST

FACILITY LOCATION: 601 S. RANCHWOOD

COUNTY: CANADIAN

GPS LOCATION: 35° 30' 53.1054" N | 97° 44' 13.2576" W

WHY CRITICAL:

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** X **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
> 20 yrs		1	Brick	4,200

Building value: $240,000

Contents value: $200,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	22,000	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	66,000	
Hail	X		10.00%	44,000	
High winds	X		10.00%	44,000	
Lightning	X		5.00%	22,000	
Tornado	X		85.00%	374,000	
Wildfires				0	
Winter storms				0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: 7-11 WEST

FACILITY LOCATION: 600 N VANDAMENT

COUNTY: CANADIAN

GPS LOCATION: 35° 29' 36.0982" N | 97° 45' 5.0602" W

WHY CRITICAL:

☐ Emergency Service ☐ Government ☐ Health Service ☐ Utility X Resource ☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
< 20 YR		1	Brick	4,500

Building value: $360,000

Contents value: $200,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	28,000	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	84,000	
Hail	X		10.00%	56,000	
High winds	X		10.00%	56,000	
Lightning	X		5.00%	28,000	
Tornado	X		85.00%	476,000	
Wildfires				0	
Winter storms				0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: CONOCO

FACILITY LOCATION: 303 E. MAIN

COUNTY: CANADIAN

GPS LOCATION: 35° 30' 27.963" N | 97° 44' 15.135" W

WHY CRITICAL: Fuel, food

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** X **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
< 20 YR		1	Brick	4,500

Building value: $360,000

Contents value: $200,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	28,000	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	84,000	
Hail	X		10.00%	56,000	
High winds	X		10.00%	56,000	
Lightning	X		5.00%	28,000	
Tornado	X		85.00%	476,000	
Wildfires				0	
Winter storms				0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: LOVE'S

FACILITY LOCATION: 600 N VANDAMENT

COUNTY: CANADIAN

GPS LOCATION: 35° 30' 28.3723" N | 97° 45' 32.8284" W

WHY CRITICAL: Fuel, food

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** X **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
> 20 YR		1	Brick	4,500

Building value: $360,000

Contents value: $200,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	28,000	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	84,000	
Hail	X		10.00%	56,000	
High winds	X		10.00%	56,000	
Lightning	X		5.00%	28,000	
Tornado	X		85.00%	476,000	
Wildfires				0	
Winter storms				0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: RANCHWOOD NURSING

FACILITY LOCATION: 2730 N. MUSTANG ROAD

COUNTY: CANADIAN

GPS LOCATION: 35° 29' 53.4826" N | 97° 43' 28.7497" W

WHY CRITICAL: Potential shelter, medical care, medical supplies

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** X **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
< 20 YR		1	Brick	9,800

Building value: $1,000,000

Contents value: $750,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	87,500	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	262,500	
Hail	X		10.00%	175,000	
High winds	X		10.00%	175,000	
Lightning	X		5.00%	87,500	
Tornado	X		85.00%	1,487,500	
Wildfires				0	
Winter storms	X		15.00%	262,500	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: VICTORIAN ESTATES

FACILITY LOCATION: 1129 CAMEO DRIVE

COUNTY: CANADIAN

GPS LOCATION: 35° 29' 55.1033" N | 97° 45' 27.0613" W

WHY CRITICAL: Medical care; long-term health care

☐ Emergency Service	☐ Government	X Health Service	☐ Utility	X Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
		1	Brick & wood	5,000

Building value: $360,000

Contents value: $200,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	28,000	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	84,000	
Hail	X		10.00%	56,000	
High winds	X		10.00%	56,000	
Lightning	X		5.00%	28,000	
Tornado	X		85.00%	476,000	
Wildfires				0	
Winter storms	X		15.00%	84,000	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: SPANISH COVE

FACILITY LOCATION: 11 PALM

COUNTY: CANADIAN

GPS LOCATION: 35° 29' 23.6594" N | 97° 45' 32.356" W

WHY CRITICAL:

☐ Emergency Service	☐ Government	X Health Service	☐ Utility	X Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
< 20 YR		2	Multiple buildings	4,500

Building value: $360,000

Contents value: $200,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	28,000	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	84,000	
Hail	X		10.00%	56,000	
High winds	X		10.00%	56,000	
Lightning	X		5.00%	28,000	
Tornado	X		85.00%	476,000	
Wildfires				0	
Winter storms	X		20.00%	112,000	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: SPANISH COVE

FACILITY LOCATION: 11 PALM

COUNTY: CANADIAN

GPS LOCATION: 35° 29' 23.6594" N | 97° 45' 32.356" W

WHY CRITICAL:

☐ Emergency Service	☐ Government	X Health Service	☐ Utility	X Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
< 20 YR		2	Multiple buildings	4,500

Building value: $360,000

Contents value: $200,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Low	5.00%	28,000	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Low	15.00%	84,000	
Hail	X		10.00%	56,000	
High winds	X		10.00%	56,000	
Lightning	X		5.00%	28,000	
Tornado	X		85.00%	476,000	
Wildfires				0	
Winter storms	X		20.00%	112,000	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: GRAN GRAN'S PLACE

FACILITY LOCATION: 1110 S CORNWELL

COUNTY: CANADIAN

GPS LOCATION: 35° 29' 44.2279" N | 97° 44' 33.2416" W

WHY CRITICAL: Potential shelter

☐ **Emergency Service** ☐ **Government** ☐ **Health Service** ☐ **Utility** X **Resource** ☐ **Other**

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
> 20 YR		1	Wood	3,200

Building value: $360,000

Contents value: $200,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure				0	
Drought				0	
Earthquake	X	Moderrate	40.00%	224,000	
Expansive soil				0	
Extreme heat				0	
Flooding	X	Moderrate	50.00%	280,000	
Hail	X		10.00%	56,000	
High winds	X		40.00%	224,000	
Lightning	X		10.00%	56,000	
Tornado	X		90.00%	504,000	
Wildfires				0	
Winter storms				0	

CRITICAL FACILITY IDENTIFICATION

FACILITY NAME: INTEGRIS Canadian Valley Hospital

FACILITY LOCATION: 1201 Health Center Parkway

COUNTY: CANADIAN

GPS LOCATION: 35° 29' 0.4124" | °

WHY CRITICAL: Health care facility - hospitall

☐ Emergency Service	☐ Government	X Health Service	☐ Utility	☐ Resource	☐ Other

ABOUT THE STRUCTURE:

Year built:	Year Upgraded:	Stories:	Type of Construction:	Square Feet:
2001		3	Steel / concrete	178,000

Building value: $121,500,000

Contents value: $41,500,000

	Susceptible to this risk?	Damage anticipated?	Percent of loss	Value of loss	NOTES
Dam Failure	x	Low	5.00%	8,150,000	
Drought	x	Low	5.00%	8,150,000	
Earthquake	x	Low	5.00%	8,150,000	
Expansive soil	x	Low	10.00%	16,300,000	
Extreme heat	x	Low	10.00%	16,300,000	
Flooding	x	Moderate	25.00%	40,750,000	
Hail	x	Moderate	25.00%	40,750,000	
High winds	x	Moderate	25.00%	40,750,000	
Lightning	x	Moderate	25.00%	40,750,000	
Tornado	x	High	100.00%	163,000,000	
Wildfires	x	High	100.00%	163,000,000	
Winter storms	x	Moderate	25.00%	40,750,000	