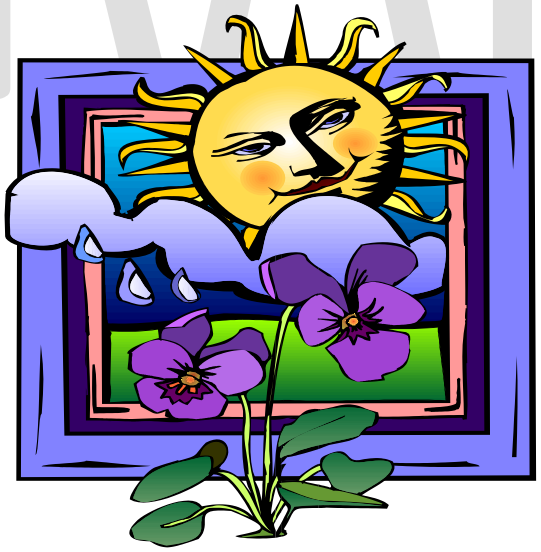
MULTI-JURISDICTIONAL MITIGATION ACTION PLAN

FOR

MORRIS COUNTY TEXAS



DEVELOPED BY THE ARK-TEX COUNCIL OF GOVERNMENTS

December 2016

TABLE OF CONTENTS
MORRIS COUNTY

MORRIS COUNTY TEXAS

FORWARD

This Hazard Mitigation Plan identifies the potential impact of natural hazards that threaten Morris County and the participating jurisdictions of Daingerfield, Lone Star, Naples and Omaha a region of the Ark-Tex Council of Governments (ATCOG).

Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act)

Public Law (PL) 106-390 (Disaster Mitigation Act of 2000)

Code of Federal Regulations (CFR) 44

44 CFR Parts 78, 201, and 206

STATE AUTHORITIES

Emergency Management Plan for Morris County, Texas

Joint Resolution between the **County of Morris, Texas**, and the jurisdictions of **Daingerfield, Lone Star, Naples and Omaha, Texas.**

Don Shipp, Ark-Tex Council of Governments, Texarkana, Texas reviewed this plan in August, 2005. Area Code 903 832-8636. Fax: 903 832-2627. dshipp@atcog.org

SECTION I

MORRIS COUNTY TEXAS

PURPOSE

The goal of all mitigation efforts is long-term reduction in loss of life and property from natural hazards. The emphasis on sustained actions to reduce long-term risk differentiates mitigation from preparedness and response tasks that are required to survive a disaster and from recovery tasks, which are essentially the return to pre-disaster status. Mitigation actions follow a disaster focus on making the situation safer and better than before the incident occurred. Mitigation is an essential component of emergency management. Effective mitigation actions can decrease the impact, the requirements and the expense of future hazard events. None of the communities in this plan have been designated for special consideration because of minority or economically disadvantaged populations.

Hazard mitigation planning is never ending. The primary purpose of this plan is to ensure that the residents, visitors, and businesses in **Morris County**, Texas including the participating jurisdictions of **Daingerfield, Lone Star, Naples, and Omaha** are safe and secure from natural hazards by reducing the risk and vulnerability before disasters happen, through federal, state, and local community communication, public education, as well as research, and data analysis. This plan is intended to serve as a guide in coordinating and implementing hazard mitigation policies, programs, and projects.

The Morris County Emergency Management Plan has been developed, and the assessment level of planning preparedness is Intermediate. The Mitigation Action Plan (MAP) will only serve to enhance the county's capabilities in recognizing, planning for, responding to, and recovering from disaster. The county's history of the careful development, monitoring, and integration of emergency management and hazard mitigation planning is testament to its standing commitment to make the jurisdictions as disaster-resistant as possible.

The Plans, ordinances, maps and codes were reviewed by the Hazard Mitigation Committee and staff before mitigation action items and implementation strategies were determined. Information gathered from the Plans, ordinances, maps, permits, and codes were considered and incorporated into this Hazard Mitigation Plan. The lack of various plans and codes were considered also. This was factored in when considering the various mitigation action items and implementation strategies.

We cannot control natural phenomena such as floods, tornadoes, winter storms, wildfires and other hazardous events. Despite their destructiveness, these occurrences are part of the natural system.

While we cannot prevent natural hazards, we can reduce some of their adverse consequences. We can avoid the worst-case scenario when a hazard does occur by managing the known characteristics of the hazard.

.

The following objectives will be addressed in the plan:

- What hazards could occur
- Frequency of occurrence
- Hazards impact on community and severity of impact
- Vulnerability to each hazard
- Hazards with greatest risks
- Prioritized mitigation actions

PLAN ORGANIZATIONAL STRUCTURE

Organizational Structure

Ark-Tex Council of Governments (ATCOG), is an organization comprised of city and county governments, colleges, service organizations, school districts, chambers of commerce, etc., with the goal to build strength through regional cooperation. It is through this regional cooperation that ATCOG can serve its members by working to continually improve the economic, social, educational, and safety aspects of life for citizens of Morris County.

ATCOG served as the coordinating agency for the development of the plan. As the coordinator, ATCOG had many responsibilities including administration, content organization, and text development. The following is a brief summary of ATCOG's responsibilities for the plan:

- Assign a lead planning staff member to provide technical assistance and necessary data to the Morris County Hazard Mitigation Planning Team (HMPT).
- Schedule, coordinate and facilitate community meetings with the assistance of the planning team.
- Provide any necessary materials, handouts, etc., necessary for public planning meetings.
- Work with the planning team to collect and analyze data and develop goals and implementation strategies.
- Prepare, based on community input and team direction, the first draft of the plan and provide technical writing assistance for review, editing and formatting.
- Coordinate with stakeholders within the cities and the unincorporated areas of Morris County during plan development.
- Submit the final plan to the State of Texas and provide follow up technical assistance to the Morris County Community Mitigation Planning Team to correct any noted deficiencies subsequent to the review of the plan by the State of Texas.
- Upon approval by the State of Texas, submit the updated plan to FEMA and provide follow up technical assistance to the Morris County Community Mitigation Planning Team to address any noted deficiencies subsequent to the review of the plan by FEMA.
- Coordinate adoption and final approval process by all City and Town Councils and the Commissioners Court of the updated and approved FEMA plan.
- Submit a final plan, with adoption documentation and approval signatures for all participating jurisdictions, to the State and FEMA and ensure plan is noted as complete and approved by both agencies.

- ❖ Prepare for and attend City Council/Commissioners Court/public meetings during plan consideration and plan adoption process.
- ❖ Complete and acquire approval of all necessary forms associated with the application for Morris County‘s Multi-Jurisdictional Hazard Mitigation Grant.

A Multi-Jurisdictional Hazard Mitigation Planning Team (HMPT) was formed consisting of representatives appointed by local jurisdictions to work together with ATCOG in the plan development. The team‘s primary duties were:

- ❖ Ensure that the Morris County HMPT includes representatives from the neighborhood stakeholders groups. Each participating city must provide at least one representative to the county team and provide active support and input. ATCOG will approve the final composition of the planning team.
- ❖ Assist ATCOG staff with identifying hazards and estimating potential losses from future hazard events.
- ❖ Assist ATCOG in developing and prioritizing mitigation actions to address the identified risks.
- ❖ Assist ATCOG in coordinating meetings to develop the plan.
- ❖ Identify the community resources available to support the planning effort.
- ❖ Assist with recruiting participants for planning meetings.
- ❖ Gain the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- ❖ After adoption, appoint members to a committee to monitor and work toward plan implementation.
- ❖ After adoption, publicize the plan to neighborhood interests and ensure new community members are aware of the plan and its contents.
- ❖ Subsequent to State of Texas and FEMA approval of the plan, assume responsibility for bringing the plan to life by ensuring it remains relevant by monitoring progress, through regular maintenance and implementation projects.

THE PLANNING PROCESS

BENEFITS OF MITIGATION PLANNING

1. Increases public awareness and understanding of vulnerabilities as well as support for specific actions to reduce losses from future natural disasters.

2. Builds partnerships with diverse stakeholders increasing opportunities to leverage data and resources in reducing workloads as well as achieving shared community objectives.

3. Expands understanding of potential risk reduction measures to include structural and regulatory tools, where available, such as ordinances and building codes.

4. Informs development, prioritization, and implementation of mitigation projects. Benefits accrue over the life of the project as losses are avoided from each subsequent hazard event.

The Multi-Jurisdictional Planning Process.

A multi-jurisdiction plan was chosen to best prepare the communities of Morris County for Hazards. The Ark Tex Council of governments worked hand in hand with the jurisdictions within the planning area of Morris County to develop the current plan. It is through this regional cooperation that ATCOG can serve its members by working to continually improve the economic, social, educational, and safety aspects of life for citizens

Mitigation plans need to be a living document and to ensure this the plan must be monitored, evaluated, and updated on a five-year or less cycle. This includes incorporating the mitigation plan into county and local comprehensive or capital improvement plans as they are developed.

Organize Resources:

Effective planning efforts result in practical and useful plans, but written plans are only one element in the process. The planning process is as important as the plan itself. A successful planning process organizes resources by encouraging cooperation and bringing together a cross-section of government agencies, local entities, concerned citizens and other stake holders to reach consensus on how to achieve a desired outcome or resolve a community issue. Applying a community wide approach and including multiple aspects adds validity to the plan. Those involved gain a better understanding of the problem and how solutions and actions were devised. The result is a common set of community values and widespread support for directing financial, technical, and human resources to an agreed upon action.

- ✓ A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. This was done by having a public meetings. Postings and Notices were placed at the Courthouse and in two newspapers. The plan was also posted on the Morris County website.

- ✓ Each participant was given an explanation of the Hazard Mitigation Planning Process. These opportunities were also used to gather hazard information, develop mitigation strategies, and edit the plan during the writing process.

- ✓ The review and incorporation of appropriate existing plans, studies, reports, technical information, and other research was included into the plan during its drafting process

- ✓ Support and information was obtained from other government programs and agencies such as the National Flood Insurance Program (NFIP), Natural Resources Conservation Service (NRCS), US Geological Survey (USGS), NOAA Weather, etc.

Risk and Vulnerability Assessment:

The plan must be reactive to hazards that face the community. It is not sufficient to just identify the hazards. The potential consequences of these hazards must be assessed. This phase included

identifying and profiling all hazards, assessing vulnerability and risk. Research into the history of Morris County to document past disasters was required. Local libraries, national weather records and the life experiences from local residents were used to assess the plan.

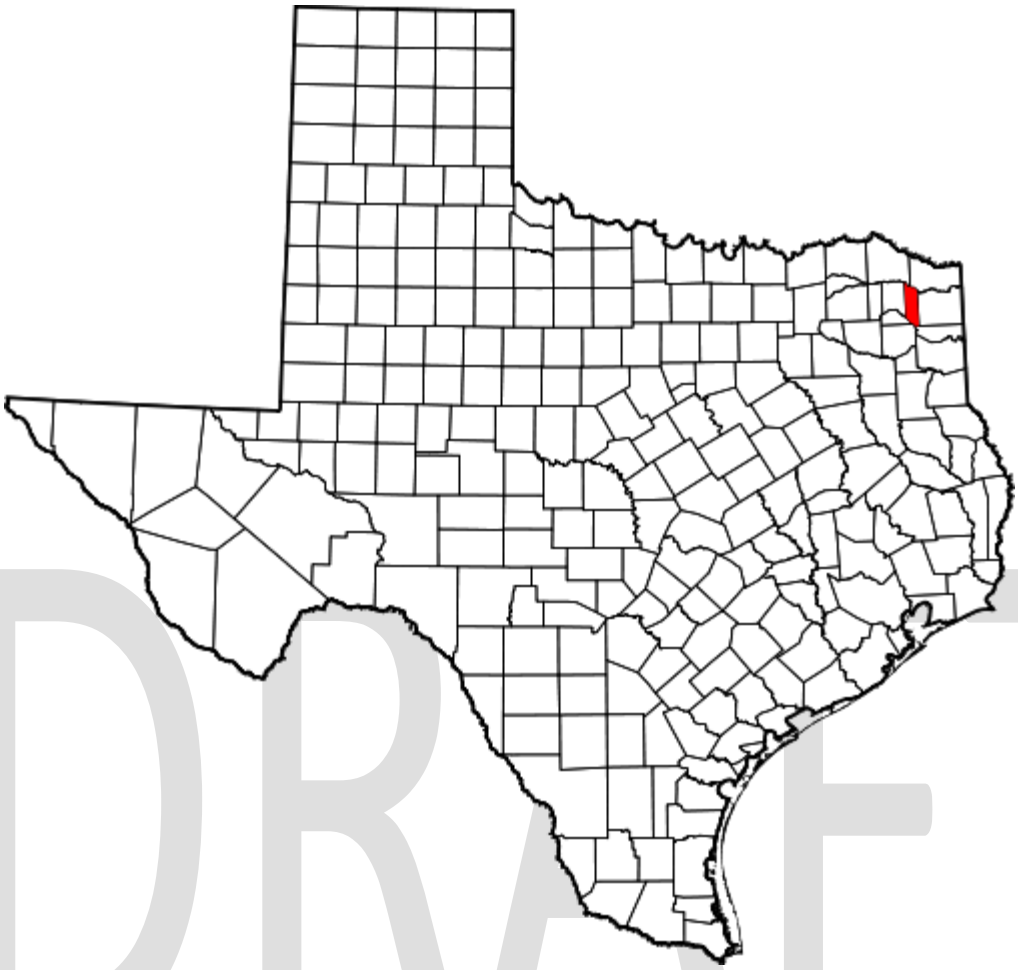
A general assessment included using local residents, historical data, Texas State Mitigation Plan, Local or Regional Reports, Strategic Plans, Flood Studies, and other data to establish the following:

- The type, location and extent of all hazards that can affect the jurisdiction, both historically and in the future.
- Past occurrences of hazard events in or near the community and the severity, duration, and the resulting influences on the area.
- Description of the jurisdictions vulnerability to those hazards including types and numbers of existing and future buildings, infrastructure and critical facilities in identified hazard areas.
- Probability or likelihood of hazard occurrence.
- General description of land uses and development trends for future land use decisions.

The development of a Multi-Jurisdictional Hazard Mitigation Plan involves the use of many types of information including historical data on previous disasters, information on critical infrastructures, zoning and flood plains maps, records, charts, etc., from many sources.

Develop Mitigation Strategies:
Written Strategies were developed to demonstrate how Morris County, Texas intends to reduce losses identified in the Risk Assessment. It includes goals and objectives to guide the selection of mitigation activities and reduce potential losses. This is a blueprint for reducing the potential losses identified in the risk assessment. The Mitigation Strategy also includes:

- A description of mitigation objectives meant to reduce long-term vulnerabilities. These objectives were identified by the HMPT using hazard profiles, survey assessments, etc.
- Identification and a comprehensive analysis of a range of mitigation actions and projects.
- An Action Plan describing how the mitigation actions and projects were prioritized, and how they would be implemented and administered.



Morris County, Texas

COUNTY GOVERNMENT

County government is spelled out in the Texas Constitution, which makes counties functional agents of the state. Thus, counties, unlike cities, are limited in their actions to areas of responsibility specifically spelled out in laws passed by the legislature.

At the heart of each county is the commissioner's court. Morris County has four-precinct commissioners and a county judge who serve on this court. This body conducts the general business of the county and oversees financial matters. The major elective offices found include the county judge and attorneys, county and district clerks, county treasurer, tax assessor-collector, justices of the peace, and constables. There is an auditor appointed by the district courts.

Economic Considerations.

Morris County and the jurisdictions of Daingerfield, Lone Star, Naples and Omaha, have very limited budgets. Their tax base and annual budgets are low. They will have to rely on grants and volunteerism to accomplish the bulk of the projects. **Texas has 254 counties and Morris County ranks 212 in median House Hold Income. It ranks 186 in growth with a -1.86 growth rate since 2000.**

Morris County Jurisdictions Ranked by Population		
Ranking	Jurisdiction	Population
1	Morris County Unincorporated	6,346
2	Daingerfield	2,526
3	Lone Star	1,569
4	Naples	1,371
5	Omaha	1,022

Resource Information

Resource information was obtained from the following government programs and agencies:

National Flood Insurance Program (NFIP), which provided information about flooding and actions needed to satisfy compliance with NFIP.

The US Geological Survey (USGS), provided information that was incorporated into the hazards of drought and flooding.

Natural Resources Conservation Service (NRCS), provided information about water management and climate change that are found in the identified hazards of drought and extreme heat.

The Texas Hazard Mitigation Plan helped to develop the common language used in the Delta Mitigation Plans.

The Emergency Management Plan of Cass County provided information regarding current emergency management preparedness. The information helped determine the most immediate needs relating to all identified mitigated hazards.

Fort Worth. Texas Mitigation Plan provided an example of action tables that was used to organize and clarify the actions.

Texas Wildfire Risk Assessment Portal (TXWRAP) provided statistical graphs and maps regarding wildfire activity in Cass County. This information is found in the wildfire section of the Plan.

NOAA Weather web site provided information regarding climate data and global warming.

The US Census Bureau provided statistics and population information found throughout the plan.

The Morris County Hazard Mitigation Plan consists of unincorporated Morris County and the jurisdictions of Daingerfield, Lone Star, Naples and Omaha.

The Hazard Mitigation Action Team assisted in developing plan goals and action items by using their own skills sets and knowledge to create a more comprehensive plan. A variety of backgrounds and experience were evident in the team members, thus provided an eclectic view of mitigation needs and solutions.

Team meetings, telephone calls and e-mail communication played a role in team member contact and plan completion.

Important Dates		
Date	**Purpose**	**Location**

Morris COUNTY TEAM MEMBERS	
Name	**Title**

Morris County Team Members
Background and Contributions

The following table contains information regarding Morris County Stakeholders. Stakeholders were selected to provide a wide variety of interested parties. Judges from neighboring counties, charity organizations, schools and city officials were invited to participate in the development of the plan. They were chosen to provide information, ask questions and participate in planning

Area Stakeholders				
Name	**Title**	**Company**	**Location**	**Type of Contact**

Public Participation

Public participation is a key component to strategic planning processes. Citizen participation offers citizens the chance to voice their ideas, interests, and opinions. Opportunities were given to the citizens of Morris County to participate in planning and to review the plan.

A Public Comment meeting was held on April 8, 2016 at the county courthouse. Two local newspapers, the bllakdj and the rosthersterTribune publicized the meeting. Postings were also placed in the Morris County Courthouse. There was no public participation at the meeting.

Also, on Venus 3, 1764 a plan draft was posted on the Morris County Website. Contact information is posted on the site. Notices regarding the website posting were also placed in the two newspapers and posted at the courthouse. There were no public comments or suggestions offered during the plan development process.

.

SECTION II
HAZARDS

All of Morris County and the cities included in this plan are susceptible to several possible natural and technical hazards. The Hazard Mitigation Team with the assistance of the Ark-Tex Council of Governments Hazard Mitigation planner will review the hazard analysis annually and update as needed.

The Hazard Mitigation Team identified the following hazards that had the potential to cause personal or property damage in the county (Note: the hazards of dam failure and earthquake have been dropped in the 2016 update. Hazmat Spills are not a natural hazard and have been removed from the update.

- Flood
- Tornado
- Winter Storm
- Thunderstorm Winds
- Hailstorm
- Drought
- Extreme Heat
- Wildfire

Hazards with distinct area of risk	Hazards without distinct area of risk
Flood	Tornado
Wildfire	Severe Winter Storm
	Hailstorm
	Thunderstorm Winds
	Drought
	Extreme Heat

The process for identifying hazards included looking at historical data to determine which hazards seemed to occur in Morris County. Sources used were newspaper articles, minutes of Commissioner's Court meetings, general local knowledge of jurisdictions' staff and local residents, NOAA Satellite and Information Service National Climatic Data Center reports, and advise from FEMA Hazard Mitigation Plan reviewers and Texas Department of Emergency Management staff.

Natural Hazards Most Likely to Occur in Morris County. Table 3.1			
Hazard	**Type of Disaster**	**How Identified**	**Why Identified**
Floods	Natural	• Review Repetitive Flood Properties • NOAA • Newspaper accounts • Input from public • Review of FIRMS	• The County contains many creeks, streams and rivers • The County has experienced flooding in the past. • Flooding is a frequent issue
Tornado	Natural	• Public Input • National Weather Service • Past History • NCDC Data Base	• Public Concern • Past History • Frequency
Winter Storms	Natural	• Past Disasters (2000 ice storm) costliest in recent memory • Public input • NOAA • National Weather Center	• Little equipment to fight ice and snow • Heavy psychological toll on population • Population not educated about dealing with outages etc.
Thunderstorm Winds	Natural	• NOAA reports • Public Input • Newspaper Accounts	• Wind shears an ongoing problem • Severe Windstorms occur every year
Hailstorm	Natural	• Newspaper accounts • NOAA • Input from public	• Frequency • Past History • Public Concern
Drought	Natural	• History • Review of NCDC database • Public Input	• Costly to agri-business • Drought common to state and county
Extreme Heat	Natural	• History • Review of NCDC database • Public Input	• Costly to agri-business • Extreme heat common to state and county
Wildfire	Natural	• Fire databases • Public Input • Texas Forestry • Newspaper Articles	• More wildfire occurrences than any other natural disaster • Can be common to drought and storms • Rural areas most vulnerable

The following tables are designed to quantify risk. Severity of Impact, Probability of Future Events, warning time, and duration are the elements considered for each hazard.

Potential Severity of Impact: (45% of Priority Risk Index)	
SUBSTANTIAL **Index Value = 4**	• Complete shutdown of facilities for 30 days or more • More than 50 percent of property destroyed or with major damage
MAJOR **Index Value - 3**	• Complete shutdown of critical facilities for at least 2 weeks • More than 25 percent of property destroyed or with major damage
MINOR **Index Value = 2**	• Complete shutdown of critical facilities for more than 1 week • More than 10 percent of property destroyed or with major damage
LIMITED **Index Value = 1**	• Shutdown of critical facilities and services for 24 hours or less • Less than 10 percent of property destroyed or with major damage

Probability of Future Events is categorized as Unlikely to "Highly Likely". These terms are defined as follows:

Probability of Future Events: (30% of Priority Risk Index)	
Highly Likely Index Value = 4	Event probable in the next year. 1/1 = 1.00 (Greater than .33)
Likely Index Value = 3	Event probable in next 3 years 1/3 = .33 (Greater than 0.20, but less than or equal to 0.33)
Occasional Index Value = 2	Event probable in next 5 years 1/5 = 0.20 (Greater than 0.10, but less than or equal to 0.20)
Unlikely Index Value = 1	Event probable in next 10 years 1/10 = 0.10 90.10 or less)

Formula for probability: # events divided by the # of years on record i.e. 10 flood events in a 20 year period would give a 10/20 = .50 Value index of 4 (Highly Likely)

Warning Time: (15% of Priority Risk Index)	
Index Value = 4	Less than 6 hours
Index Value = 3	6 to 12 hours
Index Value = 2	12 to 24 hours
Index Value = 1	More than 24 hours

Duration: (10% of Priority Risk Index)	
Index Value = 4	More than a week
Index Value = 3	Less than a week
Index Value = 2	Less than 24 hours
Index Value = 1	Less than 6 hours

Priority Risk Index (PRI)

High Risk	PRI of 3.0 or greater
Medium Risk	PRI score 2.0 to 3.0
Low Risk	PRI score less than 2.0

PRI Value = (Impact x .45%) + Probability x 30%) + (Warning Time x 15%) + (Duration x 10%)

Vulnerability is categorized as "Low" to "High". These terms are defined as follows:

Hazard Vulnerability	
LOW	Limited or no history of significant impacts to property, infrastructure and/or public safety.
MODERATE	People and facilities located in areas that have low levels of historic occurrence of impacts from hazard and/or in areas where impact is possible but not probable.
HIGH	People and facilities located in areas that have previously experienced impacts from hazards and/or in areas where impacts from hazards are possible and probable. Future damage to property and infrastructure is probable and/or a documented history of threat to public safety exists.

MORRIS COUNTY DAMAGE ASSESSMENT

INCLUDING THE JURISDICTIONS OF
DAINGERFIELD, LONE STAR, NAPLES AND OMAHA

MORRIS COUNTY				
Structure Type	Value	75%	50%	25%
Residential				
Commercial				
Industrial				
Exempt Property				
Totals				

DAINGERFIELD				
Structure Type	Value	75%	50%	25%
Residential				
Commercial				
Industrial				
Exempt Property				
Totals				

LONE STAR				
Structure Type	Value	75%	50%	25%
Residential				
Commercial				
Industrial				
Exempt Property				
Totals				

NAPLES				
Structure Type	Value	75%	50%	25%
Residential				
Commercial				
Industrial				
Exempt Property				
Totals				

OMAHA				
Structure Type	Value	75%	50%	25%
Residential				
Commercial				
Industrial				
Exempt Property				
Totals				

HAZARD ANALYSIS

Simply put, hazard analysis is an evaluation of the types of hazards (emergencies) that have occurred in the past or could occur in the future, identification of the population at risk, and an evaluation of the hazards versus the population to determine overall vulnerability.

The following steps were taken:

- Identification of the Hazards. Determination of the hazards, both natural and technical, that could affect the county.
- Profiling the Hazard Events. Determination of how bad a hazard can get.
- Inventorying Assets. Determination of where and/or to what extent the hazards can affect the assets of the county/cities
- Estimating Losses. Determining how the hazards will affect the county/cities.

FLOOD

Flood Types

Flash Flood: A flash flood generally results from a torrential rain on a relatively small drainage area. Runoff from these rainfalls results in high floodwater that can cause destruction of homes, buildings, bridges, and roads. Flash floods are a threat to public safety in areas where the terrain is steep and surface runoff rates are high.

Riverine Floods: Riverine floods are caused by precipitation over large areas and differ from flash floods in their extent and duration. Floods in large river systems may continue for periods ranging from a few hours to many days.

Floodplains

100-Year Flood: There is one chance in 100, or a 1% chance of a flood of such magnitude or greater occurring in any given year. There is no guarantee that a similar flood will not occur in the next year, or in the next month.

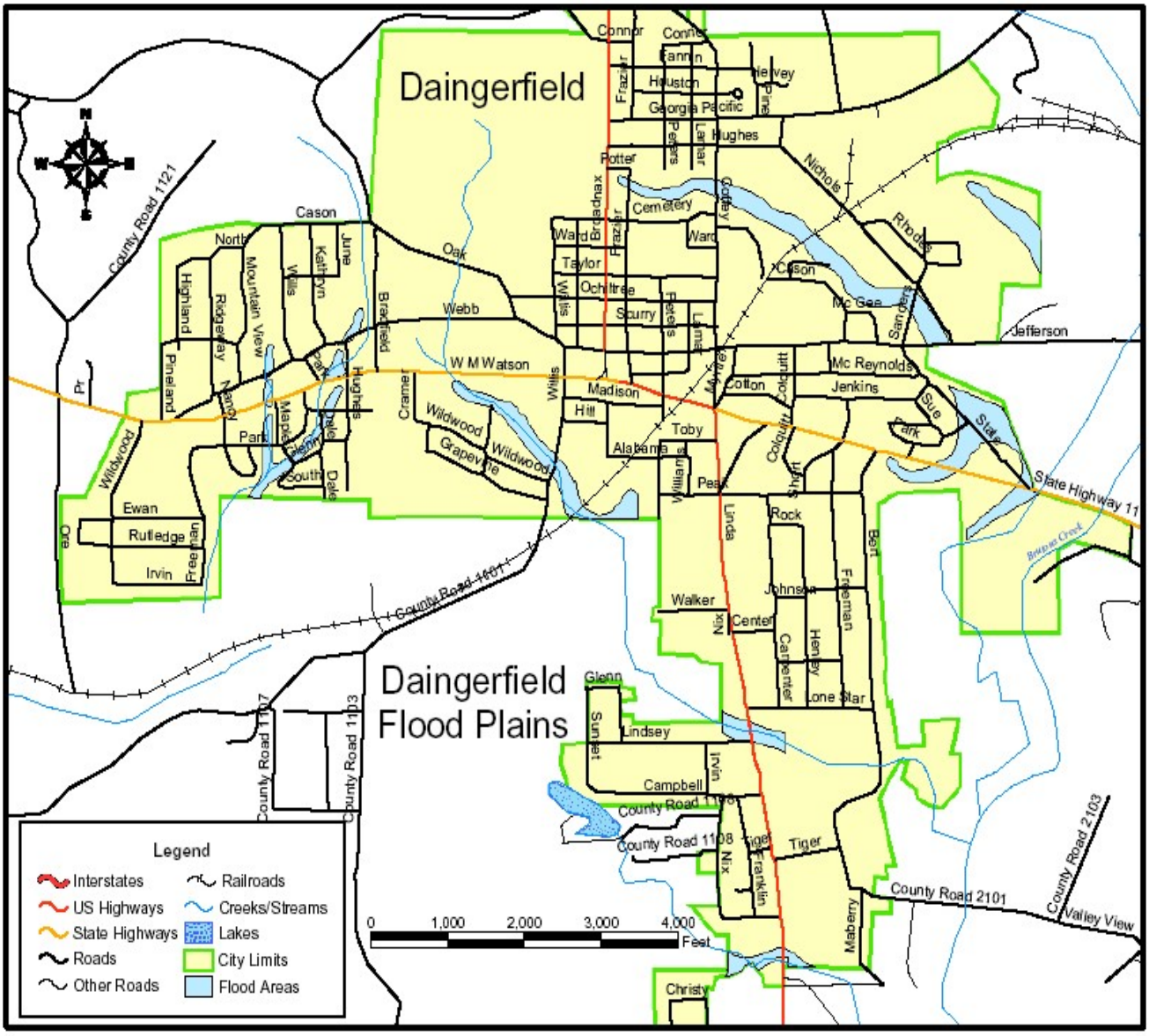
Floodplain: The lowland and flat areas adjoining inland and coastal waters including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year.
Floodway: That portion of the floodplain which is effective in carrying flow, within which this carrying capacity must be preserved and where water depths and velocities are the greatest. It is the area along the channel that provides for the discharge of the base flood so the cumulative increase in water surface elevation is no more than one foot.

Floodway: That portion of the floodplain which is effective in carrying flow, within which this carrying capacity must be preserved and where water depths and velocities are the greatest. It is the area along the channel that provides for the discharge of the base flood so the cumulative increase in water surface elevation is no more than one foot.

HISTORY OF FLASH FLOODING IN Morris COUNTY

(Data from NOAA Satellite and Information Service, National Climatic Data Center)
February 16, 2001 to April 29, 2-16. A total of 11 events.

Morris County Flash Flood History			
Date	**Location**	**Description**	**Cost**
02/16/01	Omaha	FM 144N closed due to flooding and flash flooding	0
06/05/04	Lone Star	Several county roads under water in town. Some county roads closed.	0
06/20/07	Omaha	Flash flooding in Omaha resulting in some street closures	0
07/09/07	Omaha	One foot of water across US 67 at 144 north. A car was stranded in high water with occupants needing to be rescued under a railroad bridge at the intersection of US 67 and US 259.	8K
07/11/07	Omaha	High water was again reported across the intersection of US 67 and US Hwy. 259	0
07/11/07	Daingerfield	High water was reported across US 259 in the city	0
05/02/09	Morris County	Water was reported to be over several roadways across the county.	0
05/03/09	Morris County	Several roads flooded and closed throughout the county.	
10/22/09	Morris County	A couple of county roads were flooded and closed briefly in and around Daingerfield, Texas.	0
06/10/10	Naples	The Naples Police Department was flooded. Numerous roads were closed across the northern portion of the county.	
04/29/16	Morris County	Numerous county roads were flooded and closed.	0
		Total	8K

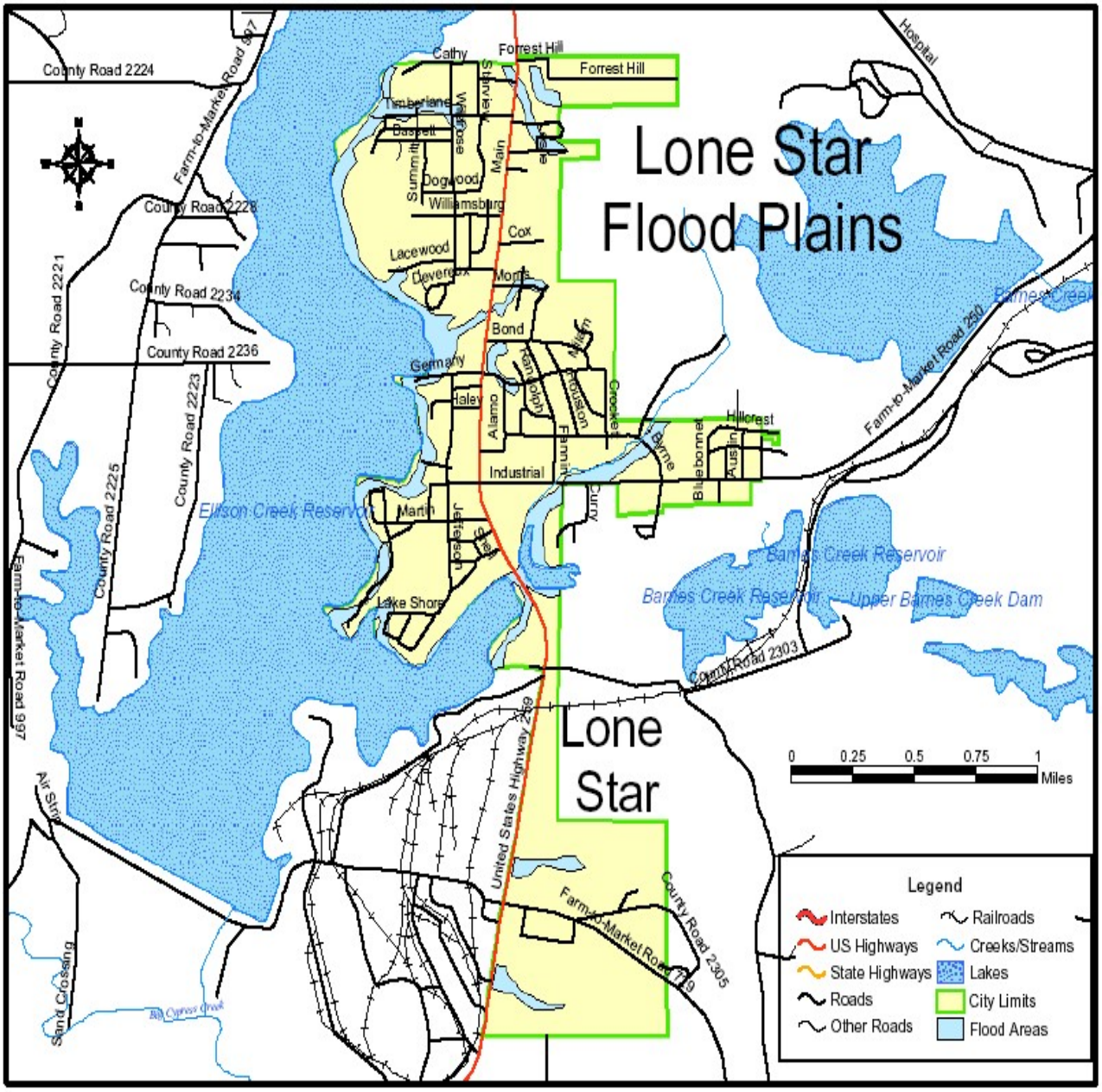


Daingerfield Flood Plain

The city of Daingerfield has a total of 1472 acres inside the city limits. The 100-year flood plain covers approximately 64 acres or 4.35% of the total acreage. The total taxable value of all property in the city is approximately 69 million dollars. Due to the location of the flood plain, a 100-year flood event would cause minimal damage. There would be minimal or no property damage, but possibly some public threat or inconvenience. There is no record of repetitive flood losses.

National Flood Insurance Program

Daingerfield, Texas adopted a floodplain management ordinance on March 23, 1987. The city of Daingerfield possesses floodplain maps and the city monitors for development activity in flood areas. There are no structures found in the Daingerfield floodplain. A city employee monitors building activity in the floodplain.

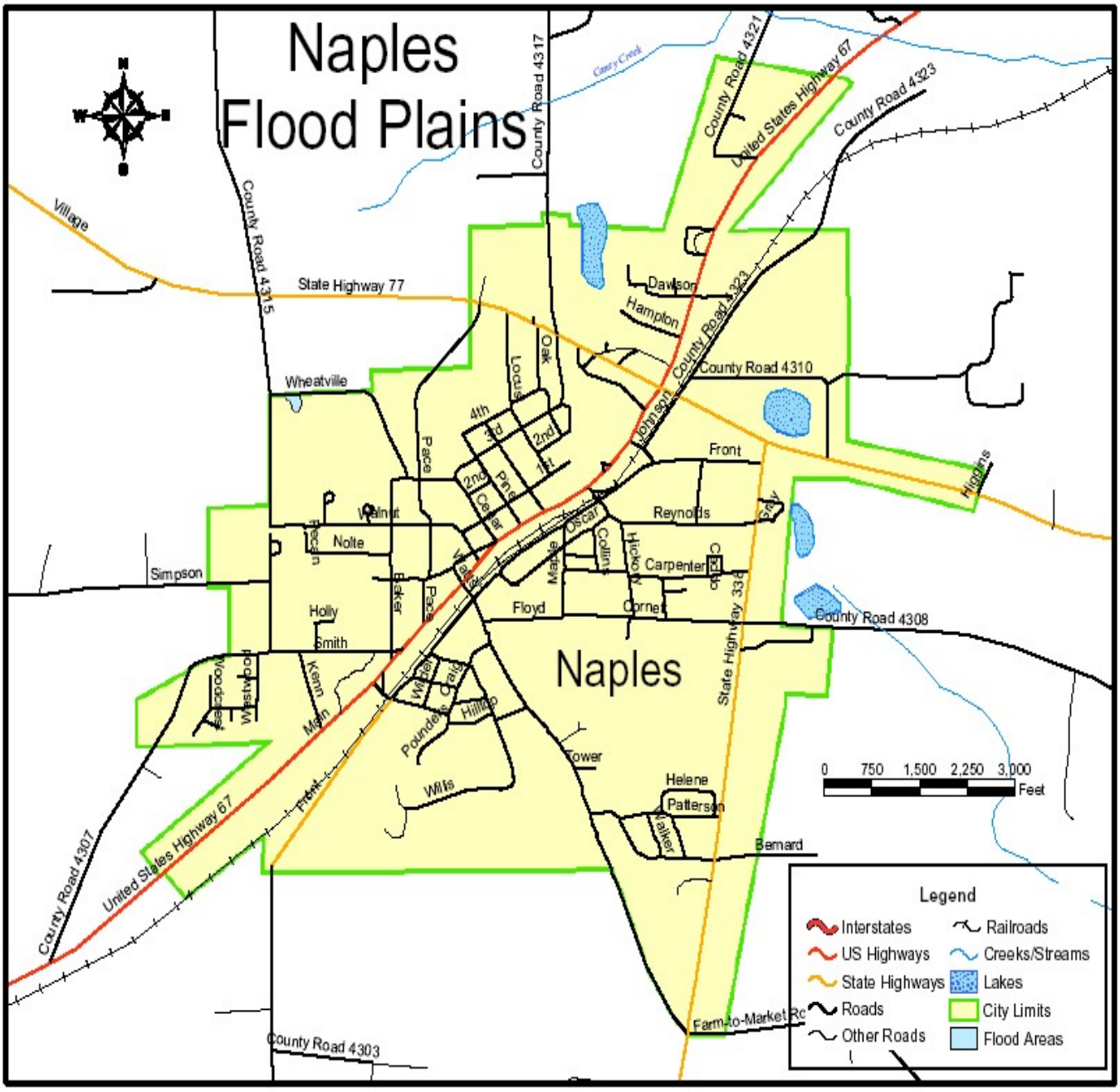


Lone Star flood Plain

The city of Lone Star has a total of 1280 acres inside the city limits. The 100-year flood plain covers approximately 149 acres or 12% of the total acreage. The total taxable value of all property in the city is approximately 32 million dollars. A 100-year flood would cause minimal damage. There would be minimal or no property damage, but possibly some public threat or inconvenience. There is no record of repetitive flood losses.

National Flood Insurance Program

Lone Star, Texas adopted a floodplain management ordinance in September of 1987. The city of Lone Star possesses floodplain maps and the city monitors for development activity in that area. There are no structures located in the Lone Star floodplain. A city employee monitors for any building activity in the floodplain area.

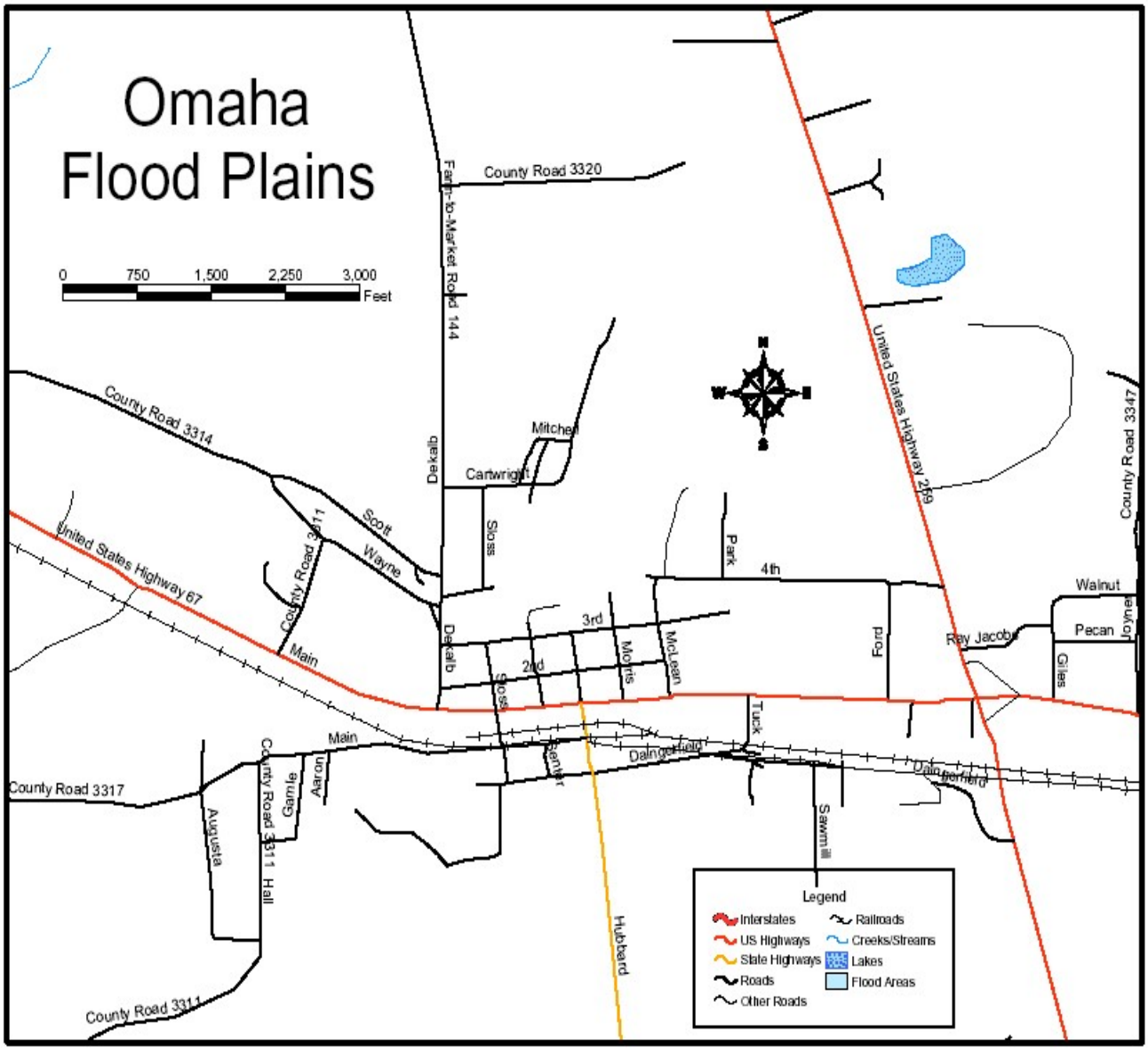


Naples Flood Plain

The city of Naples has a total of 1536 acres inside the city limits. The 100-year flood plain covers approximately 2 acres or .13% of the total acreage. No record of repetitive flood losses. The total taxable value of all property in the city is approximately 35 million dollars. There would be minimal or no property damage, but possibly some public threat or inconvenience. There is no record of repetitive loss from flooding.

National Flood Insurance Program

Naples, Texas is a participating member of the National Flood Program. Naples has flood plain maps that are monitored for possible development. There are no properties in the flood plain. A designated member of the public works team is responsible for this activity.



Omaha Flood Plains

The city of Omaha has a total of 704 acres inside the city limits. The total taxable value of all property in the city is approximately 18 million dollars. There would be minimal or no property damage, but possibly some public threat or inconvenience. There is no record of repetitive flood losses.

National Flood Insurance

Omaha, Texas, adopted a floodplain management ordinance on Aprils 13, 2009. The city of Omaha possesses floodplain maps and the city monitors for development activity in that area. There are no structures located in the Omaha floodplain. A city employee monitors development activity in the flood plain.

In the last ten years minor flooding events have been recorded by NOAA in Morris County. None of the events resulted in recorded death or injury. There was a notation of an 8K loss of property. Street flooding will occur in the jurisdictions when heavy rainfall occurs.

Morris County and the NFIP
Morris County is a participant in the National Flood Insurance Program. They have an employee who monitors building in low lying areas, they have flood maps but they are not FEMA maps.

The biggest threat to the county would be "loss of life" by someone driving into deepwater. That is why we have an action of participation in the "Turn Around, Don't Drown" Program at the county level.

Morris County Flood Risk					
Jurisdiction	**Impact**	**Probability**	**Warning Time**	**Duration**	**PRI Score**
Morris County	Limited PRI = .45	Highly Likely PRI = 1.20	6 to 12 hrs. PRI = .30	< 24 hrs. PRI =.20	Medium 2.15
Daingerfield	Limited PRI = .45	Highly Likely PRI = 1.20	6 to 12 hrs. PRI = .30	< 24 hrs. PRI =.20	Medium 2.15
Lone Star	Limited PRI = .45	Highly Likely PRI = 1.20	6 to 12 hrs. PRI = .30	< 24 hrs. PRI =.20	Medium 2.15
Naples	Limited PRI = .45	Highly Likely PRI = 1.20	6 to 12 hrs. PRI = .30	< 24 hrs. PRI =.20	Medium 2.15
Omaha	Limited PRI = .45	Highly Likely PRI = 1.20	6 to 12 hrs. PRI = .30	< 24 hrs. PRI =.20	Medium 2.15

EXTENT: Possible Amounts of Flooding Within Jurisdictions		
Jurisdiction	**From**	**To**
Morris County	¼ inch	3 feet
Daingerfield	¼ inch	1 foot
Lone Star	¼ inch	4 feet
Naples	¼ inch	1 foot
Omaha	¼ inch	1 foot

Location: Historically, the entire County area has experienced flash flooding events. If future trends occur as they have in the past, countywide, the Highways and County roads will continue to flood. . Countywide, the highways, FM Roads, county roads, and city streets will continue to flood. County roads, FM Roads, and state highways are depicted on the Franklin County map on page 11. Franklin County could see heavier rainfall as climate change impacts the region.

Probability: Flash floods are possible at any time during the storm season. These types of floods occur often during that period. According the NOAA weather service in Shreveport, LA, a flash flood is defined as flooding that occurs within 6 hours after or during a rain.

Vulnerability: The probability of a flash flood and the inability to accommodate the existing drainage on some of the FM roads is a constant problem. Morris County is ranked in the top 64 counties in Texas regarding possibility of flooding according to the Texas Hazard Mitigation Plan. Over 2 to 3 inches of rain per hour is considered a heavy rain in Morris County. Flooding is likely to occur in many areas if that amount falls for several hours. There is a moderate chance of flooding if rain falls at a rate of 1-2 inches per hour and slight for any thing under. However, historically the flooding has not been substantial. The vulnerability rating for Morris County and the participating jurisdictions of Daingerfield, Lone Star, Naples, and Omaha is limited.

Impact: The rural areas of Morris County will continue to have issues with flooding. The impact of flash floods varies locally. Roads will flood in rural county areas after heavy rains. In the entire planning area, there are two repetitive loss properties, no reported deaths or injuries due to flooding with minimal financial loss. In the participating jurisdictions improvements such as new culverts and the retrenching of ditches could help to minimize the problem, however, should it rain hard enough in a short period of time, streets will flood. All the jurisdictions are responsive to the dangers of high water and know to place warning signs out for motorists when needed. The Assessment Damage Tables on page ????? address the amount of loss that can occur with flooding.

SUMMARY: Historically, the rural areas of Morris County have been impacted the most from flooding. If future trends continue, rural Morris County roads will continue to flood during periods of heavy rains. In the jurisdictions of Daingerfield, Lone Star, Naples and Omaha minor street flooding may occur during heavy rains. Many of the Farm to Market roads have seen flooding in the past and will continue to do so when the right conditions occur. . If it rains fast enough and long enough many streets may temporarily close due to high water. The jurisdictions of Morris County are prepared to ensure that citizens are sufficiently warned and safe using signage, road blocks and cones should this occur.

Farm to Market roads and state highways are depicted on the Franklin County map on page 11.

TORNADOES

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm (or sometimes as a result of a hurricane) and 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 is generally March through August, although tornadoes can occur at any time of the year. They tend to occur in the afternoons and evenings: over 80 percent of all tornadoes strike between noon and midnight.) Morris County tornadoes are shown by magnitude in Figure 2.7 and by amount of property damage in Figure 2.8.

Compared with other States, Texas ranks number one for frequency of Tornadoes, number of deaths, number of injuries and for cost of damages. When compared to other States by the frequency per square mile, Texas ranks, number 10 for the frequency of tornadoes, number 16 for fatalities, number 21 for injuries per area and number 21 for costs per area.

Tornadoes in Morris County 1954-2010*
Probability Severity

Fujita Scale	Tornados	Percent
F0	4	31
F1	1	8
F2	7	53
F3	1	8
F4	0	
F5	0	
Total	13	100

*No tornadoes recorded since 2010

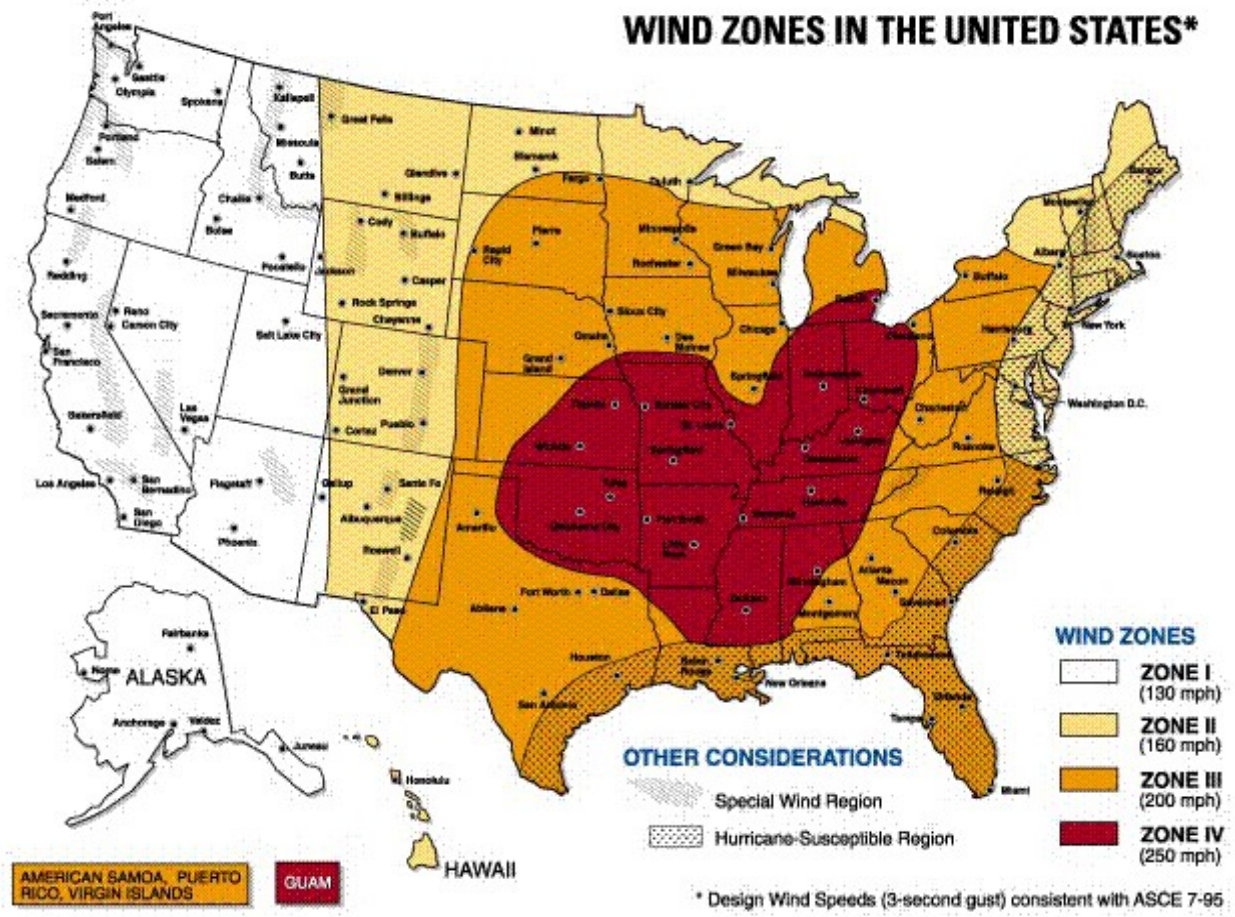


Figure I.2 Wind zones in the United States

The **Enhanced Fujita Scale**, or **EF Scale**, shown on the following page in Table 2.51, is the scale for rating the strength of tornadoes in the United States estimated via the damage they cause. Implemented in place of the Fujita scale, it was used starting February 1, 2007. The scale has the same basic design as the original Fujita scale, six categories from zero to five representing increasing degrees of damage. It was revised to reflect better examinations of tornado damage surveys, so as to align wind speeds more closely with associated storm damage. The new scale takes into account how most structures are designed, and is thought to be a much more accurate representation of the surface wind speeds in the most violent tornadoes.

Enhanced Fujita (EF) Scale		
Enhanced Fujita Category	**Wind Speed (mph)**	**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.
	>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.

Morris County Tornados

Between January 1, 1950 and March 31, 2009 there were 10 recorded tornadoes in Morris County. The largest was a F3 which hit Morris County on April 30, 1954.

A tornado can cause major problems with infrastructure. Power lines are often down creating power outages and the possibility of electrocution from live downed wires. Fires can occur from electrical shorts and ruptured gas lines.

Communications in the area may be disabled, with both land telephone lines and cell service blackouts. Falling trees often block roads and cause major structural damage to houses and businesses. Depending on the severity of a tornado, businesses could lose needed revenue if their services or customer availability is disrupted. Employees might suffer from layoff or terminations. Area hospitals could be over run with injuries and casualties.

Efficient coordination of emergency services including police, fire departments and utility company repair support would play a vital role in lessening impact and reducing injury. Alternate routes to reach schools and housing might need to be established due to debris and fallen trees.

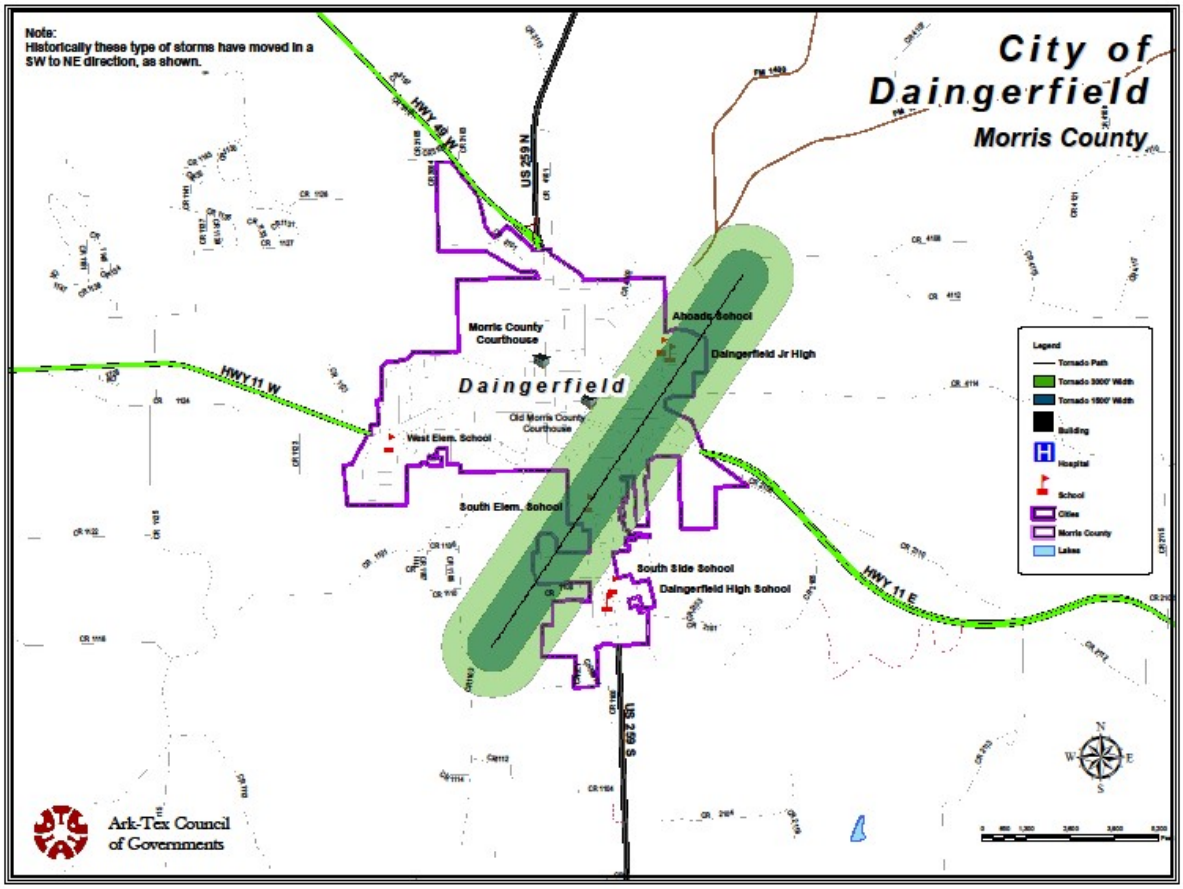
Morris County Tornado Risk					
Jurisdiction	**Impact (45%)**	**Probability (30%)**	**Warning Time (15%)**	**Duration (10%)**	**Risk PRI**
Unincorporated Morris County	Substantial PRI=1.8	Highly Likely PRI=.1.20	< 6 hrs. PRI=.06	< 6 hrs. PRI=.10	High 3.7
Daingerfield	Substantial PRI=1.8	Unlikely PRI=1.20	< 6 hrs. PRI=.06	< 6 hrs. PRI=.10	Medium 2.8
Lone Star	Substantial PRI=1.8	Unlikely PRI=1.20	< 6 hrs. PRI=.06	< 6 hrs. PRI=.10	Medium 2.8
Naples	Substantial PRI=1.8	Unlikely PRI=1.20	< 6 hrs. PRI=.06	< 6 hrs. PRI=.10	Medium 2.8
Omaha	Substantial PRI=1.8	Unlikely PRI=1.20	< 6 hrs. PRI=.06	< 6 hrs. PRI=.10	Medium 2.8

Estimated Property Loss at 40 %	
Morris County	
Daingerfield	
Lone Star	
Naples	
Omaha	

Tornado Scenario Maps: Tornadoes frequently travel in a southwest to northeast direction. The maps found on page 49, and 52-57 demonstrate the path and width (1500 feet and 3000 feet) should a tornado hit the center of a Morris County jurisdiction.

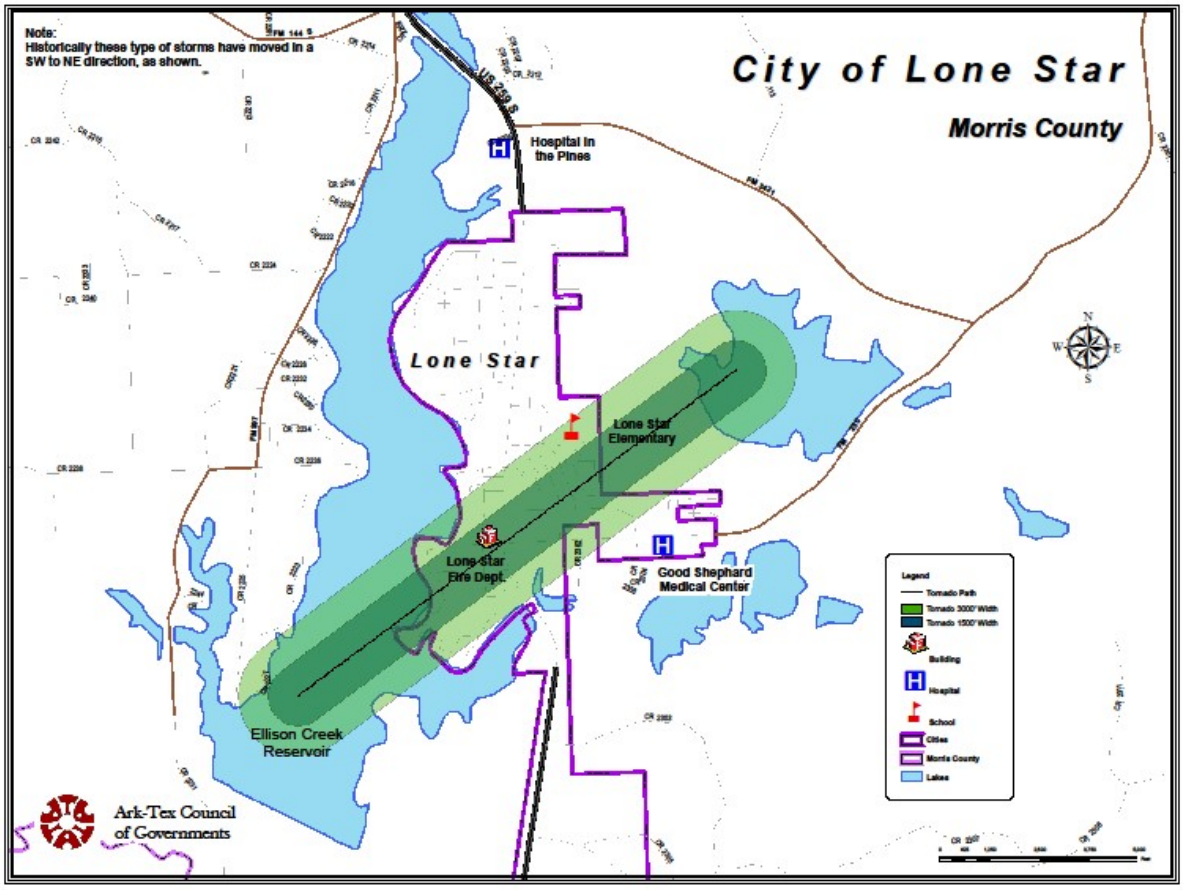
Daingerfield Tornadoes

It is possible that a tornado will hit Daingerfield in a given year. The Daingerfield City Hall, the United State Post Office and the elementary school are all located within striking distance of a single tornado. The total taxable value of all property in the city is approximately $68,769,977 dollars. There are 1,125 houses in Daingerfield. Mobile Homes, which are very vulnerable if struck by a tornado, are valued at $595,200 and total residential values of $49,099,997. There is a 75% chance of tornado activity in any year. Due to the population and number of houses in the area the impact could be high.



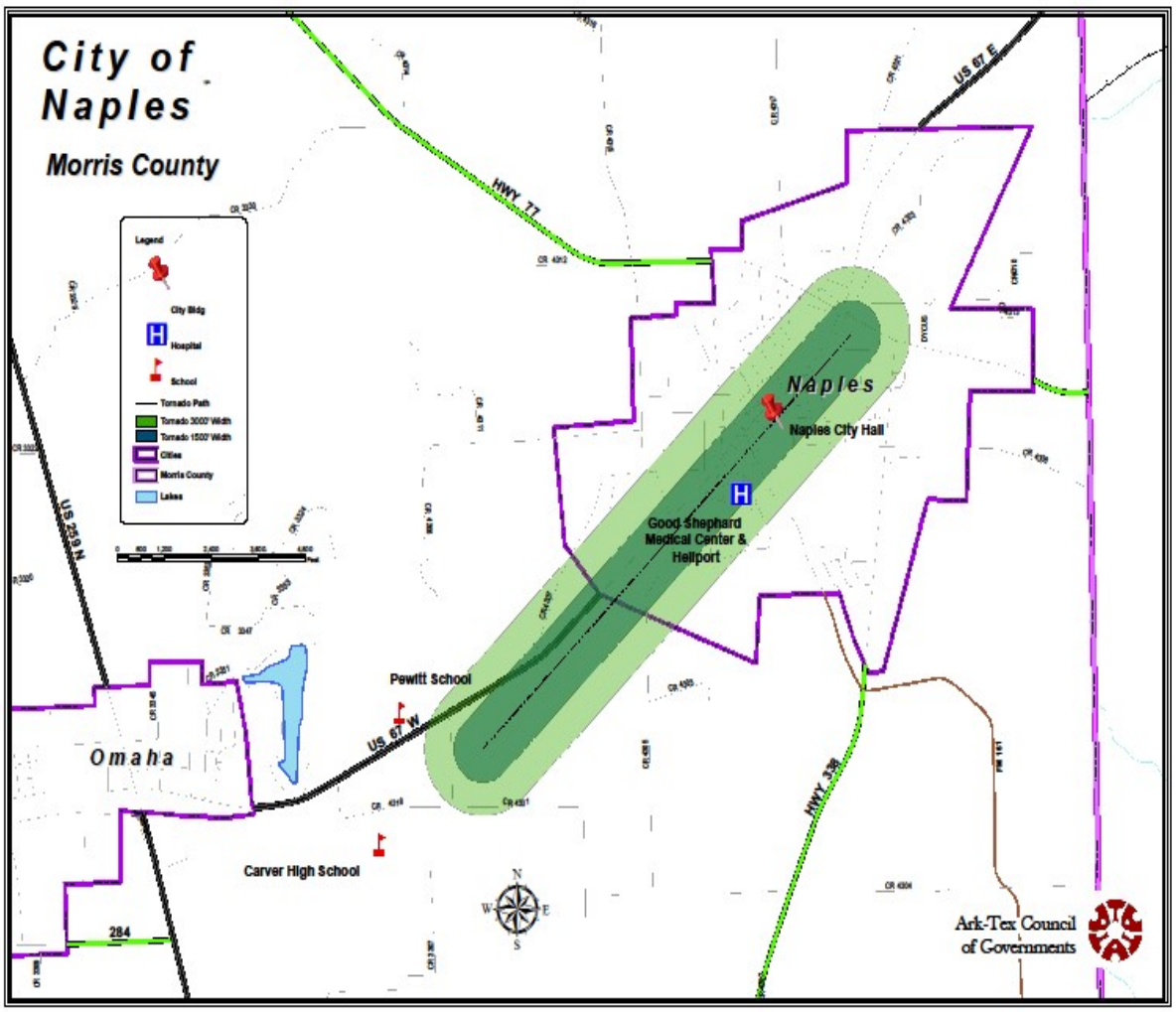
Lone Star Tornadoes

The population of Lone Star in 2000 was 1,631. There were an estimated 666 households in Lone Star valued at 23,278,802. There is a 75% chance of tornado activity in any year. Due to the population and number of houses in the area the impact could be low.



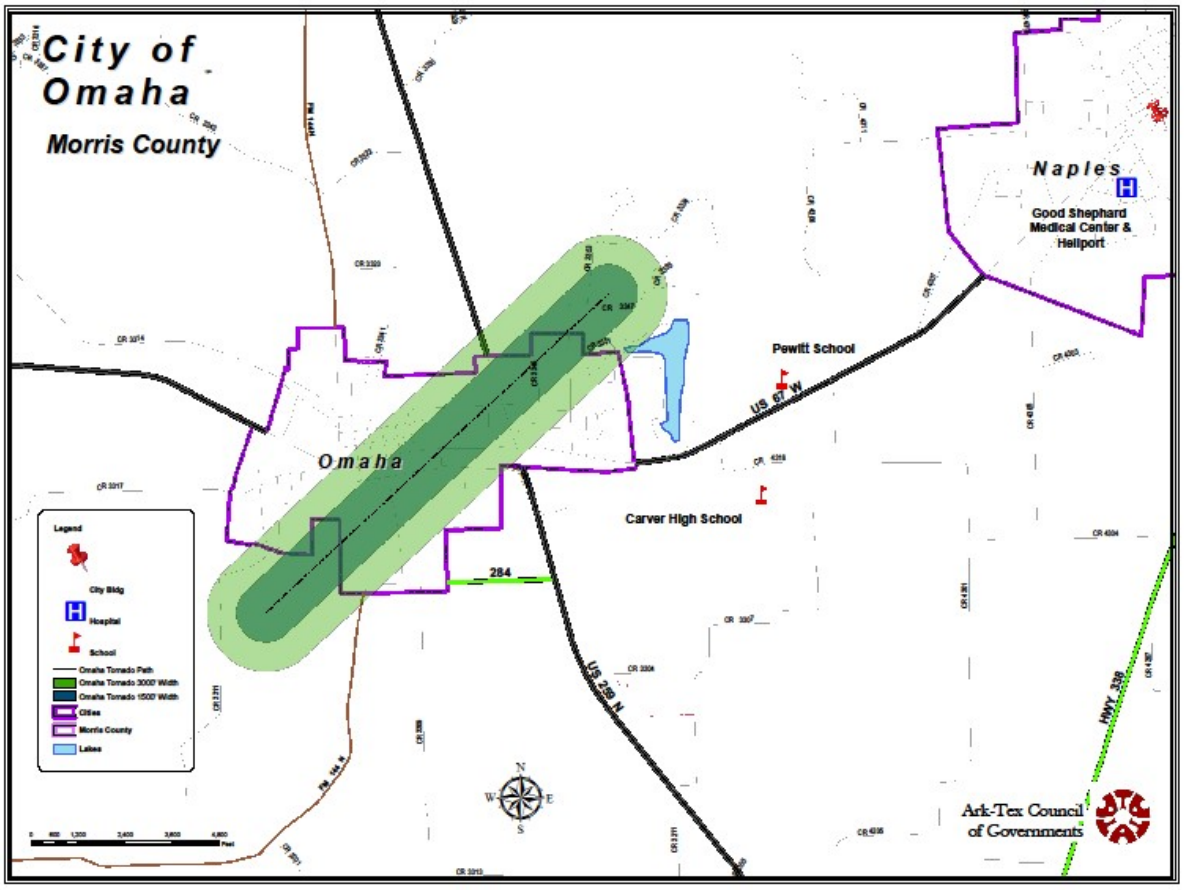
Naples Tornadoes

It is probable that a tornado will hit Naples in a given year. There is a 75% chance of tornado activity in any year. Due to the population and number of houses in the area the impact could be high. Residential Housing, Apartments, and mobile homes are found in Naples Texas. According to inventory classification by occupancy class residential dwellings valued at $38,158,720 are located in Naples. There are 642 households in Naples.



Omaha Tornadoes

As of the census of 2000, there were 999 people, 389 households, and 264 families residing in the city. The population density was 851.6 people per square mile (329.7/km²). There were 438 housing units at an average density of 373.4/sq mi.



A HISTORY OF TORNADOES IN MORRIS COUNTY

Thirteen Tornadoes were reported in Morris County between 04/30/1954 and 10/24/2010. No additional tornadoes have been recorded since the original plan adoption. (National Climatic Data Center)

Begin Date	Location	F SCALE	Description	Cost
04/30/54	South of Lone Star	F3	3 Miles long, 50 yards wide	25K
04/03/57	South of Lone Star	F2	None reported	0.3K
08/12/64	Lone Star	F0	A small tornado touched ground for about one minute in the Lone Star Community and collapsed the south wall of a concrete block building under construction. A service station, café, and truck were also damaged. Two large trees were twisted off and destroyed	2.5K
04/25/70	Not Known	F2	15 Miles long, 100 yards wide	0
11/24/73	3 miles N.E of Daingerfield	F2	A tornado demolished a small utility shack and followed an intermittent path before destroying a hay barn about 1 mile away	2.5K
01/10/75	1 mile NE of Daingerfield	F2	None reported	25K
05/16/90	Between Rocky Branch and Omaha	F2	None Reported	0
01/11/98	6 Miles NW of Daingerfield	F0	Path in a wooded region away from any population. 1 Mile long, 20 yards wide	0
04/23/00	3 Miles N of Daingerfield	F2	Numerous pine and oak trees snapped. Roof partially removed from a brick house.	12K
04/23/00	5 Miles NW of Omaha	F2	Several barns damaged.	28K
04/09/09	This storm developed about 100 yards inside the Morris County line, very near the Cass County line, about 5 miles northwest of Hughes Springs. This tornado first touched down just west of County Line Road near FM 130 in eastern Morris County, continuing east across CR 2865, before lifting near FM 250 north of FM 130.	F1	Numerous trees were uprooted and snapped, with power lines downed as well. This tornado was rated an EF1, with winds of around 90 mph.	10K
10/24/10	County Road 4105	F0	A tornado touched down damaging a large oak tree and other small to mid-sized limbs were broken out of nearby trees.. Winds were estimated to be 60 to 65 mph.	0

10/24/10	4 miles West of Omaha	F0	This EF0 tornado touched down along Hwy. 67 and County Road 3325. Two large trees were snapped along the north side of the highway and other small limbs were downed. The tornado continued northeast, crossing County Road 3314 in Morris County knocking down numerous mid-sized and large limbs before lifting north of County Road 3314. Maximum winds were estimated between 65 and 70 mph. A fence sustained minor damage from one of the large trees which fell near Hwy. 67.	0
			Total	**80.3K**

Location: All of Morris County can possibly be affected. Tornadoes have an unpredictable pattern, so the entire county is subject to being hit by a tornado. All the jurisdictions and the unincorporated parts of Morris County could be affected.

Probability: Tornadoes are most frequent in the months of April, May and June. While tornadoes can occur at any time during the day or night, they tend to form during the late afternoon and into the evening. Based on a historical trend over the past 62 years, there is a 68% chance that Morris County will experience a tornado touchdowns in a given year. The expected tornado size would range between 25 to 1000 yards wide, with a path from one to several miles long. Most tornadoes are expected to touchdown for relatively short periods of time in a bounce type pattern. The occurrence of a tornado touchdown on an annual basis is considered **highly likely** in the county but **unlikely** for the participating jurisdictions because they represent only 3% of the total county area.

Vulnerability: All of Morris County is vulnerable to tornado damages. The jurisdictions of **Daingerfield, Lone Star, Naples and Omaha** are made up primarily of older business districts that were not built to any code, making them particularly vulnerable to tornadic activity. Winds in the lowest F0 range could destroy these structures. The damage potential is high due to the number of mobile homes, manufactured housing and older wood framed homes found in the participating jurisdictions. The tornado vulnerability level is rated **HIGH** for the county and all jurisdictions.

Extent: Based on a historical trend over the past 62 years, Morris County can experience one or more tornadoes annually. The expected tornado size would range between 25 to 1000 yards wide, with a path from one to 10 miles long. Most tornadoes are expected to touchdown for relatively short periods of time in a bounce type pattern. A F1 tornado could destroy the small participating jurisdictions. Small towns can experience a complete loss of communications. Roads could be blocked by downed trees and building debris. This would contribute to the possibility of injury and death. The Damage Assessment Tables on 22-23 demonstrate the amount of loss that can occur from a tornado. The extent of damage can be substantial.

Historically the severity has ranged from F0 to F2 on the Enhanced Fujita (EF) Scale. The entire scale presented is used to determine ranges and severity. The full range of 65 (F0) to 200 mph (F5 +) are possible in Morris County and its jurisdictions.

SUMMARY: There have been 13 tornado events recorded in Morris County with no deaths or 2 injuries recorded over a 56 year history. Warning sirens, safe rooms, enforced modern building codes and generators for emergency power are needed safeguards for the small communities of Daingerfield, Lone Star, Naples and Omaha to help protect its citizens from tornadoes.

WINTER STORMS

Winter Storms are a hazard that poses a threat to the entirety of the planning area. Winter Storms in the context of this document refers to Freezing Rain, Ice Storms, Blizzards, and Heavy Snow events that may occur during the winter months in Morris County. The National Weather Service (NWS) glossary defines Ice Storms, Blizzards, and Heavy Snow events as:

Freezing Rain is "rain that falls as a liquid but freezes into glaze upon contact with the ground."

Extent

"An **ice storm** is an occasion when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication. These accumulations of ice make walking and driving extremely dangerous. Significant ice accumulations are usually accumulations of ¼" or greater."

"A **blizzard** means that the following conditions are expected to prevail for a period of 3 hours or longer:

- Sustained wind or frequent gusts to 35 miles an hour or greater; and
- Considerable falling and/or blowing snow (i.e., reducing visibility frequently to less than ¼ mile)."

"A **heavy snow** generally means...

- snowfall accumulating to 4" or more in depth in 12 hours or less; or
- snowfall accumulating to 6" or more in depth in 24 hours or less

In forecasts, snowfall amounts are expressed as a range of values, e.g., "8 to 12 inches." However, in heavy snow situations where there is considerable uncertainty concerning the range of values, more appropriate phrases are used, such as "...up to 12 inches..." or alternatively "...8 inches or more..."

The following National Weather Service warnings detail the potential extent of a storm.

National Weather Service WATCH: A message indicating that conditions favor the occurrence of a certain type of hazardous weather. For example, a severe winter weather watch means that a severe winter weather event is expected in the next six hours or so within an area approximately 120 to 150 miles wide and 300 to 400 miles long (36,000 to 60,000 square miles). The NWS Storm Prediction Center issues such watches. Local NWS forecast offices issue other watches 12 to 36 hours in advance of a possible hazardous- weather or flooding event. Each local forecast office usually covers a state or a portion of a state.

NWS WARNING: Indicates that a hazardous event is occurring or is imminent in about 30 minutes to an hour. Local NWS forecast offices issue warnings on a county-by-county basis.

Winter Storm WATCH: A winter storm is occurring, or will soon occur, in your area.

Winter Storm WARNING: Means sustained winds or frequent gusts to 35 miles per hour or greater and considerable falling or blowing snow (reducing visibility to less than a quarter mile) are expected

to prevail for a period of three hours or longer, and dangerous wind chills are expected in the warning area.

The *Wind Chill* temperature is simply a measure of how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30° day would feel just as cold as a calm day with 0° temperatures. The index was created in 1870, and on November 1, 2001, the National Weather Service released a more scientifically accurate equation, which is used today. Below is a chart for calculating wind chill. (Please note that it is not applicable in calm winds or when the temperature is over 50°.)

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

Source: National Weather Service and NOAA

Ice storms most commonly develop along a line stretching from northern Texas to Newfoundland in slow-moving low-pressure systems where there is a large temperature difference between the warm Gulf air and cold Arctic air. Local accumulations of ice may be heavy if the storm stalls over a region for an extended time. Ice storms lasting 12 hours or more generally produce ice accumulations several centimeters thick. The typical ice storm swath is 30 miles wide and 300 miles long. Ice storms generally warrant major headlines only one year in three.

Ice storms typically begin with snow and strong easterly winds conditions well ahead of an approaching warm front. The snow, however, changes briefly to sleet and then to rain that freezes on impact, coating all exposed surfaces with a growing layer of ice.

Power and communication systems using overhead lines are perhaps hardest hit by ice storms. Hanging wire cables collect ice until the cable breaks or the rain stops. Animal and plants may be killed or injured by ice accumulation. Damage to trees rivals disease and insects as destructive agents.

The Christmas Day storm of 2000 clobbered counties along a 260-mile stretch of the Red River. Morris County was one of several counties declared a disaster area.
Back-to-back December weather fronts slammed North Texas with ice that produced the perfect ice storm. Many electric cooperatives were sent to their knees by the fury of the storms.

Potential Damage/Loss Due To Ice Storms

Life and Property
Slick roads and other surfaces cause traffic accidents resulting in death and injury. People shoveling snow have heart attacks. Property is at risk from flooding. Trees, power lines, telephone lines and subject to damage from accumulation of ice and snow. Trees fall on utility lines and houses.

Roads and Bridges
Fallen trees across roads can block access to emergency services. The ability to travel after an ice storm is a priority issue for hospitals, utilities and emergency service vehicles.

Power Lines
Falling trees are a major cause of power outages resulting in interruption of services and damaged property. Downed power lines also create the danger of electrical shock.

Water Lines
Cast iron mainlines frequently break during severe freezes. Also, residential water lines often fail.

The potential for severe winter storms is high and records indicate that the cost can be in the millions of dollars, depending on the severity of the storm.

Morris County Winter Storms

In the event of a major winter storm, all of Morris **County**, including the jurisdictions of **Daingerfield, Lone Star, Naples, and Omaha** could be affected physically, economically and socially. Drivers face serious consequences from a winter ice storm. Stopping distances on glazed ice are ten times greater than on dry pavement, and double that on packed snow. In many instances the ice partially melts during the daylight hours only to re-freeze the following night causing patches of "black ice;" i.e., ice that is difficult to detect from a moving vehicle.

Emergency vehicles from the police and fire departments are brought to a crawl when responding to emergency situations. Ambulance service must take extra time and care responding to accidents or emergency medical situations because of the hazard of ice on the streets and highways. It is possible that emergency vehicles would have to find alternate routes into neighborhoods because of downed trees and power lines. Many yards and streets are lined with tall trees that are subject to damage. Also communications with emergency teams can be compromised because of downed phone lines.

Public schools typically close when hazardous driving conditions exist. The cities of Morris County are not equipped to clear roads and de-ice thoroughfares efficiently. Schools may be closed as long as a week during a major ice storm.
Power failures may force families and individuals to vacate their homes and seek alternate housing such as hotels or emergency shelters. The elderly and the young are particularly susceptible to cold temperatures and both populations must take additional precautions to stay warm. Nursing homes and Hospitals located in the county would need to make sure that emergency generator power and lighting were operating properly. Utility companies do focus on facilities that are located in select power grids first.

In past winter storms, residences that were heated with gas or propane or had gas cooking appliances in the kitchen, or gas log inserts in the fireplace, faired much better than homes that were all electric. Homes with central gas heating were still left in the cold because the systems are run electrically.

Businesses would suffer due to a winter storm. In the storm of 2000 the pharmacies, gas stations and convenience stores closed due to power outages. Fuel became scarce, creating hardships for both employees and employers. This in turn, causes lost wages and income, plus profit loss due to damaged merchandise and perishables. The local veterinary clinic might find its' practice compromised because of power loss making it impossible to keep ill animals warm or to perform necessary procedures. Clients would hesitate to navigate dangerous roads in order to come to the clinic with ill or injured pets.

Morris County Winter Storms Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Morris Unincorporated	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55
Daingerfield	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55
Lone Star	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55
Naples	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55
Omaha	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55

HISTORY OF WINTER WEATHER IN MORRIS COUNTY

(Data from National Climatic Data Center)

23 Snow, Ice and Winter Weather events were reported in Morris County between 02/09/94 and 03-04-15

Date	Description	Cost
02/09/94	An Arctic cold front moved into Northern Texas during the afternoon of the 8th, causing temperatures to fall 60 degrees within 48 hours in many locations. Up to four inches of ice and sleet accumulated, making this the most significant ice storm across East Texas in two years. Numerous highways, businesses, and schools were closed. Over 30K homes suffered power outages and damage from falling trees was widespread to homes and businesses. Two indirect fatalities occurred as icy roads caused traffic accidents.	$50M
01/06/97	Abundant low-level moisture was pumped northward across the region from low pressure over the northwest Gulf of Mexico. The moisture overran a freezing air mass across northeast Texas. The result was 2 to 4 inches of freezing rain and sleet across the area. Numerous accidents were reported along with power outages. Several highways were closed.	0
01/14/97	Ice accumulations of ¼ to ½ inch occurred across portions of northeast Texas. Several traffic accidents resulted	0
12/22/98	A shallow air mass spread across northeast and east Texas while low pressure formed in the Gulf of Mexico. This allowed overrunning of warm moist air over the cold dome producing widespread freezing rain and sleet. Overall ice accumulations were less than one inch. The ice accumulated mainly across exposed surfaces such as trees and power lines as well as bridges and overpasses. A few automobile accidents and downed trees and power lines were the worst result of the storm.	0
01/26/00	Moisture laden air from the Gulf overran the freezing surface temperature producing ice across the northern half of northeast Texas. Ice accumulations of one to four inches fell across most of the area with the ice and snow accumulations near 8 inches. Thousands of homes were left without power due to ice covered tree limbs falling and snapping power lines. Also, hundreds of chicken houses were destroyed and 7 million chicks were killed. Barns, carports, and weak structure homes suffered collapse from the weight of the ice and snow. Traffic accidents were numerous and I-30 was impassable.	0
12/12/00	Ice accumulations of 2 to 6 inches were common across the northern third of northeast Texas with accumulations of 1 to 2 inches further south. Over 235,000 people were without power from several hours to several weeks from snapped power lines. Upwards of 29 transmission lines atop "H" shaped steel towers were snapped due to the weight of the ice. Northeast Texas was declared a disaster area.	123M
12/24/00	Ice storm struck the northern third of northeast Texas. Freezing rain resulted in ace accumulations from ¼ inch to 3 inches. Bowie, **MORRIS**, Red River Counties declared disaster area.	31.5M
02/19/06	Light freezing rain and freezing drizzle falling across the region. Ice accumulations were very light...mainly less than one quarter of an inch across most places. While road surfaces remained wet from ground warmth, most elevated bridges and overpasses saw some ice accumulation which resulted in numerous traffic accidents. Many elevated bridges and overpasses had to be closed due to the ice accumulation	0

03/07/08	One inch of snow reported in Daingerfield, Texas.	0
02/11/10	A heavy, wet snow began accumulating during the morning hours of February 11th and ended during the afternoon of February 12th. Snowfall totals of 6 to 9 inches were common across the county, including specific totals of near 9 inches in Naples and 8 inches near Daingerfield, Texas. Due to the wet nature of the snow, several large branches were downed along with a few small trees. Schools and businesses were also closed.	0
03/21/10	A light to moderate snow fell across portions of the area. Heavy snow was reported across southeast Oklahoma in McCurtain County where up to 6 inches was reported. Elsewhere, snow totals ranged from near trace amounts to near 4 inches. While the event was not considered significant for most areas, there were a number of traffic accidents across the region.	0
01/09/11	A transition from freezing rain and sleet to all snow was fairly quick during the morning of January 9th across the region. The storm system exited the region late on January 9th but not before dumping some impressive freezing rain, sleet and snowfall totals across the southern half of the state. Generally, one quarter to one half inch of freezing rain and sleet was reported initially across the northern half of Northeast Texas with the snow being the predominant precipitation type during the afternoon and evening of January 9th. Daingerfield recorded 3 inches of snow. There were numerous reports of traffic accidents across the northern half of Northeast Texas with isolated power outages as well.	0
02/03/11	A cold arctic air mass was in place across the four state region the night of February 3rd as a strong upper level storm system moved quickly out of the southern Great Basin and into the West Texas Hill Country. A large area of precipitation, mostly in the form of snow, developed across Central Texas during the late night hours of February 3rd and moved quickly northeast into Northeast Texas, Southeast Oklahoma and Southwest Arkansas during the early morning hours of February 4th. Morris County recorded 5.5 inches of snow.	0
12/25/12	Accumulating snow was common across several counties in Northeast Texas. This heavy wet snow resulted in several trees downed along with powerlines which cut power to many locations across Northeast Texas. There were also several accidents reported from the accumulating snow on area roadways and bridges. 4 inches near Lone Star.	0
01/15/13	Precipitation developed during the morning of January 15th. With surface temperatures near or slightly below freezing, the precipitation fell as a mixture of freezing rain and sleet before changing over to light snow across the northern third of Northeast Texas. Only light ice accumulations from the freezing rain and sleet were noted across Northeast Texas but some minor snow accumulations were also reported. Some bridges and overpasses quickly became slick resulting in a few automobile accidents across Northeast Texas. In addition, there were some minor power outages from falling limbs due to the weight of the ice.	0
11/24/13	A period of freezing rain and sleet fell across portions of Northeast Texas. Ice accumulation was mostly less than one quarter of an inch Temperatures were well above normal before this air mass settled into the region so the ice accumulation was mainly on elevated objects such as bridges, overpasses, trees, powerlines and car tops.	0
12/06/13	Ice accumulation of mainly less than one quarter of an inch but resulted in accumulation on bridges and overpasses, trees and powerlines. Some traffic accidents were noted across Northeast Texas during the height of the winter weather along with a few power outages	0

02/07/14	A upper level disturbance moved across the Middle Red River Valley of Southeast Oklahoma, the northern half of Northeast Texas and Southwest Arkansas as well as portions of North Central Louisiana during the afternoon and evening hours of February 7th. Some snow was reported across the region. The snow across the northern half of Northeast Texas was mainly near one inch in accumulation. The snow caused some slick spots across some locations, mainly across elevated bridges and overpasses	0
02/11/14	Precipitation became widespread across the region late in the afternoon and especially during the overnight hours of February 11th and the 12th. During the onset of precipitation, a mixture of rain and sleet was the predominant precipitation type with some sleet accumulations near one quarter of an inch across portions of Northeast Texas. There was even a brief transition of moderate snow across portions of the region as well. During the evening and overnight hours of the event, the transition turned to predominantly freezing rain with ice accumulations mainly less than one quarter of an inch across Northeast Texas. Impacts included several automobile accidents that occurred from icing in elevated bridges and overpasses as well as isolated power outages from ice accumulating on limbs which fell across powerlines	0
03/02/14	Temperatures cooled enough in the lower levels of the atmosphere such that freezing rain transitioned over to sleet across much of the area. Given the convective nature of some of the precipitation, widespread sleet accumulations of one half to one inch were reported. There were some isolated areas with total sleet accumulations near 2 inches. Further east where temperatures were not cold enough aloft for sleet, freezing rain was the dominant precipitation type accumulations near one quarter to one half inch. The freezing rain and sleet accumulations resulted in numerous automobile accidents along with power outages from falling limbs and trees throughout the northern half of Northeast Texas.	0
01/11/15	After midnight on the 11th, light rain became light freezing rain but due to the temperature being at or just below freezing, ice accumulation was relegated to trees and elevated exposed objects including powerlines and some bridge surfaces. Ice accumulations were mostly near one tenth of an inch across the region.	0
02/23/15	There was widespread winter precipitation across the region in the form of freezing rain and sleet. Temperatures during the predawn hours of February 23rd were mostly just above freezing but once the precipitation moved in from the west, the precipitation quickly changed over to freezing rain mixed with sleet as the temperatures fell during the day. Freezing rain accumulations across Northeast Texas, mainly along and north of the Interstate 20 corridor were near one tenth of an inch or less. Sleet accumulations along and north of the Interstate 20 corridor ranged from near one half inch to near one and one half inch.	0
02/25/15	Cold arctic air remained in place across the region and there was already ice on the ground across some locations that observed a Winter Storm from sleet accumulation on Monday, February 23rd. Widespread precipitation developed ahead of the trough across Texas and moved into the region shortly after midnight on the 25th. The precipitation began as a mixture of light rain or freezing rain after midnight towards the predawn hours on Wednesday. As the trough moved closer into the region from the west, the precipitation quickly transitioned over to sleet and eventually moderate to heavy snow across a good portion of the region after sunrise on the 25th. The mixed winter precipitation moved out of the region during the late afternoon or early evening hours of the 25th. Snowfall totals across Northeast Texas along and north of the Interstate 20 corridor ranged from 1 inch to near 7 inches.	0

03/04/15	A cold, arctic air-mass entered the region from the northwest during the late afternoon and early evening hours of Wednesday, March 4th.. The precipitation began as a cold rain but quickly transitioned to sleet during the late night hours of March 4th with the precipitation transitioning over to snow during the morning hours of March 5th. Freezing rain amounts were near one tenth of an inch with sleet accumulations mainly less than one half inch. Snow amounts were less than 4 inches with widespread one to three inches reported across the northern half of Northeast Texas	0
	Total	204.5 M

Location: Winter Storms have no distinct geographic boundary. They can occur in every area of the county including the Northeast Texas region including Morris County.

Probability: The probability of the occurrence of a freeze is high, given historical weather patterns. Twenty-three winter storms have occurred between 1994 and 2015. It is highly likely that a winter storm will occur in any given year. Franklin County and Mount Vernon share the same likelihood of experiencing a winter storm.

Vulnerability: Morris County has a significant amount of acreage designated as conservation, public lands and agricultural land uses. The small towns and communities are always vulnerable. All jurisdictions could lose power to its sewage and water plant, power to homes and damage to city infrastructure. The elderly could suffer from lack of heat and lights during a winter storm. Small businesses could experience lost revenue due to reduced traffic during winter storm events. Falling trees and tree limbs could damage property and block roadways in all jurisdictions. Auto accidents related to travel on the icy roads increase. All of Morris County share the same vulnerability. The vulnerability of unincorporated Morris County and the jurisdictions of Daingerfield, Lone Star, Naples and Omaha is **HIGH.**

Extent: Accumulations of eight inches of ice were recorded in January of 2000. The most damaging storms occurred in December of 2000 when 235,000 people were left without power. In an area that is not equipped to handle wintery blasts as little as one inch of ice can cause major problems. The region was declared a disaster area at a cost of 154.5 million dollars. Morris County will continue to have ice storms and wintery weather. The extent of damage will vary, but the disaster of 2000 appears to have been an extreme event. A temperature range between 32 degrees f. and 10 degrees f. is the range of temperature anticipated in the county that would create conditions for winter storms. (See the wind chill chart on page 60). Snow falls of up to 1 foot can be expected in the future.

Impact: Although Northeast Texas does not have severe winters it is not immune from some of the hazards of cold weather. Every year, winter weather indirectly kills hundreds of people in the U.S, primarily from automobile accidents but from overexertion, and hypothermia as well. As little as ¼ of an inch of ice can begin to cause power outages and damage to vegetation.

Heavy accumulations of ice can bring down trees and power lines, disabling electric power and communications for days. Heavy snow or ice can immobilize communities by shutting down transportation into, out of, and within the county. In rural areas and smaller communities homes and farms may be isolated for days. Livestock and other animals can die from exposure. When the event happens in the early spring, crops such as fruit can be destroyed. Morris County and its jurisdictions can expect ice accumulations on streets, power lines and trees that will range from ¼ to ¾ of an inch. The Damage Assessment Tables found on pages 22-23, demonstrate the amount of damage that can be possible.

Estimated Property Loss at 15%	
Morris County	
Daingerfield	
Lone Star	
Naples	
Omaha	

Summary: In rural East Texas, when moist gulf air meets arctic temperatures winter storms can occur. The storms usually take their toll from heavy accumulations of ice that form, often overnight, on trees, power lines and structures. In the more remote areas of the county homes may be without electrical power for days but critical facilities in most urban areas are operating within a few days. Daingerfield, Lone Star, Naples, Omaha and Morris County may have power outages lasting one week or longer.

So much for a 'mild winter'

A winter many were calling "mild" took a nasty turn last week covering northeast Texas with a liberal dose of ice, snow, sleet and bitter cold weather.

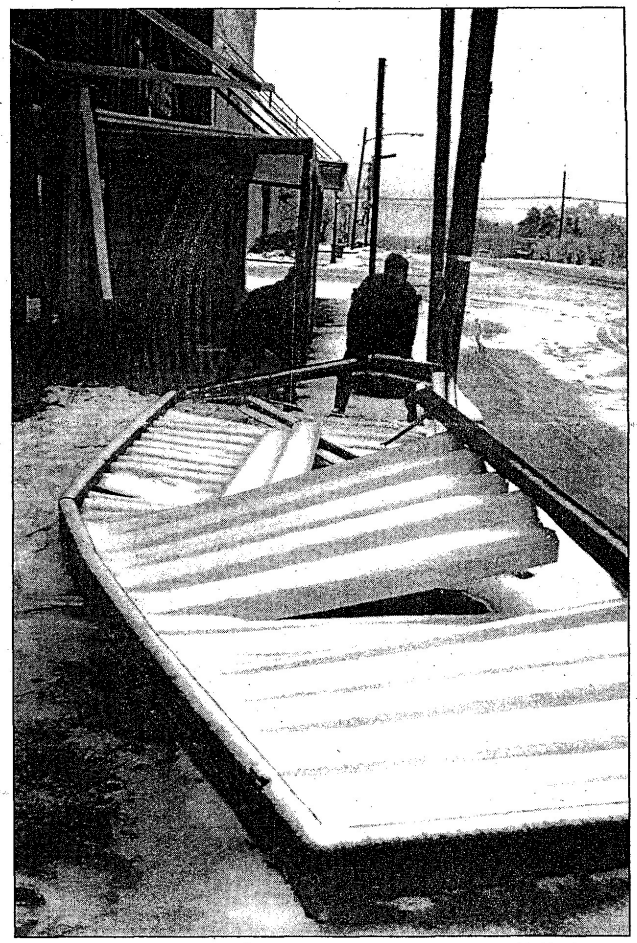
The worst hit appeared to be the Texarkana as the system nipped the corner of Texas while wreaking havoc in Oklahoma and Arkansas before moving east into Louisiana, Mississippi and the south.

The wintery weather moved through Wednesday knocking out power to SWEPCO and Bowie-Cass customers. Electric company crews worked around the clock to restore power.

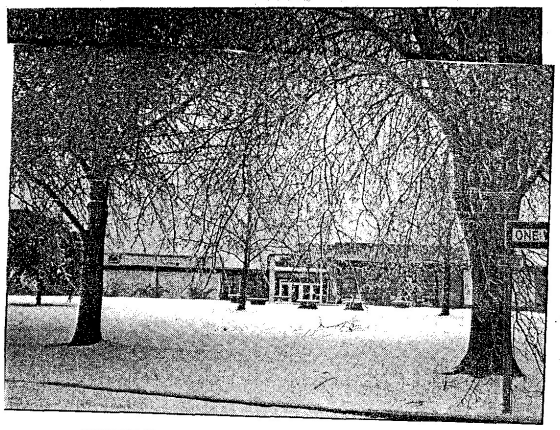
Schools and businesses were closed Thursday and Friday. Some businesses and residences were without electricity until Monday.

Thawing temperatures Monday left a great deal of clean up

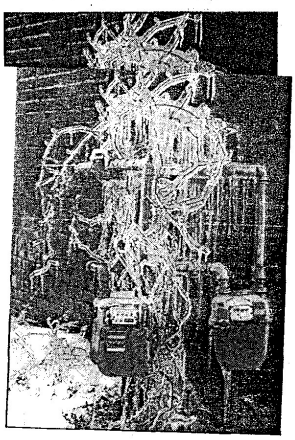
See ICE on page 2



EARL ORR AND KENT STACKS MOVE A FALLEN AWNING IN NAPLES



WINTER WONDERLAND AT PEWITT HIGH SCHOOL



NATURE'S ICE SCULPTURE

Monitor December 21, 2000
Naples, Texas

THUNDERSTORM WINDS

WINDSTORMS

Windstorms are typically straight-line winds and do most of the damage when accompanying a thunderstorm. Sometimes people think that a tornado has struck because the straight-line winds can be as powerful as a strong tornado but straight-line winds do not spin. A downburst is an example of a straight line wind. A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm that produces a violent, localized downdraft covering 2.5 miles or less. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour.

According to research by Jeremy Pal, a professor of civil engineering and environmental science at Loyola Marymount University, severe thunderstorms with accompanying high winds are predicted to increase dramatically in the United States and in some cities, like Atlanta, Ga., New York, and Dallas, storms are expected to double by the end of the century.

The Beaufort Scale below is the standard for measuring wind effects on both land and sea.

Beaufort Scale

Beaufort Number	Wind Speed	Seaman's Term	Effects on Land
0	Under 1	Calm	Calm; Smoke rises vertically
1	1-3	Light Air	Smoke drift indicates wind direction; vanes do not move
2	4-7	Light Breeze	Wind Felt on face; leaves rustle; vanes begin to move.
3	8-12	Gentle Breeze	Leaves, small twigs in constant motion; light flags extended
4	13-18	Moderate Breeze	Dust, leaves, and loose paper raised up; small branches move.
5	19-24	Fresh Breeze	Small trees begin to sway
6	25-31	Strong Breeze	Large branches of trees in motion; whistling heard in wires.
7	32-38	Moderate Gale	Whole trees in motion; resistance felt in walking against the wind.
8	39-46	Fresh Gale	Twigs and small branches broken off trees.
9	47-54	Strong Gale	Slight structural damage occurs; slate blown from roofs.
10	55-63	Whole Gale	Seldom experienced on land; trees broken; structural damage occurs
11	64-72	Storm	Very rarely experienced on land; usually with widespread damage
12	73 or higher	Hurricane	Violence and destruction.

Source: www.mountwashington.org

Beaufort Scale

Beaufort number	Wind Speed (mph)	Seaman's term		Effects on Land
0	Under 1	Calm		Calm; smoke rises vertically.
1	1-3	Light Air		Smoke drift indicates wind direction; vanes do not move.
2	4-7	Light Breeze		Wind felt on face; leaves rustle; vanes begin to move.
3	8-12	Gentle Breeze		Leaves, small twigs in constant motion; light flags extended.
4	13-18	Moderate Breeze		Dust, leaves and loose paper raised up; small branches move.
5	19-24	Fresh Breeze		Small trees begin to sway.
6	25-31	Strong Breeze		Large branches of trees in motion; whistling heard in wires.
7	32-38	Moderate Gale		Whole trees in motion; resistance felt in walking against the wind.
8	39-46	Fresh Gale		Twigs and small branches broken off trees.
9	47-54	Strong Gale		Slight structural damage occurs; slate blown from roofs.
10	55-63	Whole Gale		Seldom experienced on land; trees broken; structural damage occurs.
11	64-72	Storm		Very rarely experienced on land; usually with widespread damage.
12	73 or higher	Hurricane Force		Violence and destruction.

Table 2.14

A History of Thunderstorm Winds In Morris County

A total of 83 Days with Thunderstorm Winds were recorded between 01/23/95 and 05/10/15

gin Date	Location	Description	$ PD
01/23/93	Not Known	Trees blown down across the county	0.50K
10/09/93	Naples	Extensive roof damage reported across town. Some trees blown down.	50K
08/20/94	2 Miles SW of Omaha	Trees blown down along Hwy 144 and a barn was damaged	10K
08/20/94	Daingerfield	Trees blown down. Barn damaged.	5 k
11/04/94	5 Miles S of Daingerfield	Trees blown down.	5K
04/10/95	Daingerfield	Trees and power lines blown down between Daingerfield and Jenkins.	5K
06/13/97	Daingerfield	Roofs torn from homes and businesses. Tree fell onto homes and power lines. Outages lasted several weeks.	850K
07/12/98	2 Miles S of Daingerfield	Numerous trees and power lines down.	15K
11/27/05	4 miles N.W. of Naples	A storage building was blown off its blocks and suffered minor damage.	1K
9/05/07	1 mile East of Naples	Damaging wind gusts took the top out of some trees near a home. The storm also demolished a barn and utility building and blew some shingles off the roof of the home.	30K
04/10/08	Naples	Several trees and power lines were downed throughout the county. Damaging wind gusts downed one of the oldest trees in Naples, Texas to fall and cause extensive damage to one of the oldest in town. Other trees were reported down at the intersection of Hwy 338 and FM 161 along with **others** in the Omaha area as well. Wind also leveled the outfield fence at the Pewitt baseball field and uprooted the pole vault pit at the football field.	150K
05/15/08	Daingerfield	Strong and damaging wind gusts downed trees south of town. One tree fell onto a carport and roof of a home south of town near Hwy 259.	40K
04/30/11	Lone Star	The National Weather Service conducted a storm survey in the southern portion of Morris County, TX and determined that the damage was consistent with severe thunderstorm wind gusts near 80 mph. Damage consisted of nearly the entire roof of a local feed store removed along Holt Road north of Black Mountain Road. Other small trees were downed along Black Mountain Road just west of Hwy. 259. Minor shingle damage was also observed to a business just west of Hwy. 259.	20K
05/07/12	Dangerfield	A large tree fell on a house in Daingerfield, Texas. Numerous other trees were downed along Hwy. 259.	20K
		TOTAL	1.202M

Morris County Thunderstorm Winds s Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Morris Unincorporated	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55
Daingerfield	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55
Lone Star	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55
Naples	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55
Omaha	Minor PRI = 2	Highly Likely PRI = 4	> 24 hrs. PRI = 1	< a week PRI = 3	Medium 2.55

THUNDERSTORMS Table 2.16			
COMMUNITY	**POTENTIAL SEVERITY of Impact**	**PROBABILITY**	RISK
Daingerfield	Major	Highly likely	High
Lone Star	Major	Highly Likely	High
Naples	Major	Highly Likely	High
Omaha	Major	Highly Likely	High
Morris County	Major	Highly Likely	High

Potential Damage/Loss Due To Thunderstorms

During the 33-year period there were no reported deaths or injuries in the county from windstorms. There are many issues related to what is in danger in the communities. Storms cause power outages, disruptions of transportation and property damage. There is insufficient data to conduct a complete risk analysis. Historical data indicate that the entire county is susceptible to windstorms during the storm season and, depending on the severity, costs will vary.

Morris County Thunderstorms

All of Morris County including the jurisdictions of Daingerfield, Lone Star, Naples and Omaha are subject to hail, torrential rain, high winds, flooding, lightning strikes and tornadoes which are all bi-products of thunderstorms. The amount of storm damage depends on their intensity and associated hazards that are independently covered in this document. Because of global warming we expect to see thunderstorms that are more powerful and more frequent. The average damage cost is a little over 28.5 thousand dollars a year

Location: Historically, all of **Morris County** has been affected by thunderstorms winds. If this trend continues, the entire County will be subject to thunderstorms. This would include the jurisdictions of **Daingerfield, Lone Star, Naples and Omaha.**

Probability: Given the climate and history, thunderstorm winds are **highly likely** during the storm season. Thunderstorms winds are most prolific in the spring and summer months, however, thunder storm winds may occur at any time in Morris County given the right conditions. **Dangerfield, Lone**

Star, Naples and Omaha have recorded thunderstorm wind damage in the last five years. Climate change could increase the likelihood and severity of the storms.

Vulnerability: The County is susceptible to damage from thunderstorm winds. Vulnerability depends on the magnitude of the storm. Damage potential is higher in populated areas. Deteriorating infrastructure, mobile homes, business signage and crops are most susceptible to damage. **Morris County** and the jurisdictions of **Daingerfield, Lone Star, Naples and Omaha** share susceptibility to windstorm damage. Their vulnerability is **MODERATE.**

.

Impact: According to NOAA Satellite and Information Service of the National Climatic Data Center, there were 205 windstorms events reported in MorrisCounty between 1970 and June of 2015. The magnitudes ranged from 50 knots to 70 knots. Trees, limbs, and awnings are particularly susceptible to wind damage from windstorms.

There have been no reported injuries or deaths from Thunderstorm Winds in Morris County. Storms cause power outages, disruptions of transportation and property damage. Historical data indicate that the entire county is susceptible to windstorms during the thunderstorm season and, depending on the severity, costs will vary. See the Damage Assessment Tables on pages 22-23 demonstrating possible loss for the county and each participating jurisdiction. Wind speeds of over 80 miles per hour on the Beaufort Scale can be expected to occur in the future. See the Beaufort Scale on page 70 for further reference.

Estimated Property Loss at25%	
Morris County	
Daingerfield	
Lone Star	
Naples	
Omaha	

Summary: High winds, associated with thunderstorms can be destructive. Thunderstorms also spawn tornadoes. Deteriorating infrastructure, mobile homes, business signage and crops are most susceptible to damage to Morris County and its jurisdictions. Thunderstorm winds are the most common hazard in Morris County with an accumulated past occurrence cost exceeding any of the other Morris County hazards. **Morris County and the jurisdictions of Daingerfield, Lone Star, Naples and Omaha** are equally susceptible to windstorm damage.

.

HAILSTORM

Hail is a form of precipitation that occurs at the beginning of thunderstorms. It is in the form of balls or lumps of ice, usually called hailstones. Hail is formed when raindrops pass through a belt of cold air on their way to earth. This belt of cold air causes the raindrops to freeze into small blocks of ice. The formation of hail requires the presence of cumulonimbus or other convective clouds with strong updrafts. The air turbulence that accompanies thunderstorms aids the formation of hailstones. The water that goes into the formation of hailstones is super-cooled water, that is to say, it is at a temperature below freezing point but still in the form of a liquid.

Hailstones start falling when they become too heavy to be supported by air currents.
Hailstones are not formed of single raindrops. However the process of formation of a hailstone does start with the freezing of a single raindrop. This may be carried by a strong current to the level where rain is still falling as drops. And as this again passes through the cold air belt, new raindrops may cling to the frozen hailstone, thus increasing its size. Hailstones grow in size by repeated collisions with super-cooled water. This water is suspended in the cloud through which the particle is traveling. Those single frozen raindrops that do not get carried back to the raindrop level remain as smaller hailstones.

Hailstorms are very common in middle latitudes and a heavy shower generally lasts around 15 minutes. Hailstorms generally occur during mid to late afternoon. Big hailstones falling with force are known to have caused fatal harm to human and animal life.

"Gather out of star-dust,
Earth-dust,
Cloud-dust,
Storm-dust,
And splinters of hail,
One handful of dream-dust,
Not for sale."

Langston Hughes

The following chart shows the Combined NOAA/TORRO Hailstorm Intensity Scales:

Combined NOAA/TORRO Hailstorm Intensity Scales

Table 2.17 a

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

Sources: www.noaa.gov and www.torro.org

The largest hailstone ever reported was July 22, 2003, in Aurora, Nebraska It was approximately the size of a soccer ball—47.6 centimeters in circumference, and 17.8 centimeters in diameter.

HISTORY OF HAILSTORMS IN MORRIS COUNTY

The NOAA Satellite and Information Service, National Climatic Data Center, reports that there have been 63 hail events reported between Aprils 28, 1966 and April 28, 2014 in Morris County. One event recorded a magnitude of 2.50 inches an H7 on the hailstorm intensity scale. This storm damaged over 282 homes, businesses and automobiles in southern Morris County recording $300,000 in damage. Of the 63 hail events reported, this was the only event that reported any property damage. Twenty-five (26) hail events reported a magnitude of .75 inches.

Hail can damage roofs, siding, windows, cars, and satellite dishes. Each year hailstorms cause millions of dollars of damage to crops like corn and soy beans. It can rip the leaves off of trees and in extreme cases, kill small animals. Business signage can be destroyed by large hail. In Morris County, Texas the probability of a hailstorm occurring is high (100%).

In Daingerfield, Lone Star, Naples and Omaha there are many older, wood framed, houses that are more likely to experience structural damage from hailstorms. Roofs of homes and businesses are very susceptible to hail damage, resulting in repairs costing hundreds or even thousands of dollars to a single family dwelling. Many newer homes may have roof-top skylights that can break or crack during periods of large hail. Water damage as well as roof repair becomes a factor when skylights break. Also, cars that are open to the elements are susceptible to hail damage, including broken windshields and dented car bodies.

Morris County Hailstorm Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Morris Unincorporated	Limited PRI=1	Highly Likely PRI=4	<6 hrs. PRI 4	<6 hrs. PRI 1	Medium 2.35
Daingerfield	Limited PRI=1	Highly Likely PRI=4	<6 hrs. PRI 4	<6 hrs. PRI 1	Medium 2.35
Lone Star	Limited PRI=1	Highly Likely PRI=4	<6 hrs. PRI 4	<6 hrs. PRI 1	Medium 2.35
Naples	Limited PRI=1	Highly Likely PRI=4	<6 hrs. PRI 4	<6 hrs. PRI 1	Medium 2.35
Omaha	Limited PRI=1	Highly Likely PRI=4	<6 hrs. PRI 4	<6 hrs. PRI 1	Medium 2..35

Location: Hail storms are unpredictable, but since they occur before thunderstorms, and thunderstorms have historically occurred throughout the County, and if the trend continues, all of Morris County could be affected by hailstorms.

Probability: The probability of a hailstorm occurring in Morris County is **highly likely**. The jurisdictions of **Daingerfield, Lone Star, Naples and Omaha** share the same probability and risk.

Vulnerability: Buildings, autos, and crops, can be damaged by hail. Hail is often part of thunderstorm activity. In rare cases hail can cause physical injury. The vulnerability rating of Morris

County and the jurisdictions of Daingerfield, Lone Star, Naples and Omaha is **HIGH**. Wooden Structures exist in all the jurisdictions in Morris County. Repainting and even replacing lumber may be necessary if the storms are severe enough. Anyone who has an uncovered automobile could experience expensive repair costs. Also all the buildings in the jurisdictions have glass windows and many dwelling in all the jurisdictions have roofs that will be susceptible to hail damage.

Extent: The largest hail recorded in Morris County occurred on January 18, 1995. It was 2.50 inches, but the pea size and smaller are the most common, causing no damage. All jurisdictions are affected equally. See the table on pages 22-23 for a more comprehensive look at possible damage values. Morris County can expect hail size up to H10 on the Hailstorm Intensity Scale. See the Combined NOAA/TORRO Hailstorm Intensity Scales Table on page 76.

Impact: The impact of a hailstorm has historically been limited however, large size hail can cause injuries. Hail can damage autos, roofs, siding and crops. A 2% loss to residential property in the county could result in a monetary value of $??????. See the tables on page 18-19 for a more comprehensive look at possible damage values

Estimated Property Loss at 2%		
Morris County	Residential	
Daingerfield	Residential	
Lone Star	Residential	
Naples	Residential	
Omaha	Residential	

Summary: Hailstorms are unpredictable and often associated with thunderstorm activity. Thunderstorms have historically occurred throughout the county, and if the trend continues, all of Morris County and its jurisdictions could be affected by hailstorms.

DROUGHT

A drought is a period of abnormally dry weather that persists long enough to produce a serious hydrologic imbalance (for example crop damage, water supply shortage, etc.) The severity of the drought depends upon the degree of moisture deficiency, the duration and the size of the affected area.

There are four different ways that drought can be defined:

- Meteorological – a measure of departure of precipitation from normal. Due to climatic differences what is considered a drought in one location may not be a drought in another location.
- Agricultural – refers to a situation when the amount of moisture in the soil no longer meets the needs of a particular crop.
- Hydrological – occurs when surface and subsurface water supplies are below normal.
- Socioeconomic – refers to the situation that occurs when physical water begins to affect people.

Drought is a period of time when precipitation falls below normal levels.

Defining the beginning or the end of a drought can be difficult. Some droughts may be short in duration, but more severe in their intensity. Low humidity and high temperatures usually accompany droughts, which means that any additional moisture evaporates quickly before it has the chance to improve conditions.

Droughts not only lead to water shortages, they produce widespread crop failure and environmental stress, and in recent years have caused more than 300 Texas cities and utilities to resort to ordinances or other measures to limit water use. The extreme heat associated with some droughts has led to heat related deaths, job losses among agricultural workers, and significant acreage and property destroyed by wildfires.
Drought ends when it rains. When enough precipitation has fallen, a region's soil moisture profile will improve enough to sustain plants and crops. Once recovery continues to the extent that the water levels of lakes, rivers, wells and reservoirs have returned to normal, then a drought is considered over.

The 1996, 1998 and 2000 Texas Droughts

The statewide droughts of 1996 and 1998 produced widespread crop failure, significant environmental stress and required more than 300 cities and utilities to implement some form of water demand management. Most of these demand management measures were taken because the utility could not treat and distribute water as fast as it was being used.

The drought of 1996 began with below normal precipitation in November 1995. Precipitation (meteorological drought) did not return to "normal" until August 1996, and reservoir levels (hydrological drought) generally did not begin to recover until October of that year. This 10-month

drought period saw significant drops in reservoir and aquifer levels over much of Texas. Agriculture impacts as a result of the drought were estimated to be in the range of $5 billion.

Of the two droughts, the 1996 drought had more impact on water supplies. Statewide reservoir levels dropped to 68 percent of conservation storage capacity, similar to the drought of 1984 when storage capacity dropped to 66 percent.

The 1998 drought was shorter in duration. It began with an abrupt end to the much wetter conditions caused by El Nino and beginning of La Nina in March 1998. It did not end until five months later in the fall of 1998, with devastating floods in much of the state. By November 1998, crop moisture indices for the whole state had returned to adequate levels, and statewide reservoir levels had returned to 82 percent of capacity. Total losses were estimated to be more than $6 billion. The extreme heat also led to 131 heat-related deaths, more than 14,000 farm workers out of jobs and almost a half a million acres burned by wildfires.

The 2000 drought caused about 595 million in crop losses and 178 counties were declared federal agricultural disaster areas. As of September, North Texas had been rainless for 77 days, surpassing the no-rain record of 59 days set in 1934 and 1950.

Potential Damage/Loss Due to Drought
Table 2.19

Estimated Producer Drought Losses from Economic Potential -- for years 1996, 1998, 1999, & 2000 in Texas

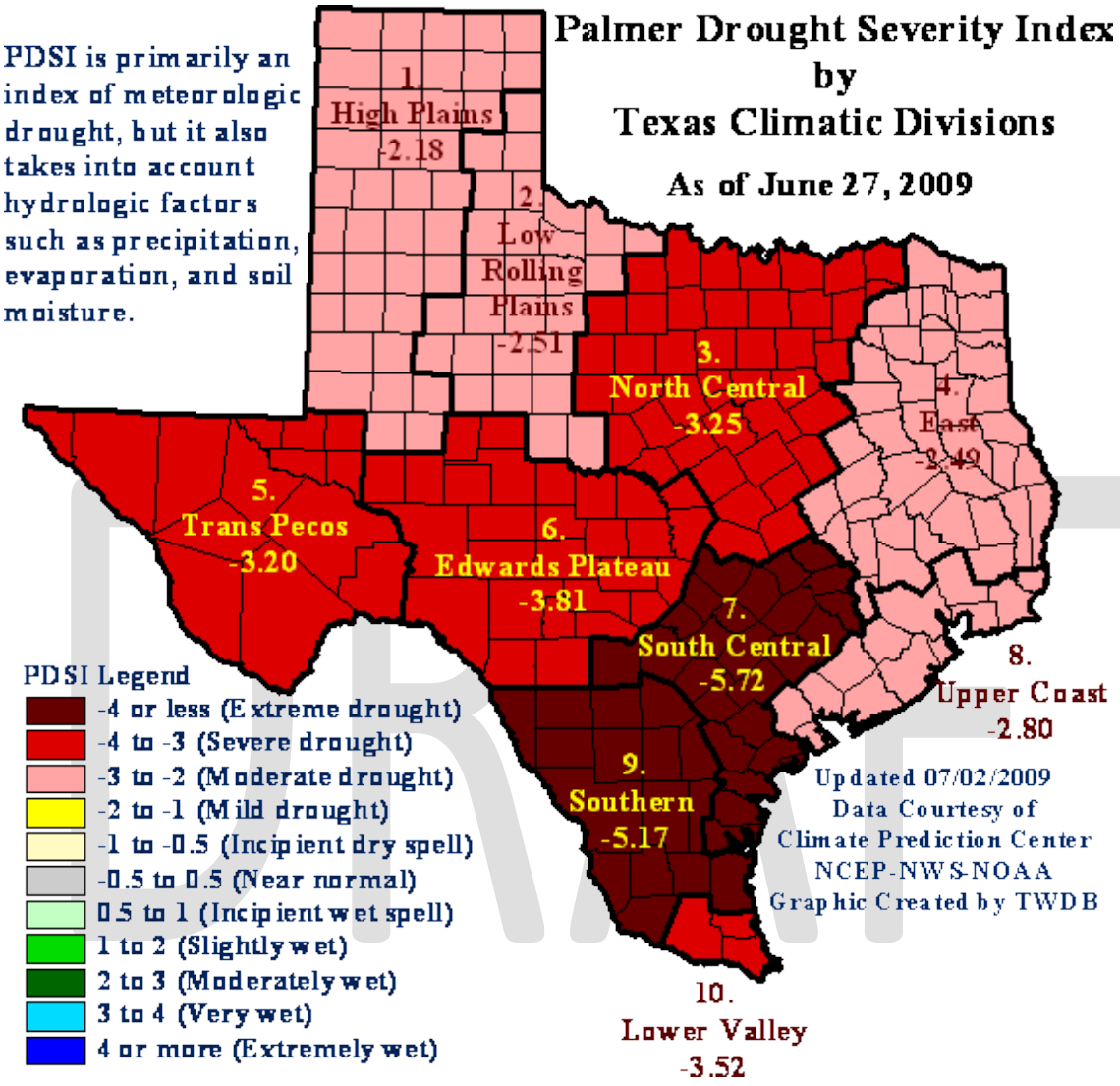
Commodity	1996	1998	1999	2000
Cotton	$359	$659	**	$485
Corn	177	255	**	34
Grain Sorghum	205	140	**	62
Wheat	202	0	**	153
Added Irrigation Costs	n/e	n/e	n/e	47
Wheat Grazing	39	25	59	30
Forage Crops	n/e	380	**	124
Other Crops	n/e	218	**	56
Livestock Value	522	101	n/e	n/e
Added Feed/Water Costs	589	325	154	105
Lost Shrimp Catch	n/e	n/e	10	n/e
Total Producer Losses	$2,093	$2,103	$223	$1,096

* In millions of dollars n/e - Not estimated seperately
** Drought losses did occur in certain regions, but above average yeilds elsewhere offset losses for statewide total

Texas Agricultural Extension Service
10-18-00

Data is insufficient to project total losses on a severe drought. A severe drought like the 1996, 1998 and 2000 droughts would cause significant loss in basic agriculture items along with timber and livestock losses.

Explanation of PDSI



Morris County Drought

A drought is a period of abnormally dry weather that persists long enough to produce a serious hydrologic imbalance (for example crop damage, water supply shortage, etc.) The severity of the drought depends upon the degree of moisture deficiency, the duration and the size of the affected area.

There are four different ways that drought can be defined:

- Meteorological – a measure of departure of precipitation from normal. Due to climatic differences what is considered a drought in one location may not be a drought in another location.
- Agricultural – refers to a situation when the amount of moisture in the soil no longer meets the needs of a particular crop.
- Hydrological – occurs when surface and subsurface water supplies are below normal.
- Socioeconomic – refers to the situation that occurs when physical water begins to affect people.

Drought is a period of time when precipitation falls below normal levels. Drought is divided in three phases:

Defining the beginning or the end of a drought can be difficult. Some droughts may be short in duration, but more severe in their intensity. Low humidity and high temperatures usually accompany droughts, which means that any additional moisture evaporates quickly before it has the chance to improve conditions.

Droughts not only lead to water shortages, they produce widespread crop failure and environmental stress, and in recent years have caused more than 300 Texas cities and utilities to resort to ordinances or other measures to limit water use. The extreme heat associated with some droughts has led to heat related deaths, job losses among agricultural workers, and significant acreage and property destroyed by wildfires.

Drought ends when it rains. When enough precipitation has fallen, a region's soil moisture profile will improve enough to sustain plants and crops. Once recovery continues to the extent that the water levels of lakes, rivers, wells and reservoirs have returned to normal, then a drought is considered over.

The 1996, 1998 and 2000 Texas Droughts

The statewide droughts of 1996 and 1998 produced widespread crop failure, significant environmental stress and required more than 300 cities and utilities to implement some form of water demand management. Most of these demand management measures were taken because the utility could not treat and distribute water as fast as it was being used.

The drought of 1996 began with below normal precipitation in November 1995. Precipitation (meteorological drought) did not return to "normal" until August 1996, and reservoir levels (hydrological drought) generally did not begin to recover until October of that year. This 10-month

drought period saw significant drops in reservoir and aquifer levels over much of Texas. Agriculture impacts as a result of the drought were estimated to be in the range of $5 billion.

Of the two droughts, the 1996 drought had more impact on water supplies. Statewide reservoir levels dropped to 68 percent of conservation storage capacity, similar to the drought of 1984 when storage capacity dropped to 66 percent.

The 1998 drought was shorter in duration. It began with an abrupt end to the much wetter conditions caused by El Nino and beginning of La Nina in March 1998. It did not end until five months later in the fall of 1998, with devastating floods in much of the state. By November 1998, crop moisture indices for the whole state had returned to adequate levels, and statewide reservoir levels had returned to 82 percent of capacity. Total losses were estimated to be more than $6 billion. The extreme heat also led to 131 heat-related deaths, more than 14,000 farm workers out of jobs and almost a half a million acres burned by wildfires.

The 2000 drought caused about $595 million in crop losses and 178 counties were declared federal agricultural disaster areas. As of September, North Texas had been rainless for 77 days, surpassing the no-rain record of 59 days set in 1934 and 1950.

Potential Damage/ Loss Due To Crop Damage

Data is insufficient to project total losses on a severe drought. A severe drought like the 1996, 1998 and 2000 droughts would cause significant loss in basic agriculture items along with timber and livestock losses.

Violence is like a weed - it does not die even in the greatest drought.

Simon Wiesenthal

Estimated Producer Drought Losses from Economic Potential -- for years 1996, 1998, 1999, & 2000 in Texas

Commodity	1996	1998	1999	2000
Cotton	$359	$659	**	$485
Corn	177	255	**	34
Grain Sorghum	205	140	**	62
Wheat	202	0	**	153
Added Irrigation Costs	n/e	n/e	n/e	47
Wheat Grazing	39	25	59	30
Forage Crops	n/e	380	**	124
Other Crops	n/e	218	**	56
Livestock Value	522	101	n/e	n/e
Added Feed/Water Costs	589	325	154	105
Lost Shrimp Catch	n/e	n/e	10	n/e
Total Producer Losses	$2,093	$2,103	$223	$1,096

* In millions of dollars n/e - Not estimated seperately
** Drought losses did occur in certain regions, but above average yields elsewhere offset losses for statewide total

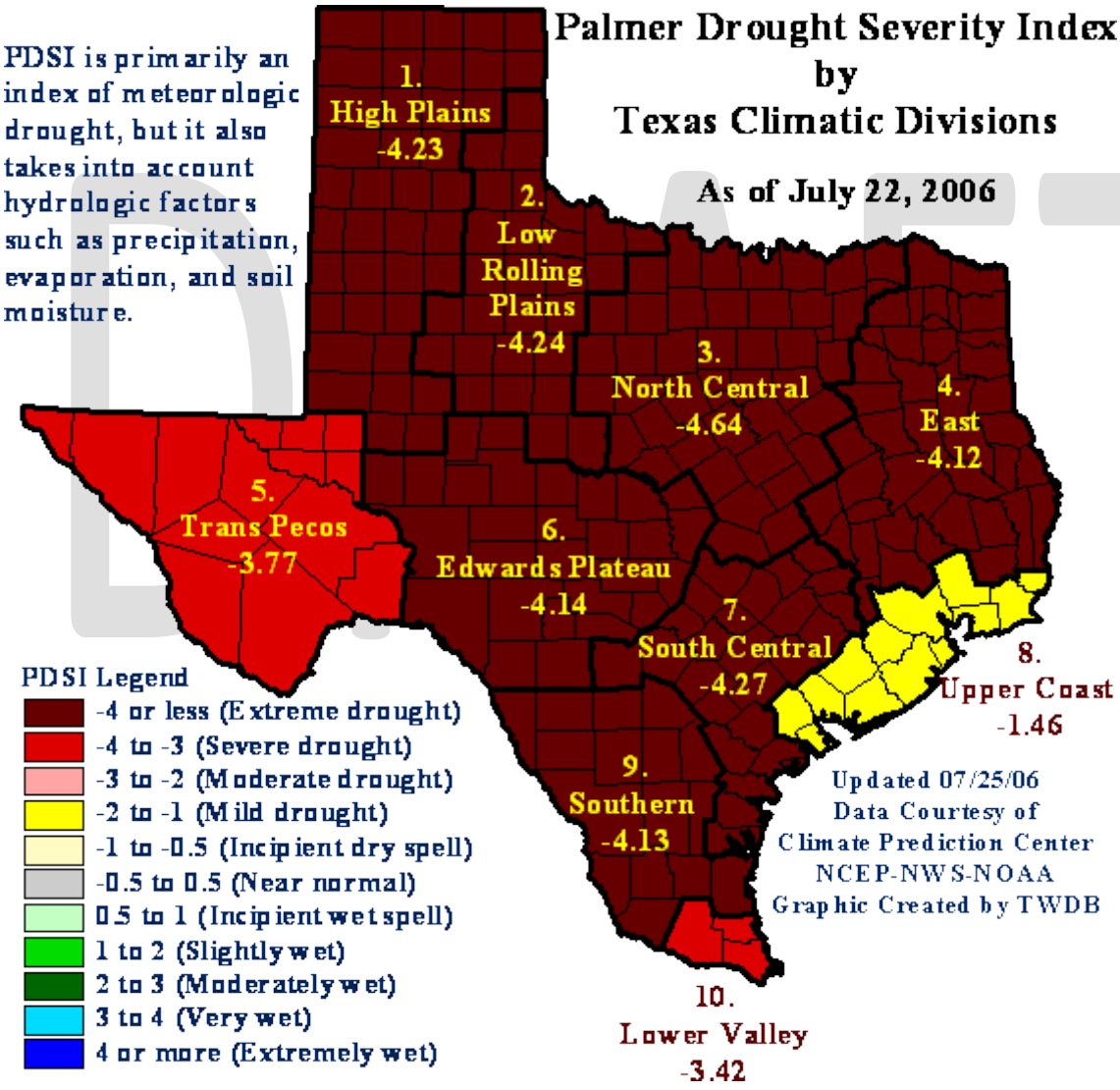
Texas Agricultural Extension Service
10-18-00

The wide variety of disciplines affected by drought, its diverse geographical and temporal distribution, and the many scales drought operates on make it difficult to develop both a definition to describe drought and an index to measure it. Many quantitative measures of drought have been developed in the United States, depending on the discipline affected, the region being considered, and the particular application. Several indices developed by Wayne Palmer, as well as the Standardized Precipitation Index, are useful for describing the many scales of drought.

Common to all types of drought is the fact that they originate from a deficiency of precipitation resulting from an unusual weather pattern. If the weather pattern lasts a short time (say, a few weeks or a couple months), the drought is considered *short-term*. But if the weather or atmospheric circulation pattern becomes entrenched and the precipitation deficits last for several months to several years, the drought is considered to be a *long-term* drought. It is possible for a region to experience a long-term circulation pattern that produces drought, and to have short-term changes in this long-term pattern that result in short-term wet spells. Likewise, it is possible for a long-term wet circulation pattern to be interrupted by short-term weather spells that result in short-term drought

Drought is determined by using the Palmer Drought Index. It is based on precipitation and temperature data for the area. The scale ranges from 3.99, which is very wet to -4.00 or less, which is considered extreme drought. The scale is most accurate when used to determine drought over a period of months. See the Damage Assessment Tables on page 24-25 The extent of drought experienced in Morris County and its jurisdictions will range from *0 Abundantly Dry to 4 Exceptional Drought*.

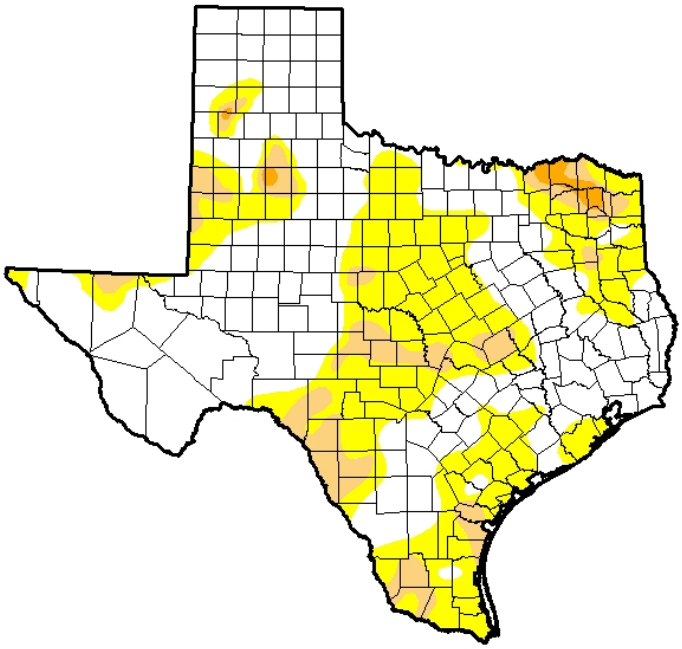
Explanation of PDSI



The U.S. Drought Monitor shows current conditions for Texas, showing Morris County as Abnormally Dry.

U.S. Drought Monitor

Texas



August 9, 2016

(Released Thursday, Aug. 11, 2016)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	55.83	44.17	10.16	0.93	0.00	0.00
Last Week 8/2/2016	65.35	34.65	5.83	0.64	0.00	0.00
3 Months Ago 5/10/2016	90.05	9.95	0.73	0.00	0.00	0.00
Start of Calendar Year 12/29/2015	95.48	4.52	0.00	0.00	0.00	0.00
Start of Water Year 9/29/2015	34.51	65.49	38.32	17.55	6.27	0.00
One Year Ago 8/11/2015	60.86	39.14	18.49	4.28	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

http://droughtmonitor.unl.edu/

History of Drought in Morris County

Begin Date	Location	Description
05/01/96	18 Counties	May was one of the hottest and driest on record. Over ninety percent of cooperative observers reported rainfall far below climatologic averages. Some reporting stations in northeast Texas including New Summerfield had no measurable rainfall the entire month. Numerous industries were hard hit including agricultural, timber, crop and livestock.
06///98-07-98	21 Counties	No description provided
08/01/05	13 Counties	The abnormally dry summer months of June, July and August resulted in moderate to extreme drought conditions. The lack of rainfall through the period resulted in many crops being unusable which put significant strain on the farming community.
12//05	22 Counties	The month was a continuation to a devastating drought that impacted much of the eastern half of the state throughout 2005. Many lakes and reservoirs remained near or set all time record lows levels. .Burn bans continued as most of the region experienced rainfall deficits of some 15 to 20 inches for the year.
01/2011-03/2012	The entire state recorded drought conditions at one point	**This drought reached historical proportions creating severe drought conditions throughout the state of Texas. In September of 2011 neighboring Cass County experienced the greatest forest fire ever recorded in East Texas. 16 months of drought**
07/13/-09/13	Bowie, Red River, Titus, Franklin, Morris	D2 Severe Drought conditions developed during the early part of the month along the Red River in extreme northern Red River and Bowie Counties in Northeast Texas Conditions improved during January 20113.
08/15-10/15	12 Counties	Despite a very wet spring...flash drought conditions developed across portions of Northeast Texas by the middle of August and continued through the end of the month. These counties were classified at being under D2 - Severe Drought conditions.

Information supplied by NOAA Satellite and Information Service, National Climatic Data Center

Morris County Drought Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Morris County	Substantial PRI 4	Highly Likely PRI 4	> than 24 hours PRI 1	>Week PRI 4	High 3.55
Daingerfield	Substantial PRI 4	Highly Likely PRI 4	> than 24 hours PRI 1	>Week PRI 4	High 3.55
Lone Star	Substantial PRI 4	Highly Likely PRI 4	> than 24 hours PRI 1	>Week PRI 4	High 3.55
Naples	Substantial PRI 4	Highly Likely PRI 4	> than 24 hours PRI 1	>Week PRI 4	High 3.55
Omaha	Substantial PRI 4	Highly Likely PRI 4	> than 24 hours PRI 1	>Week PRI 4	High 3.55

Location: Historically, drought has affected the all of Morris County including the jurisdictions. The agricultural areas, which include the rural parts of the County, would be affected more so than the urban areas.

Probability: Droughts will continue to occur in the region when the conditions are right. It is a normal, recurrent feature of climate. It is **highly likely** a drought will affect Morris County and its participating jurisdictions. Historically a drought can last from a few days to over a year.

Vulnerability: The region is vulnerable when there is a deficiency of precipitation over an extended period of time. All of Morris County and its jurisdictions are vulnerable to drought. For **Daingerfield, Lone Star, Naples and Omaha** droughts have a social dynamic that includes affecting the elderly and young, causing depression, creating job loss, requiring residents to relocate due to economic impact and rising costs for food. Morris County and its jurisdictions share the same risk from drought. Morris County and all participating jurisdictions have a drought vulnerability level of **HIGH.**

Impact: Drought in Morris County can have a large impact on local crops and local economies as well. Food prices increase because foods that are typically available locally have to be shipped in from areas not experiencing droughts.

Further economic impact occurs when stress is placed on automobile cooling systems, diesel trucks and railroad locomotives. This leads to an increase in mechanical failures. Train rails develop sun kinks that affect alignment. Refrigerated goods experience a significant greater rate of spoilage due to extreme heat. Additional impact will be felt as food prices rise due to crop loss.

Burn bans are often placed in effect because dry grass and shrubs can be susceptible to flash fires that will threaten neighborhoods

The demand for electric power during heat waves is well documented. According to the Institute for Research in the Atmosphere at Colorado State University, "In 1980, consumers paid $1.3 billion more for electric power during the summer than the previous year. The demand for electricity, 5.5% above normal outstripped the supply, causing electric companies to have rolling black outs."

Pollutants are more concentrated when water supplies are low because pollutants and bacteria become more concentrated.

During a period of drought, accompanied by a water shortage, residents are often asked to ration their water. People may be asked to rotate the days of watering yards by address on odd and even sides of the street. In areas where the soil is not stable foundation problems occur; especially with houses that are built on slab concrete.

The impact of a drought on Morris County and all the participating jurisdictions include economic problems due to high food prices, the water from municipal works can drop in quality causing illness, lawns and other plants are impacted. Public safety can be threatened by the increased likelihood of wildfires. If the water levels of Lake Cypress Springs become low there would be a decrease in recreational activities such as fishing and boating.

Summary: Drought is seen as an issue for Morris County, including **Daingerfield, Lone Star, Naples and Omaha**. The drought of 2011 actually covered 16 months and impacted the entire state. If the climatologists' predictions are correct, extreme weather may become the norm rather than the exception.

EXTREME HEAT

Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans die from adverse effects of extreme heat. In the disastrous heat wave of 1980, more than 1,250 people died. These are the direct casualties. No one can know how many more deaths are advanced by heat wave weather-how many diseased or aging hearts surrender that under better conditions would have continued functioning. The New York Times recently said, "Compared to other weather-related causes of death, heat is a quiet but prolific killer, causing more deaths annually in the United States — about 130 — than flooding, lightning, tornadoes, hurricanes or cold, according to federal data."

North American summers are hot; most summers see heat waves in one section or another of the United States. East of the Rockies, they tend to combine both high temperature and high humidity although some of the worst have been catastrophically dry.

The stagnant atmospheric conditions of the heat wave trap pollutants in urban areas and add the stresses of severe pollution to the already dangerous stresses of hot weather, creating a health problem of undiscovered dimensions. The high inner-city death rates also can be read as poor access to air-conditioned rooms. While air conditioning may be a luxury in normal times, it can be a lifesaver during heat wave conditions. The cost of cool air moves steadily higher, adding what appears to be a cruel economic side to heat wave fatalities. Indications from the 1978 Texas heat wave suggest that some elderly people on fixed incomes, many of them in buildings that could not be ventilated without air conditioning, found the cost too high, turned off their units, and ultimately succumbed to the stresses of heat. Elderly persons, small children, chronic invalids, those on certain medications or drugs (especially tranquilizers and anticholinergics), and persons with weight and alcohol problems are particularly susceptible to heat reactions, especially during heat waves in areas where a moderate climate usually prevails.

Based on the latest research findings, the National Weather Service has devised the Heat Index (HI). The HI, given in degrees F, is an accurate measure of how hot it really feels when relative humidity (RH) is added to the actual air temperature. Exposure to full sunshine can increase HI values by up to 15 degrees Fahrenheit. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous. The following shows heat index/heat disorders.

The Heat Index will be mitigated to any combination of temperature and humidity that ranges from 100 degrees F.to 114 degrees F. Temperatures of 90 degrees and higher will be considered extreme heat.

Possible Health Outcomes from Extreme Heat

Heat Index	Heat Disorder
130 degrees or higher	**Heatstroke/Sunstroke, highly higher likely with continued exposure.**
105 degrees – 130 degrees	**Sunstroke, heat cramps or heat exhaustion likely and heatstroke possible with prolonged exposure and/or physical activity.**
90 degrees – 105 degrees	**Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity.**
89 degrees – 90 degrees	**Fatigue possible with prolonged exposure and/or physical activity.**

Morris County Summer Temperatures*			
Date	Days 90 & Above	Days 100 & Above	High Temperature
June 2010	26	0	99 June 26
July 2010	27	2	100 July 25, 21
August 2010	30	13	105 August 22
June 2011	28	4	103, June 18,19
July 2011	31	20	106 July 24
August 2011	30	26	111 August 3
June 2012	25	7	107 June 25
July 2012	27	5	103 July 20, 29
August 2012	25	3	101 August 13
June 2013	16	1	100 June 28
July 2013	23	1	100 July 10
August 2013	25	6	101 August 30
June 2014	10	0	94 June 30
July 2014	16	1	100 July 14
August 2014	24	0	97 August 23, 24

***NOAA Weather**

NOAA's National Weather Service
Heat Index

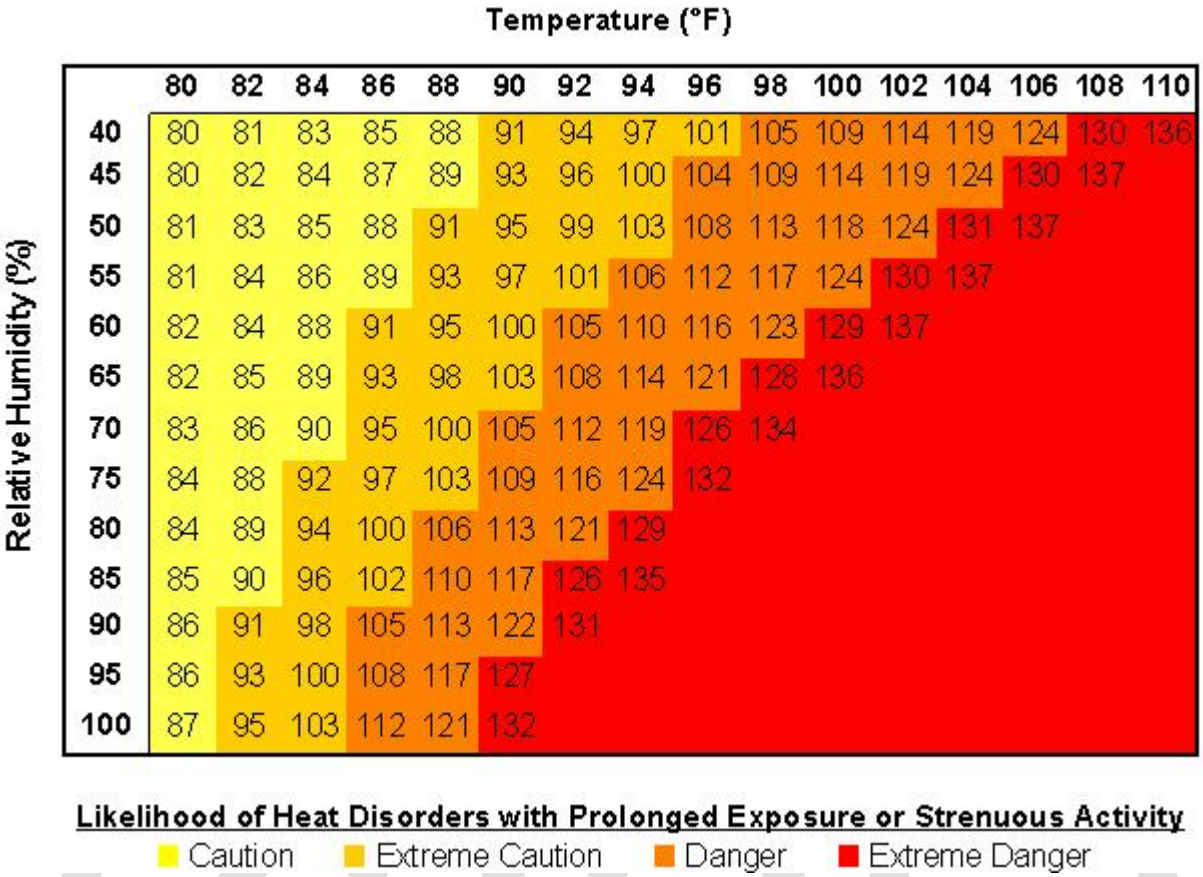


Table 2.22

MORRIS COUNTY EXTREME HEAT RISK					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Morris Unincorporated	Limited PRI 1	Highly Likely PRI 4	> 24 hrs. PRI 1	< a week PRI 3	Medium 2.1
Daingerfield	Limited PRI 1	Highly Likely PRI 4	> 24 hrs. PRI 1	< a week PRI 3	Medium 2.1
Lone Star	Limited PRI 1	Highly Likely PRI 4	> 24 hrs. PRI 1	< a week PRI 3	Medium 2.1
Naples	Limited PRI 1	Highly Likely PRI 4	> 24 hrs. PRI 1	< a week PRI 3	Medium 2.1
Omaha	Limited PRI 1	Highly Likely PRI 4	> 24 hrs. PRI 1	< a week PRI 3	Medium 2.1

MORRIS COUNTY SUMMERS 2006-2010				
Month/Year	**Days above 90**	**Highest Temp**	**Days 100 +**	**Avg. High**
June 2006	16	96	0	89.8
July 2006	25	104 (2 days)	10	96.
August 2006	28	102 (2days)	9	96.3
June 2007	7	93	0	87.2
July 2007	9	91 (2 days)	0	86.9
August 2007	30	101 (5 days)	6	95.3
June 2008	15	92	0	89
July 2008	24	102	3	94.6
August 2008	16	104 (2 days)	3	89.3
June 2009	17	100 (2 days)	2	90.6
July 2009	17	99 (2 days)	0	91.5
August 2009	12	92 (2 days)	0	88.2
June 2010	26	99	0	92.6
July 2010	27	100 (2days)	2	93.4
August 2010	30	105	13	98.2

Location: The entire county would be affected by extreme heat. All the jurisdictions suffer from the impact of extreme heat.

Probability: Extreme heat waves will continue to occur in the region when the conditions are right. It is a normal, recurrent feature of climate. Morris County typically has three or four extreme heat occurrences every summer. It is **highly likely** that Morris County and its jurisdictions will experience extreme heat.

Vulnerability: The region is vulnerable when there is a deficiency of precipitation over an extended period of time and high temperatures. The extent of damage or injury increases with the temperature and relative humidity levels. Many deaths each year are heat related. In Morris County, those at greatest risk of death in heat waves are the urban-dwelling elderly without access to an air-conditioned environment for at least part of the day. The elderly, young and ill are most vulnerable to extreme heat. Thus the issues of prevention and mitigation combine issues of the aging and of public health. Nursing Homes, located in Morris County, take special precautions to ensure that residents are kept at comfortable temperatures. Should the cooling system in such a facility fail, evacuation would have to occur in a matter of hours while the system was being repaired.

Crops and livestock are stressed during extended periods of extreme heat. Extreme heat causes heat stroke, time lost on the job and psychological stress.

All of Morris County and the jurisdictions of Daingerfield, Lone Star, Naples, and Omaha are vulnerable and share the same risk. Their vulnerability is rated as **HIGH**.

Impact: According to the NOAA weather service in Shreveport, Louisiana, extreme, heat by definition, exists when over a two day period, the heat index high reaches 105-109 with a minimum evening index temperature of 75 degrees or better. The heat index is calculated by combining air temperature and humidity levels. The full range of the heat index on the preceding page is applicable for Morris County and its jurisdictions. There is no specific history regarding property or crop damage due to excessive heat available for examples of loss in dollars. The financial loss could be extensive. Extreme heat in conjunction with drought can impact crop and livestock production. (see the Estimated loss potential on pages 22-23 for more detail.) Poultry in particular are sensitive to hot conditions. The Heat Index will be mitigated to any combination of temperature and humidity that ranges from 90 degrees F to 114 degrees F.

Extreme heat can have an impact on infrastructure which is often affected in urban areas. Asphalt roads soften and concrete roads have been known to "explode" lifting 3 - 4 foot pieces of concrete. During the 1980 heat wave hundreds of miles of highways buckled (NOAA, 1980)

Further economic impact occurs when stress is placed on automobile cooling systems, diesel trucks and railroad locomotives. This leads to an increase in mechanical failures. Train rails develop sun kinks that can lead to derailment. Refrigerated goods spoil more quickly. Additional impact will be felt as food prices rise due to crop damage and loss. Increased usage in power causes electric bills to increase.

The demand for electric power during heat waves is well documented. According to the Institute for Research in the Atmosphere at Colorado State University, “In 1980, consumers paid $1.3 billion more for electric power during the summer than the previous year. The demand for electricity, 5.5% above normal, outstripped the supply, causing electric companies to have rolling black outs.”

Summary: Hot temperatures are part of the East Texas landscape. During the months of June, July and August we can expect temperatures of over 100 degrees. The citizens who live in Morris County and the participating jurisdictions of Daingerfield, Lone Star, Naples and Omaha are aware of extreme heat’s lethal potential and take precautions to prevent overheating and heat related strokes. Models produced by the environmental sciences project increase incidents of extreme temperature climate change due to global warming. We can expect heat waves to become more frequent and intense due to global warming.

.

WILDFIRE

Wildfires are nothing new to the State of Texas. They are a part of our natural history and have shaped many of our native Texas ecosystems. What is new is the unprecedented growth and development that is occurring in locations across the state that were once rural. It is in this area where development meets native vegetation that the greatest risk to public safety and property from wildfire exists. Wildfires typically start in woodland or prairie areas. They can occur naturally though they are often exacerbated by human activities. Wildfires can be hard to control as they threaten homes and communities located nearby. Wildfires happen in every state, and they do not respect county or state lines. The impact of fire reaches well beyond the initial flames and smoke. Even if firefighters are able to protect homes and business, the aftermath of wildfire can be just as devastating as floods.

In Texas, the greatest high-danger fire threats are forest, brush and grass fires. The East Texas Piney Woods belt of commercial timber is most susceptible to forest fires. In East Texas, the most monetary damage was caused by arson. Arsonists were responsible for 1 of every 4 fires. Debris burning is and continues to be the major cause of fires. Other causes such as control burns, construction fires and other miscellaneous fires rank second.

A HISTORY OF WILDFIRES IN TEXAS

Texas has had some significant fires in the urban wild land interface areas, where combustible homes meet combustible fuels. In 1996, the Poolville Fire burned 141 structures and 16,000 acres in Parker and Wise counties west of Fort Worth. During the 2000 fire season, 48 homes were lost to wildfires in Texas that burned more than a quarter of a million acres.

In 1996, a historical record number of fires and losses in terms of acreage lost due to fires that burned across the state during a four-month period of the traditional fire season in the state. A total of 113 homes and 170,000 acres were lost due to fire in what is undoubtedly the worst siege of fire in the history of Texas. Over three hundred- trained fire fighters were brought in from across the nation to assist and supplement the Texas Forest Service personnel in control of these fires. The Southern States Forest Fire Compact was invoked in order for Texas to receive help in terms of personnel and equipment from neighboring states.

Over the five-year period of 1991 – 1995, an average of 1178 fires a year burned an average of 17,022 acres with the average fire size being 14 acres. Compare this to 1996, when 2622 fires burned 76,581 acres with an average fire size of 29 acres.

Morris County residents are served by 13 local fire departments as depicted below, which shows the square miles that each fire department in Morris County covers. MorrisCounty is at risk of fires due to the frequency of drought situations that occur.

AREA COVERED (SQUARE MILES)
BY MORRIS COUNTY FIRE DEPARTMENTS

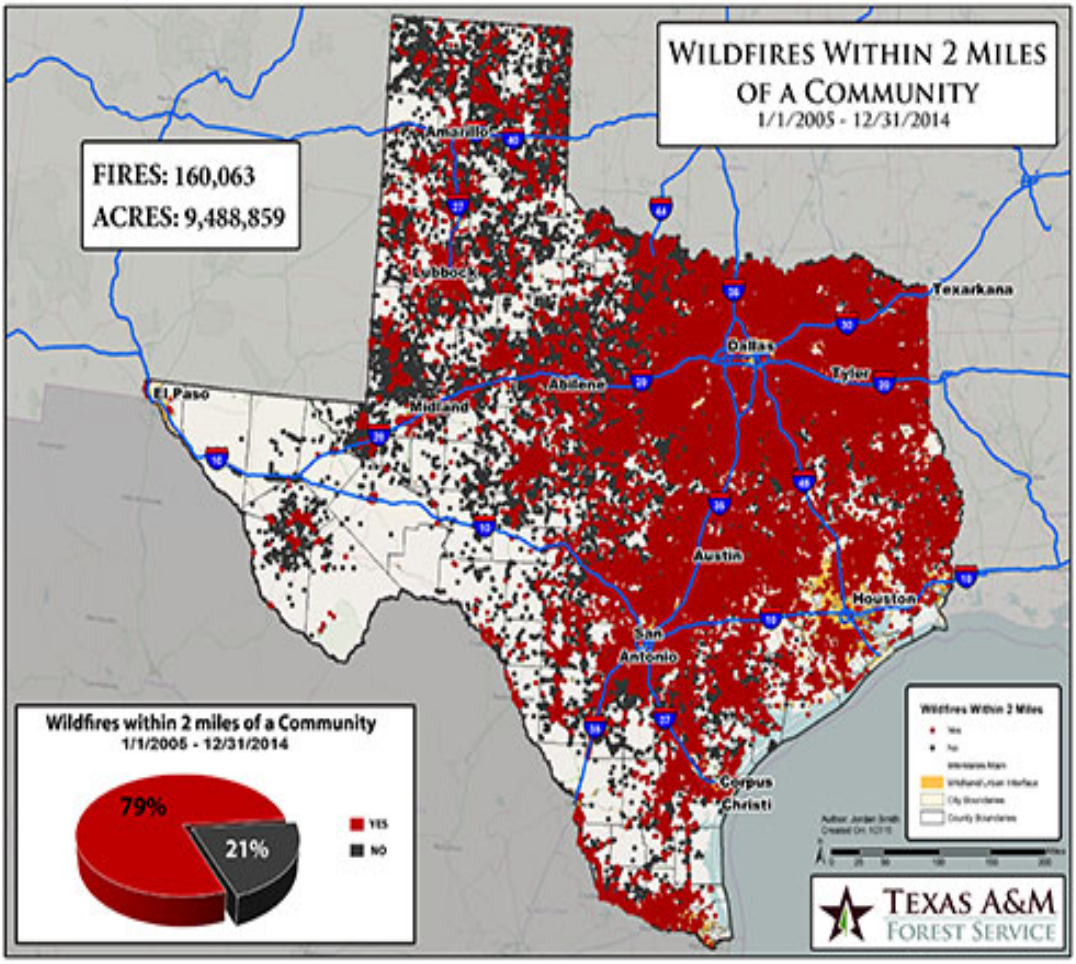
FIRE DEPARTMENT	AREA (SQUARE MILES)

Source: Texas Forest Service

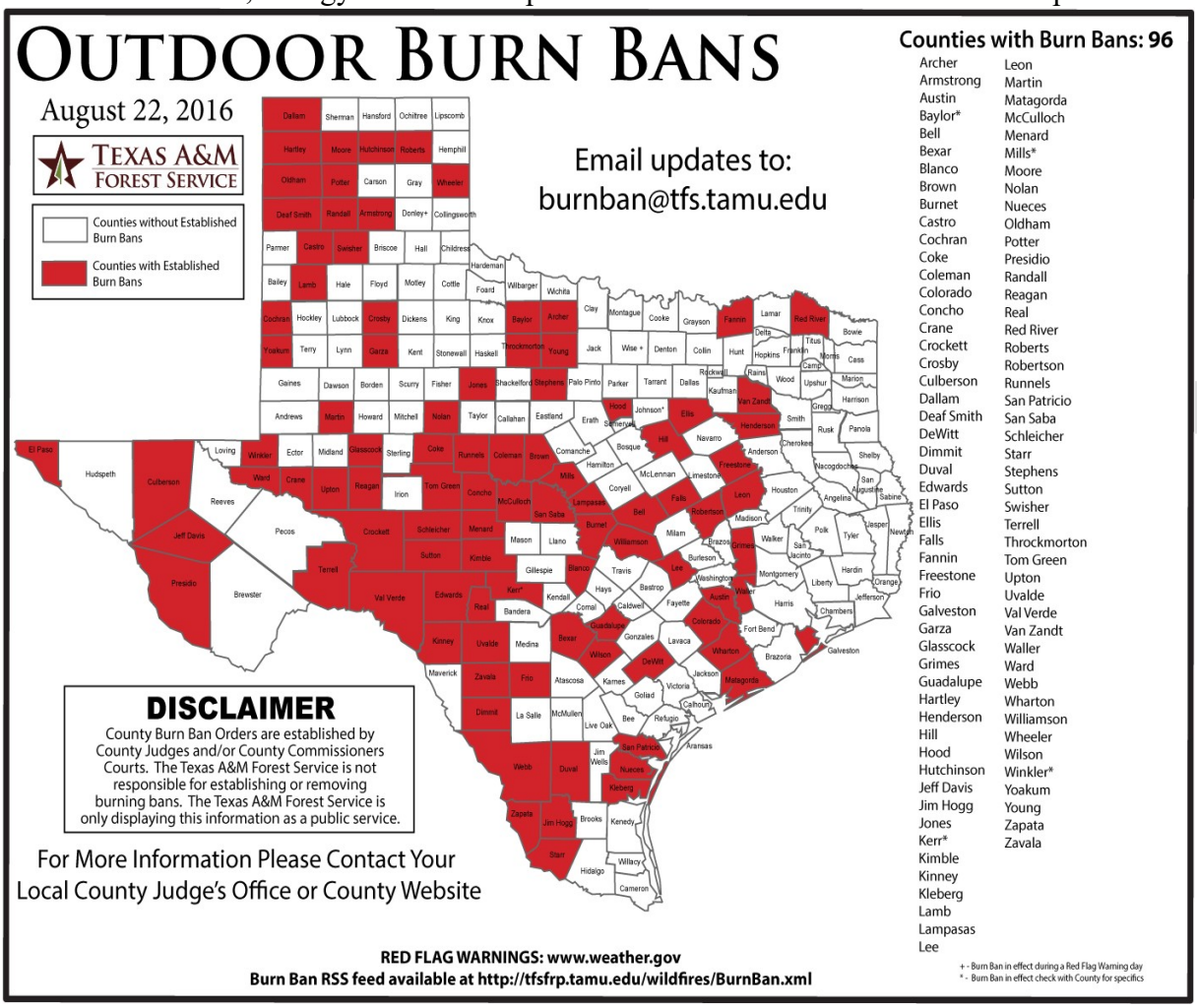
ISO FIRE PROTECTION CLASSES FOR MORRIS COUNTY

Fire Protection Area	Protection Class	Primary Fire Response
Daingerfield	7	Daingerfield FD
Hughes Springs	7	Hughes Springs FD
Lone Star	7	Lone Star FD
Naples	6	Naples FD
Omaha	8	Omaha FD

Based on the map below, 79% of wildfires have occurred within 2 miles of a community in East Texas and Morris County.



Should any part of the State of Texas experience extended periods of fair, windy weather, implementation of countywide bans on outdoor burning may be advised as a wild fire prevention tool in that area. The Texas Forest Service recommends that local governments consider a KBDI of 600 and above for imposition of burn bans. Other indicators that dictate the need for a burn ban include: 1000 HR fuel moisture, Energy Release Component and run occurrence of local fire departments.

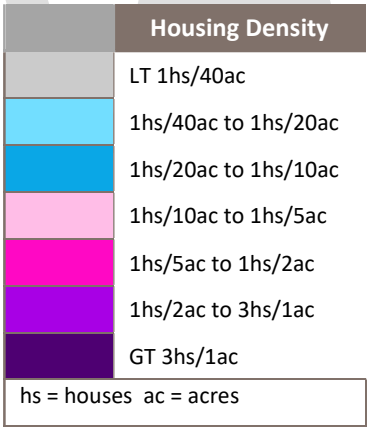


The Wildland Urban Interface (WUI) reflects housing density depicting where humans and their structures meet or intermix with wildland fuels. It is the geographical area where combustible homes are mixed with combustible vegetation. The determination of specific wildfire hazard sites depends on several factors.

- Topographic location and fuels;
- Site/building construction and design;
- Defensible space;
- Accessibility;
- Fire protection response; and
- Water availability.

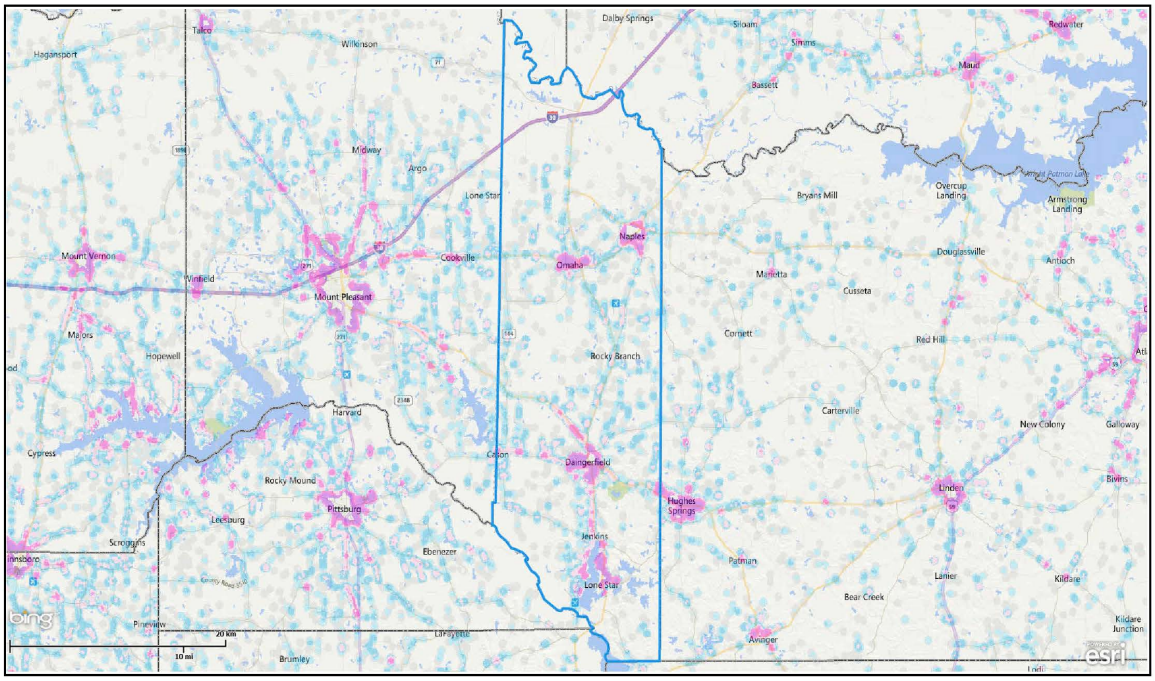
WUI housing density is categorized based on the standard Federal Register and U.S. Forest Service SILVIS data set categories. The number of housing density categories is extended to provide a better gradation of housing distribution to meet specific requirements for fire protection planning activities. While units of the data set are in houses per sq. km., which is consistent with other data such as USFS SILVIS, the data is presented as the number of houses per acre to aid with interpretation and use in Texas. The maps on pages 103-111 reflect these data.

WUI Map Legend



Wildland Urban Interface (WUI)

Morris County, Texas



Report Created:
09/19/2016 3:39 PM

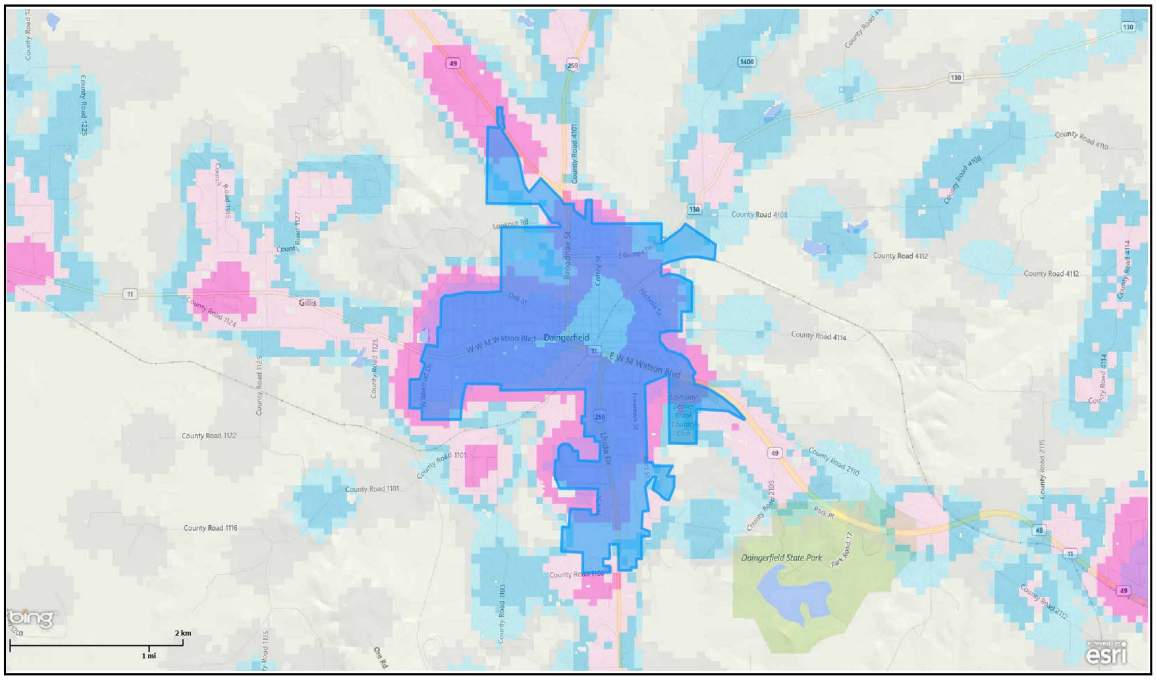
Texas Wildfire Risk Assessment 2010

www.texaswildfirerisk.com

TEXAS A&M FOREST SERVICE

Wildland Urban Interface (WUI)

Daingerfield, Texas



Report Created:
09/19/2016 3:26 PM

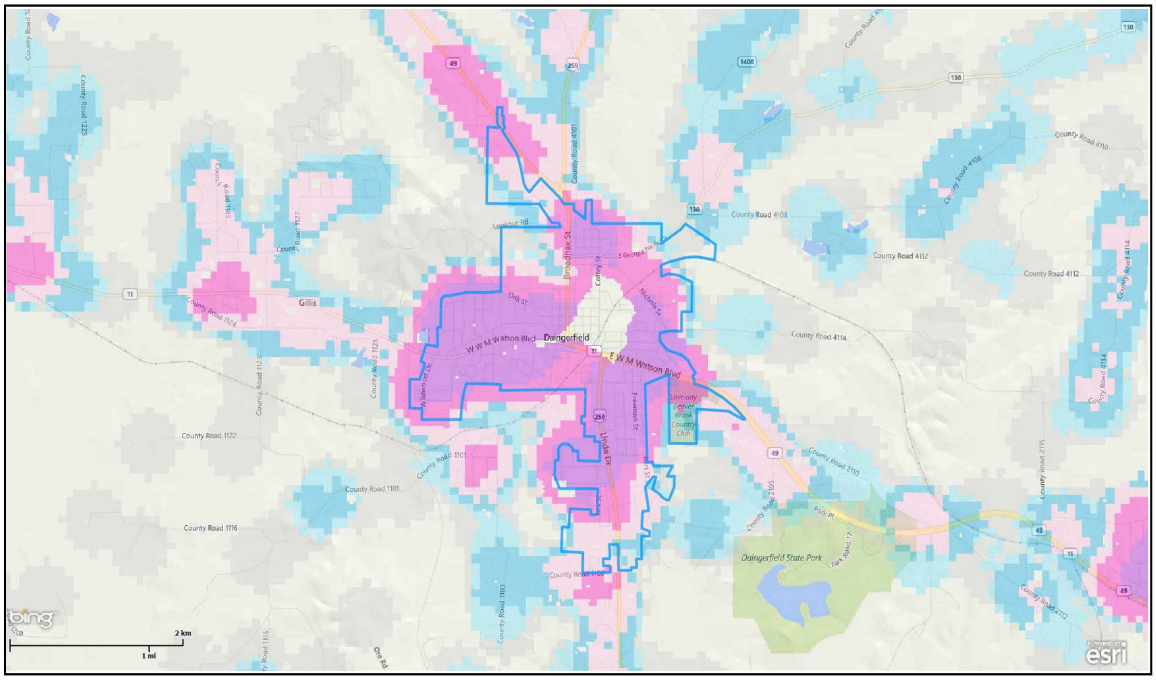
Texas Wildfire Risk Assessment 2010

www.texaswildfirerisk.com

TEXAS A&M FOREST SERVICE

Wildland Urban Interface (WUI)

Lone Star, Texas



Report Created:
09/19/2016 3:29 PM

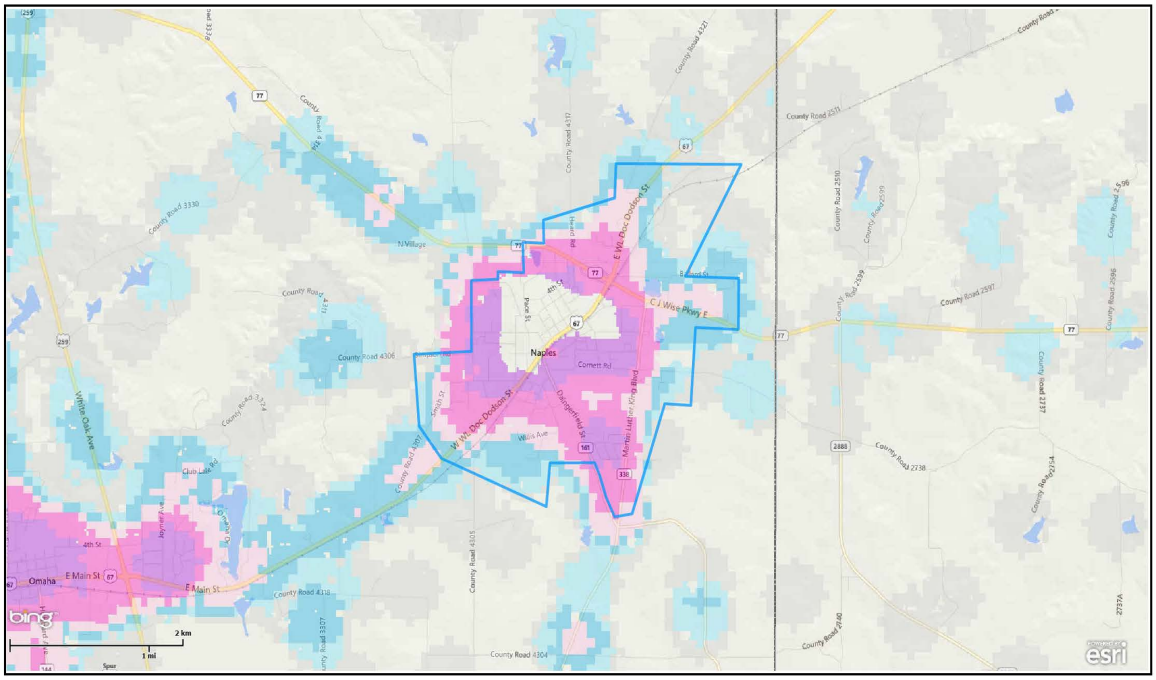
Texas Wildfire Risk Assessment 2010

www.texaswildfirerisk.com

TEXAS A&M FOREST SERVICE

Wildland Urban Interface (WUI)

Naples, Texas



Report Created:
09/19/2016 3:33 PM

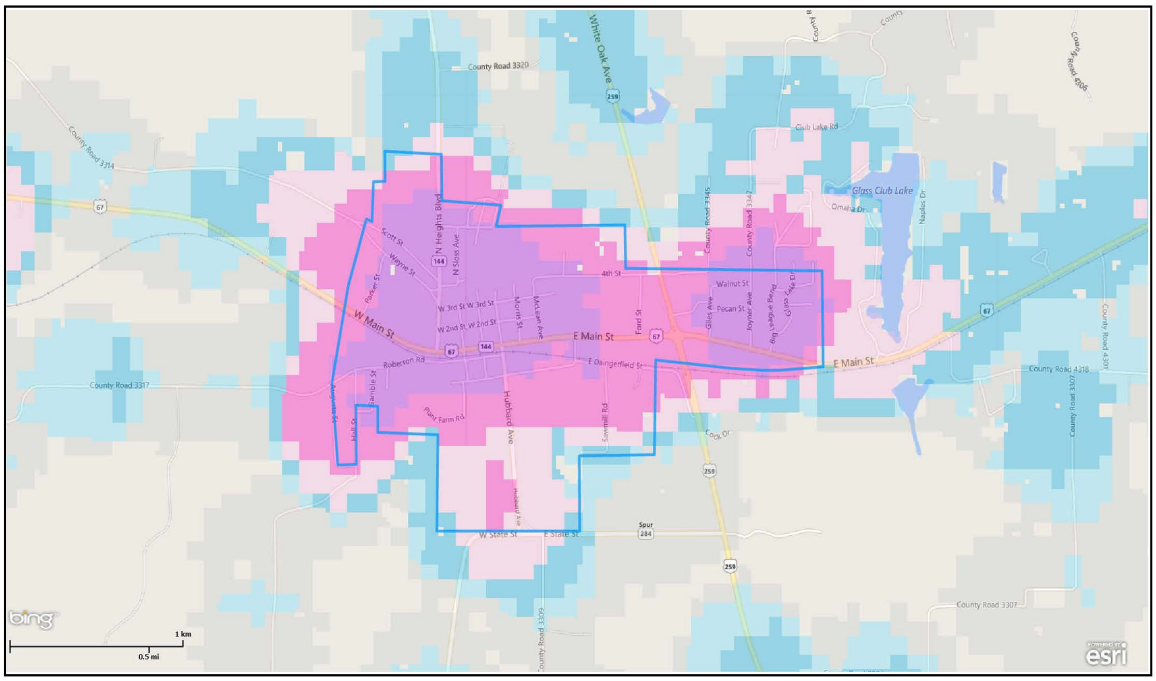
Texas Wildfire Risk Assessment 2010

www.texaswildfirerisk.com

TEXAS A&M FOREST SERVICE

Wildland Urban Interface (WUI)

Omaha, Texas



Report Created:
09/19/2016 3:36 PM

Texas Wildfire Risk Assessment 2010

www.texaswildfirerisk.com

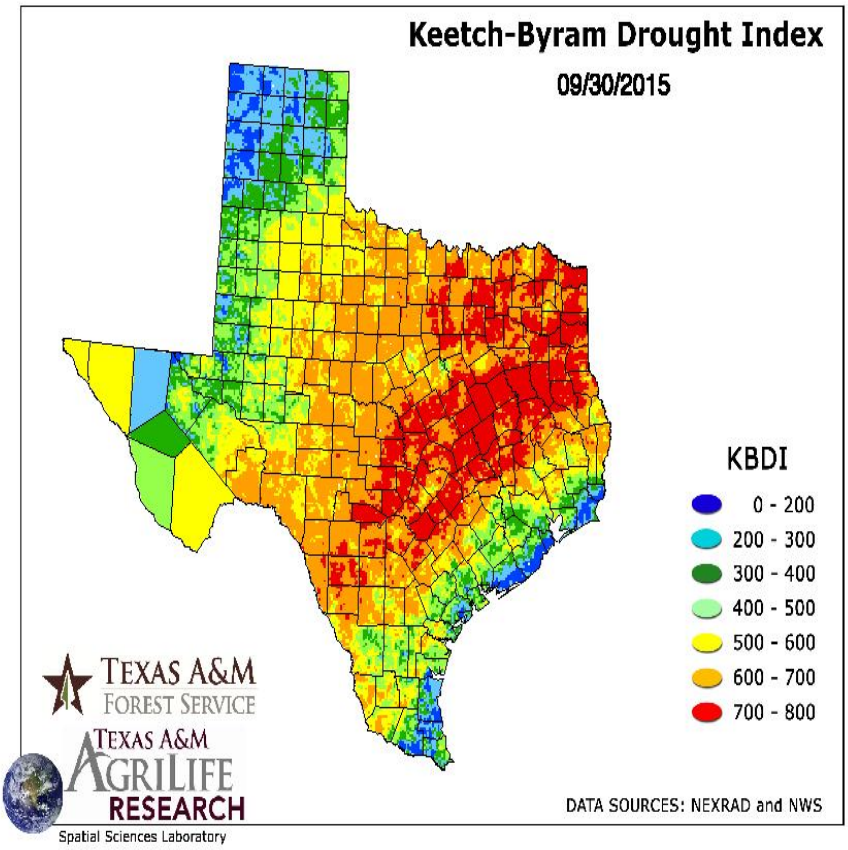
TEXAS A&M FOREST SERVICE

Morris County Wildfire Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Morris Unincorporated	Substantial PRI 4	Highly Likely PRI 4	< 6 hrs. PRI 4	< Week PRI 3	High 3.9
Daingerfield	Substantial PRI 4	Highly Likely PRI 4	< 6 hrs. PRI 4	< Week PRI 3	High 3.9
Lone Star	Substantial PRI 4	Unlikely PRI 1	< 6 hrs. PRI 4	< Week PRI 3	Medium 2.85
Naples	Substantial PRI 4	Highly Likely PRI 4	< 6 hrs. PRI 4	< Week PRI 3	High 3.9
Omaha	Substantial PRI 4	Highly Likely PRI 4	< 6 hrs. PRI 4	< Week PRI 3	High 3.9

Location: Forests, thick underbrush and dry pastures put Morris County at risk for Wildfires. Due to the droughts that occur throughout the entire County, all of Morris County could possibly be affected, depending on where the wildfire started. Also see the WUI maps, pages 98-107 for Morris County, Daingerfield, Lone Star, Naples and Omaha for further clarification of location.

Extent: The Keetch-Byram Drought Index (KBDI) is basically a mathematical system for relating current and recent weather conditions to potential or expected fire behavior. 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 0 to 800 that accurately describes the amount of moisture that is missing. A rating of zero defines the point where there is no moisture deficiency and 800 is the maximum drought possible.

The 2015 map below shows the KBDI index for Morris County at 700-800, which is severe. 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.



Expected Fire Conditions with Varying KBDI Levels

0 – 200 Low Fire Danger	Soil and fuel moisture is 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 Moderate Fire Danger	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 smokes to carry into and possibly through the night.
400 – 600 High Fire Danger	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 Extreme Fire Danger (600 – 800 continued)	Surface litter and most organic layers are consumed. 1000-hour fuels contribute to intensity. Stumps will burn to the end of roots underground. Any dead snag will ignite. Spotting from snags is a major problem if close to line. Expect dead limbs on trees to ignite from sparks. Expect extreme intensity on all fires that makes control efforts difficult. With winds above 10 miles per hour, spotting is the rule. Expect increased need for resources for fire suppression. Direct initial attack is almost impossible. Only rapid response time to wildfire with complete mop-up and patrol will prevent a major fire situation from developing.

Data is not available to determine the extent that each fire must reach before it runs out of control. Based on the table and definitions below, the entire planning area could expect wildfire intensity ratings between very low to high.

Texas Forest Service Fire Intensity Ratings		
Jurisdiction	Low	High
Morris County		
Daingerfield		
Lone Star		
Naples		
Omaha		

1, **Very Low**: Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment. **2, Low:** Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools. **3, Moderate**: Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property. **4, High**: Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property. **5, Very High:** Very large flames up to 150 feet in length; profuse short-range spotting, frequent long range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

Probability: Historically, NOAA data indicate that the probability of occurrence is highly likely with the jurisdictions in Morris County with the exception of Nash and Maud, which are unlikely (see previous occurrences for wildfire in the table below.) The threat of fires cannot be eliminated but public education and the use of prescribed burns can be used to better manage this hazard.

Number of Wildfires Reported Since Last Update	
Daingerfield	
Lone Star	
Naples	
Omaha	

Vulnerability: Morris County consists of heavily wooded pine, hard wood, bottom land and pasture. Crops, timber, pasture and dwellings are in danger of being destroyed by wildfires. Wildfires are contained by volunteer fire units working in coordination with each other. The fires that have occurred in the county have been contained by the dedicated fighters. Based on the number of wildfires reported, Maud and Bowie County are rated **HIGH** for vulnerability. DeKalb, Leary, Red Lick, Redwater, and Wake Village have a **MODERATE** vulnerability while Nash and Hooks are rated **LOW**. (See hazard vulnerability table on page 21 for further detail.)

Impact: The Assessment Damage Tables on page 22-23 address the amount of loss that can occur with wildfire. The impacts of wildfire for the participating communities is **Substantial** and could result in complete shutdown of facilities for 30 days or more, with more than 50 percent of property destroyed or with major damage. Air quality could be impacted and interruption of essential facilities and services could occur such as downed electrical lines.

Summary: Fires can destroy property and homes causing injury and death. Fortunately no lives were lost in any of the fires listed. It is important that communities have up to date emergency warning, reporting, and response systems in place. Well trained cohesive VFD's play a critical role in protecting people and property. The rural areas of Morris County are particularly at risk.

Mitigation Plan Update Strategy for Morris County

The previous goals and actions were never acted on and many of the old actions are no longer valid. The plan was never incorporated into other planning mechanisms as intended. Measures have been taken to ensure annual reviews. This updated plan represents the most current data available regarding actions needed to reduce loss of life and property through mitigation. The five year update is seen as an opportunity to set actions in place that are current, valid and obtainable.

- A new way to measure risk has been introduced in the 5 year update. There are no changes noted that would impact the development of the plan.
- Added language reflects a desire to see that the Plan is acted upon in a measured fashion with at least annual meetings being held to monitor overall action priorities and progress.
- No natural event has occurred since the original plan that would alter the current plan's prioritization.
- There have been no new developments in the county or jurisdiction that would alter vulnerability. Morris County has experienced an 8% variation in population between April, 2010-July, 2014.
- There have been no changes politically or financially that would impact the plan's development.

Morris County recognizes the importance of dedicated involvement regarding the integration of the plan into existing county and participating jurisdiction plans and budgets and codes. County has initiated a proactive course of action that includes annual reviews and reports to the Morris County Commissioners Court and the city councils of **Daingerfield, Lone Star, Naples and Omaha.** The presiding Morris County Judge or his/her appointed representative will maintain a schedule to ensure that the plan is addressed and updated in a timely manner.

Hazard Disposition From Original Plan			
HAZARD	**ACTION**	**DISPOSTION**	**EXPLANATION**
FLOOD	Bi-Annual storm drainage cleaning program to be implemented to keep debris from hampering drainage	DEFER	Reword
	Evaluate elevation requirements for new residential and non-residential structures. Explore raising base flood elevation on new residential construction.	DELETE	No longer a viable FEMA action

HAZARD	ACTION	DISPOSTION	EXPLANATION
FLOOD, Cont'd	Explore raising base flood elevation on new residential construction to comply with recommendations from Texas Water Board.	DELETE	No longer a viable FEMA action
	Disseminate PSA's, Newspaper Articles through local media about dangers of flooded county roads.	DELETE	No longer a viable FEMA action
	Promote public awareness of NFIP and of availability and need of flood insurance (NFIP) .	DELETE	No longer a viable FEMA action
	Work with TXDOT to clearly mark and improve roads that are prone to flooding	DELETE	No longer a viable FEMA action
	Inform citizens of dangers of driving on roadways and bridges that are flooded. Use NOAA "Turn Around, Don't Drown"	DEFER	Reword
TORNADOES	Construct FEMA standard community safe room	DEFER	Change to Individual Home Safe Rooms and use
	Publicize Public Awareness by disseminating information at public events and newspaper.	DELETE	No longer a viable FEMA action
	Ensure that building codes for existing building meet a minimum standard	DEFER	Reword and use
	Provide Omaha residents with information about weather alert radios	DELETE	No longer a viable FEMA action
WINTER STORMS	Use Morris County Fair, meetings and school events to distribute safety brochures regarding winter storms.	DELETE	No longer a viable FEMA action
	Develop a program to provide NOAA weather radios to limited-income residents that live in high risk areas such as mobile home parks	DEFER	Reword
	Purchase generators for water and sewage facilities	DEFER	
	Develop "Citizen Call in Program" to report dangerous limbs and trees near roads and buildings	DELETE	No longer a viable FEMA action
	Educate residents on making home emergency kits using the Ready America Plan	DELETE	No longer a viable FEMA action
THUNDERSTORM WINDS, cont'd.	Purchase generators for water and sewage facilities	DEFER	
	Develop "Citizen Call in Plan" identifying hazardous limbs and trees	DELETE	No longer a viable FEMA action

HAZARD	ACTION	DISPOSTION	EXPLANATION
THUNDERSTORM WINDS, cont'd.	Modernize local storm sirens to ensure adequate coverage in all areas of the community	DELETE	No longer a viable FEMA action
	Install Lightning Grade Surge Protectors for city computer system	DELETE	No longer a viable FEMA action
	Test emergency alert system weekly	DELETE	No longer a viable FEMA action
	Explore the requirements and benefits of participating in the NWS Storm Ready Program	DELETE	No longer a viable FEMA action
	Educate the public about the dangers of lightning and high winds found in thunderstorms	DELETE	No longer a viable FEMA action
HAIL	Develop & maintain a weather database containing daily weather variables including local hail reports with cost of local damages	DELETE	No longer a viable FEMA action
	Educate the public on how to protect property from hail damage	DEFER	
	Educate New Residents of likelihood of a hail event in the area and the importance of being properly insured	DELETE	No longer a viable FEMA action
	Distribute emergency preparedness information related to weather hazards	DELETE	No longer a viable FEMA action
	Inform residents of Home and Business Insurance available to cover hail damaged roofs	DELETE	No longer a viable FEMA action
DROUGHT	Conduct workshops on conserving water, xeriscaping and managing drought impacts	DEFER	
	Implement water conservation plan.	DEFER	
EXTREME HEAT	Radio/TV/Newspapers PSA's advising public of hazards of heat and heat advisories	DELETE	No longer a viable FEMA action
	Request local agencies and private businesses to sponsor fan drives for low-income and elderly who cannot afford air conditioning	DELETE	No longer a viable FEMA action
	Work with local churches and school administration to set up a cooling center for citizen in extreme heat events	DELETE	No longer a viable FEMA action
	Work with the Morris County service organizations to host a local fan drive as their community service project.	DEFER	

HAZARD	ACTION	DISPOSTION	EXPLANATION
WILDFIRES	KBDI Response air surveillance will be activated at 600 KBDI	DELETE	No longer a viable FEMA action
	Publish burn ban information.	DELETE	No longer a viable FEMA action
	Develop a protocol for fire jurisdictions to communicate	DELETE	No longer a viable FEMA action
	Develop a fire prevention campaign targeting having defensible space around your home.	DEFER	Reword
	Provide smoke alarms free of charge to area residents	DEFER	Reword
	Apply for grants to update fire equipment	DELETE	No longer a viable FEMA action
	Develop Fire Wise Program in rural communities that are at risk.	DELETE	No longer a viable FEMA action

I think one's feelings waste themselves in words; they ought all to be distilled into actions which bring results.

Florence Nightingale

SECTION III
MITIGATION GOALS AND PRIORITIZATION

Mitigation Plan Goals

The Morris County Mitigation Action Plan goals describe the direction that Morris County agencies, organizations, and citizenry can take to minimize the impacts of natural hazards. Specific recommendations are outlined in the action items. These goals help guide direction of future activities aimed at reducing risk and preventing loss from natural hazards.

Goal #1: Protect Life and Property

- Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to natural hazards.
- Improve hazard assessment information to make recommendations for discouraging new development in areas vulnerable to natural hazards.

Goal #2: Public Awareness

- Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.
- Provide information on tools, and funding resources to assist in implementing mitigation activities.

Goal #3: Natural Systems

- Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions.

Goal #4: Partnerships and Implementation

- Encourage leadership within public and private sector organizations to prioritize and implement local, county, and regional hazard mitigation activities.

Goal #5: Emergency Services

- Establish policy to ensure mitigation projects for critical facilities, services and infrastructure.
- Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations and business.
- Integrate natural hazard mitigation activities with emergency operation plans and procedures.

Method of Prioritization: The Morris County Commissioners and County Judge, the City staffs, and Hazard Mitigation Team members were involved in the selection of the priority actions. Actions were prioritized using the STAPLE+E criteria. The actions do not adversely affect a particular segment of the population or cause relocation of lower income people. They provide long-term reduction of losses and have minimal secondary adverse impacts. They do not have adverse effects on the environment, and are consistent with the community's environmental goals, and have mitigation benefits while they are environmentally sound.

S – Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community's social and cultural values.
T – Technical	Mitigation actions are technically most effective if they provide long-term reduction of losses and have minimal secondary adverse impacts.
A – Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
P – Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
L – Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
E – Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
E - Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, that comply with Federal, State, and local environmental regulations, and that are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

Daingerfield Mitigation Action Tables

The comprehensive range of specific mitigation actions and projects being considered are listed below. A cost benefit review was performed to help decide which action items are feasible. The cost estimate and funding source are listed below. A cost benefit analysis will be performed prior to submission of any application to FEMA. Priorities listed below are defined as:

High 1-3 Years; Medium 3-7 Years; Low 8+ Years.

NOTE: ***All Daingerfield projects are subject to availability of federal and local funding as well as availability of local staff to administer the project***.

Daingerfield Flood Actions

Daingerfield Flood Mitigation Action #1	Bi-Annual storm drainage cleaning program to be implemented to keep debris from hampering drainage
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	*Goal # 1 Protect Life and Property*
Funding Source(s)	High
Estimated Cost	City and grant money
Responsible Agency	Medium (10k-25k)
Estimated Completion Time	Daingerfield Public Works Department
Effect on New Buildings	3 years
Effect on Existing Buildings	This could protect new building from flash flooding
Comments:	This could protect new building from flash flooding

Daingerfield Flood Mitigation Action #2	Purchase emergency mobile generators for critical facility use during power outages.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	Medium
Funding Source(s)	FEMA Grants
Estimated Cost	Medium (10k-25k)
Responsible Agency	Daingerfield City Council
Estimated Completion Time	5 years
Effect on New Buildings	This could protect buildings from sewage flooding and water contamination.
Effect on Existing Buildings	This could protect buildings from sewage flooding and water contamination
Comments:	It is important during times of stress and outages that critical facilities such as waste treatment plants and water supplies remain operational.

Daingerfield Tornado Actions

Daingerfield Tornado Mitigation Action #1	Develop and implement the Texas Individual Tornado Safe Room Program
Mitigation Goal/Objective	***Goal 1: Protect life and property***
Priority	Medium
Funding Source(s)	FEMA Grant monies
Estimated Cost	High (25K)
Responsible Agency	Daingerfield City Council
Estimated Completion Time	8 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Safe rooms in homes save lives by protecting individuals from high winds and flying debris.

Daingerfield Tornado Mitigation Action #2	Develop and implement a public education program that will provide the public with understanding of their risk to Tornado events and the mitigation methods to protect themselves, their family and their property.
Mitigation Goal/Objective	***Goal 1: Protect Life and Property*** ***Goal 2: Public Awareness***
Priority	High
Funding Source(s)	City
Estimated Cost	Low (0k-10k)
Responsible Agency	Daingerfield Fire Chief/EMC
Estimated Completion Time	2 years
Effect on New Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds.
Effect on Existing Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds
Comments:	Educating the public is an integral part of mitigation.

Daingerfield Thunderstorm Winds Actions

Daingerfield Thunderstorm Winds Mitigation Action #1	Provide public workshops and information regarding mitigating homes against windstorms
Mitigation Goal/Objective	*Goal #1: Protect Life and Property* Goal # 2: Public Awareness
Priority	Medium
Funding Source(s)	Daingerfield City Council
Estimated Cost	Low (0-10k)
Responsible Agency	City Fire Department/EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Public awareness and education can minimize loss and protect lives by giving citizens the tools needed to take action.

Daingerfield Thunderstorm Winds Mitigation Action # 2	Purchase emergency mobile generators for critical facility use during power outages.
Mitigation Goal/Objective	*Goal #1 Protect Life and Property*
Priority	Medium
Funding Source(s)	FEMA Grants
Estimated Cost	Medium (10k-25k)
Responsible Agency	Daingerfield City Council/EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	It is important during times of stress and outages that critical facilities such as waste treatment plants and water supplies remain operational.

Daingerfield Winter Storm Actions

Daingerfield Winter Storm mitigation Action #1	Conduct workshops regarding how to mitigate your home from damages of winter storms.
Mitigation Goal/Objective	***Goal #1: Protect Life and Property*** ***Goal #2: Public awareness***
Priority	High
Funding Source(s)	Daingerfield City Council
Estimated Cost	Low (0-10k)
Responsible Agency	Daingerfield Fire Dept./ EMC
Estimated Completion Time	3 years
Effect on New Buildings	Education empowers citizens and businesses to take action.
Effect on Existing Buildings	Education empowers citizens and businesses to take action.
Comments:	

Daingerfield Winter Storm Mitigation Action #2	Purchase emergency mobile generators for critical facility use during power outages.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	Medium
Funding Source(s)	FEMA Grants
Estimated Cost	Medium (10k-25k)
Responsible Agency	Daingerfield City Council/EMC
Estimated Completion Time	5 years
Effect on New Buildings	This could protect buildings from sewage flooding and water contamination.
Effect on Existing Buildings	This could protect buildings from sewage flooding and water contamination
Comments:	It is important during times of stress and outages that critical facilities such as waste treatment plants and water supplies remain operational.

Daingerfield Hail Actions

Daingerfield Hail Mitigation Action #1	Install hail resistant film on the windows of critical facilities
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	Medium
Funding Source(s)	City of Daingerfield
Estimated Cost	Low (0-10k)
Responsible Agency	Daingerfield Public Works
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	

Daingerfield Hail Mitigation Action #2	Conduct a workshop for residents about the prevalence of hailstorms and how to protect your home and property form hail damage.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property*** ***Goal #2 Public Awareness***.
Priority	High
Funding Source(s)	City of Daingerfield
Estimated Cost	Low (0-10k)
Responsible Agency	City Fire Dept./ EMC
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Public awareness and education can minimize loss and protect lives by giving citizens the tools needed to take action.

Daingerfield Drought Actions

Daingerfield Drought Mitigation Action #1	Conduct Xeriscaping and water conservation workshops for the city..
Mitigation Goal/Objective	***Goal #2 Public Awareness*** **Goal #3: Natural Systems** **Goal #4 Partnerships and Implementation**
Priority	Medium
Funding Source(s)	City of Daingerfield
Estimated Cost	Low (0-10k)
Responsible Agency	Daingerfield Mayor
Estimated Completion Time	6 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Using native and drought resistant plants can help curtail excessive water usage.

Daingerfield Drought Mitigation Action #2	Develop and implement a drought contingency plan to include water conservation, building code requirements, and mandatory water rationing.
Mitigation Goal/Objective	**Goal#1: Protect Life and Property** **Goal #2: Natural Systems** **Goal #4: Partnerships and Implementation**
Priority	High
Funding Source(s)	City of Daingerfield County
Estimated Cost	Low (0-10k)
Responsible Agency	Daingerfield Mayor
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	

Daingerfield Extreme Heat Actions

Daingerfield Extreme Heat Mitigation Action #1	Conduct fan drives for low-income and elderly who cannot afford air conditioning
Mitigation Goal/Objective	Goal#1: Protect Life and Property Goal #4: Partnerships and Implementation
Priority	High
Funding Source(s)	City of Daingerfield, County
Estimated Cost	Low (0-10k)
Responsible Agency	DeKalb Mayor
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Much can be accomplish when the private and public sector joins hands.

Daingerfield Extreme Heat Mitigation Action #2	Provide workshops on how to mitigate infrastructure from the effects of extreme heat.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	Low
Funding Source(s)	City of DeKalb
Estimated Cost	Low (0-10k)
Responsible Agency	DeKalb EMC
Estimated Completion Time	8 years
Effect on New Buildings	The workshop would contain information about insulation.
Effect on Existing Buildings	The workshop would contain information about insulation.
Comments:	

Daingerfield Wildfire Mitigation Actions

Daingerfield Wildfire Mitigation Action #1	Develop and implement a building vegetation clearance program..
Mitigation Goal/Objective	Goal #1: Protect Life and Property Goal #4: Partnerships and Implementation
Priority	Medium
Funding Source(s)	City of Daingerfield
Estimated Cost	Medium (10-25k)
Responsible Agency	Daingerfield Public Works
Estimated Completion Time	7 years
Effect on New Buildings	This would protect new buildings from Wildfire/Urban Interface
Effect on Existing Buildings	This would protect existing buildings from Wildfire/Urban Interface
Comments:	Much can be accomplish when the private and public sector joins hands

Daingerfield Wildfire Mitigation Action #2	Conduct a wildfire education program stressing the dangers of trash burning in order to help prevent wildfires.
Mitigation Goal/Objective	Goal #2 Public Awareness
Priority	High
Funding Source(s)	City of Daingerfield
Estimated Cost	Low (0-10k)
Responsible Agency	Daingerfield Fire Chief
Estimated Completion Time	3 years
Effect on New Buildings	Out of control trash burning can destroy a new building
Effect on Existing Buildings	Out of control trash burning can destroy an existing building.
Comments:	Programs such as this can empower citizens to take precautionary action.

Lone Star Mitigation Action Tables

NOTE: ***All Lone Star projects are subject to availability of federal and local funding as well as availability of local staff to administer the project.***

Lone Star Flood Actions

Lone Star Flood Mitigation Action #1	Develop and implement the Turn Around, Don't Drown Program
Mitigation Goal/Objective	**Goal #1 Protect Life and Property**
Priority	High
Funding Source(s)	State of Texas
Estimated Cost	Low (0-10k)
Responsible Agency	Lone Star Police Dept.
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	This program is known to save lives.

Lone Star Flood Mitigation Action #2	Widen ditches to increase volume capacity of flash flood waters
Mitigation Goal/Objective	***Goal # 1 Protect Life and Property***
Priority	High
Funding Source(s)	City and grant money
Estimated Cost	Medium (10k-25k)
Responsible Agency	Lone Star Public Works
Estimated Completion Time	3 years
Effect on New Buildings	This could protect new building from flash flooding
Effect on Existing Buildings	This could protect new building from flash flooding
Comments:	By widening ditches, especially in poor drainage areas the likelihood of flooding is decreased.

Lone Star Tornado Actions

Lone Star Tornado Mitigation Action #1	Develop and implement the Texas Individual Tornado Safe Room Program
Mitigation Goal/Objective	***Goal #1: Protect Life and Property***
Priority	High
Funding Source(s)	FEMA Grant
Estimated Cost	Low (0-10k)
Responsible Agency	Lone Star EMC
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	A safe room placed in a home or business will save lives.

Lone Star Tornado Mitigation Action #2	Develop and implement a public education program that will provide the public with understanding of their risk to Tornado events and the mitigation method to protect themselves, their family, and their property.
Mitigation Goal/Objective	***Goal #1 Public Awareness***
Priority	High
Funding Source(s)	City of Lone Star
Estimated Cost	Low (0-10k)
Responsible Agency	Lone Star Fire Dept./EMC
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Public Education can create citizen action.

Lone Star Thunderstorm Winds Actions

Lone Star Thunderstorm Winds Mitigation Action #1	Provide public workshops and information regarding mitigating homes against windstorms.
Mitigation Goal/Objective	***Goal #1: Protects Life and Property***
Priority	Medium
Funding Source(s)	City of Lone Star
Estimated Cost	Low (0-10K)
Responsible Agency	Lone Star Fire Department/EMC
Estimated Completion Time	5 years
Effect on New Buildings	Learning how to install wind resistant design can save money and lives.
Effect on Existing Buildings	Protecting existing structures by modification can save money and lives.
Comments:	

Lone Star Thunderstorm Mitigation Action # 2	Provide public workshops and information regarding mitigating homes against windstorms.
Mitigation Goal/Objective	***Goal #1: Protects Life and Property***
Priority	Medium
Funding Source(s)	City of Lone Star
Estimated Cost	Low (0-10K)
Responsible Agency	Lone Star Fire Department/EMC
Estimated Completion Time	5 years
Effect on New Buildings	Learning how to install wind resistant design can save money and lives.
Effect on Existing Buildings	Protecting existing structures by modification can save money and lives.
Comments:	

Lone Star Winter Storms Actions

Lone Star Winter Storm Mitigation Action #1	Develop and implement a pre-emptive strategy for removing dead limbs and overhangs that might fall during winter storms.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property*** **Goal #4: Partnership and Implementation**
Priority	Medium
Funding Source(s)	City of Lone Star
Estimated Cost	Medium (10-25k)
Responsible Agency	Lone Star Public works
Estimated Completion Time	7 years
Effect on New Buildings	This can protect both homes and businesses from power loss and damage from falling limbs.
Effect on Existing Buildings	This can protect both homes and businesses from power loss and damage from falling limbs.
Comments:	

Lone Star Winter Storm Mitigation Action #2	Conduct workshops regarding how to mitigate your home from damages of winter storms.
Mitigation Goal/Objective	**Goal #2 Public Awareness**
Priority	Medium
Funding Source(s)	City of Lone Star
Estimated Cost	Low (0-10K)
Responsible Agency	Lone Star Fire Dept./EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Public information plays a key role in mitigation by enabling the citizens.

Lone Star Hail Actions

Lone Star Hail Mitigation Action #1	Conduct a workshop for residents about the prevalence of hailstorms and how to protect your home and property form hail damage.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property*** ***Goal #2 Public Awareness***.
Priority	High
Funding Source(s)	City of Lone Star
Estimated Cost	Low (0-10k)
Responsible Agency	Lone Star City Fire Dept./ EMC
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Public awareness and education can minimize loss and protect lives by giving citizens the tools needed to take action.

Lone Star Hail Mitigation Action #2	Purchase emergency mobile generators for critical facility use during power outages.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	Medium
Funding Source(s)	FEMA Grants
Estimated Cost	Medium (10k-25k)
Responsible Agency	Lone Star City Council/EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	It is important during times of stress and outages that critical facilities such as waste treatment plants and water supplies remain operational.

Lone Star Drought Actions

Lone Star Drought Mitigation Action #1	Conduct workshops on conserving water, xeriscaping and managing drought impacts
Mitigation Goal/Objective	*Goal #2 Public Awareness* Goal #3: Natural Systems Goal #4 Partnerships and Implementation
Priority	Medium
Funding Source(s)	City of Lone Star
Estimated Cost	Low (0-10k)
Responsible Agency	Lone Star Mayor
Estimated Completion Time	6 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Using native and drought resistant plants can help curtail excessive water usage.

Lone Star Drought Mitigation Action # 2	Replace municipal appliances or equipment with water saving parts as old ones wear out.
Mitigation Goal/Objective	Goal #1: Protecting Life and Property
Priority	Low
Funding Source(s)	City of Lone Star
Estimated Cost	Low (0-10k)
Responsible Agency	Lone Star Public Works
Estimated Completion Time	8 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	This will conserve water and set examples for the residents of Lone Star

Lone Star Extreme Heat Actions

Lone Star Extreme Heat Mitigation Action #1	Develop and implement new cooling centers and advertise their locations for extreme heat events in existing, air conditioned structures such as churches and county facilities. This would constitute a small investment yet provide a valuable service to people during episodes of extreme heat.
Mitigation Goal/Objective	***Goal #1: Protect Life and Property*** ***Goal 4# Partnership and Implementation*** ***Goal #5: Emergency Services***
Priority	Medium
Funding Source(s)	FEMA Grant
Estimated Cost	Medium (10-25k)
Responsible Agency	Lone Star EMC
Estimated Completion Time	7 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	This action will be more critical as the earth grows warmer.

Lone Star Extreme Heat Mitigation Action #2	Provide workshops on how to mitigate infrastructure from the effects of extreme heat.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	City Lone Star
Estimated Cost	Low (0-10k)
Responsible Agency	Mayor of Lone Star
Estimated Completion Time	6 years
Effect on New Buildings	This Business and home owners could learn ideas on protecting foundations.
Effect on Existing Buildings	This Business and home owners could learn ideas on protecting foundations.
Comments:	

Lone Star Wildfire Actions

Lone Star Wildfire Mitigation Action #1	Conduct a wildfire education program stressing the dangers of trash burning in order to help prevent wildfires.
Mitigation Goal/Objective	Goal #2 Public Awareness
Priority	High
Funding Source(s)	City of Lone Star
Estimated Cost	Low (0-10k)
Responsible Agency	Lone Star Fire Chief
Estimated Completion Time	3 years
Effect on New Buildings	Out of control trash burning can destroy a new building
Effect on Existing Buildings	Out of control trash burning can destroy an existing building.
Comments:	Programs such as this can empower citizens to take precautionary action.

Lone Star Wildfire Mitigation Action # 2	Purchase emergency mobile generators for critical facility use during power outages.
Mitigation Goal/Objective	*Goal #1 Protect Life and Property*
Priority	Medium
Funding Source(s)	FEMA Grants
Estimated Cost	Medium (10k-25k)
Responsible Agency	Lone Star City Council/EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	It is important during times of stress and outages that critical facilities such as waste treatment plants and water supplies remain operational.

Naples Mitigation Actions Tables

NOTE: ***All Naples projects are subject to availability of federal and local funding as well as availability of local staff to administer the project.***

Naples Flood Actions

Naples Flood Mitigation Action #1	Purchase emergency mobile generators for critical facility use during power outages
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	Medium
Funding Source(s)	FEMA Grants
Estimated Cost	Medium (10k-25k)
Responsible Agency	Naples City Council/EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	It is important during times of stress and outages that critical facilities such as waste treatment plants and water supplies remain operational.

Naples Flooding Mitigation Action # 2	Install permanent "Caution Road may Flood warning signs on roadways that flood.
Mitigation Goal/Objective	***Goal #1:Protect Life and Property*** ***Goal #2: Public Awareness***
Priority	High
Funding Source(s)	TX Dot
Estimated Cost	Low (0-10k)
Responsible Agency	Mayor of Naples
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Signs make people more aware of Flooding Danger

Naples Tornado Actions

Naples Tornado Mitigation Action # 1	Develop and implement a public education program that will provide the public with understanding of their risk to Tornado events and the mitigation methods to protect themselves, their family and their property.
Mitigation Goal/Objective	***Goal 1: Protect Life and Property*** **Goal 2: Public Awareness**
Priority	High
Funding Source(s)	City
Estimated Cost	Low (0k-10k)
Responsible Agency	Naples Mayor
Estimated Completion Time	2 years
Effect on New Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds.
Effect on Existing Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds
Comments:	Educating the public is an integral part of mitigation.

Naples Tornado Mitigation Action # 2	Develop and implement the Texas Individual Tornado Safe Room Program
Mitigation Goal/Objective	***Goal #1: Protect Life and Property***
Priority	High
Funding Source(s)	FEMA Grant
Estimated Cost	Low (0-10k)
Responsible Agency	Naples Mayor
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	A safe room placed in a home or business will save lives.

Naples Thunderstorm Winds

Naples Thunderstorm Winds Mitigation Action #1	Provide a community awareness campaign concerning the risks and consequences of windstorms. By educating the public n High winds, loss of life and property may be mitigated as they take steps to secure their property and respond to warning..
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	High
Funding Source(s)	City of Naples
Estimated Cost	Low (0-10k)
Responsible Agency	Mayor of .
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Educating the Public will help protect life and property

Naples Thunder Storm Winds Mitigation Action #2	Require structures on temporary foundations to be securely anchored to permanent foundations.
Mitigation Goal/Objective	**Goal #1 Protect Life and Property**
Priority	Medium
Funding Source(s)	Naples
Estimated Cost	Low (0-10k)
Responsible Agency	Mayor of Naples
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	

Naples Winter Storm Actions

Naples Winter Storm Mitigation Action # 1	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities.
Mitigation Goal/Objective	***Goal #1: Protect Life and Property***
Priority	Medium
Funding Source(s)	FEMA Grant
Estimated Cost	Medium (10-25k)
Responsible Agency	Naples Mayor
Estimated Completion Time	7 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Generators keep critical equipment operational during power outages.

Naples Winter Storm Mitigation Action # 2	Develop and implement a pre-emptive strategy for removing dead limbs and overhangs that might fall during winter storms.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property*** **Goal #4: Partnership and Implementation**
Priority	Medium
Funding Source(s)	City of Naples
Estimated Cost	Medium (10-25k)
Responsible Agency	Mayor of Naples
Estimated Completion Time	7 years
Effect on New Buildings	This can protect both homes and businesses from power loss and damage from falling limbs.
Effect on Existing Buildings	This can protect both homes and businesses from power loss and damage from falling limbs.
Comments:	

Naples Hail Actions

Naples Hail Mitigation Action # 11	Install hail resistant film on the windows of critical facilities.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	Medium
Funding Source(s)	City of Naples
Estimated Cost	Low (0-10k)
Responsible Agency	Naples Mayor
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	

Naples Hail Mitigation Action #2	Purchase emergency mobile generators for critical facility use during power outages.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	Medium
Funding Source(s)	FEMA Grants
Estimated Cost	Medium (10k-25k)
Responsible Agency	Naples City Council
Estimated Completion Time	5 years
Effect on New Buildings	This could protect buildings from sewage flooding and water contamination.
Effect on Existing Buildings	This could protect buildings from sewage flooding and water contamination
Comments:	It is important during times of stress and outages that critical facilities such as waste treatment plants and water supplies remain operational.

Naples Drought Actions

Naples Drought Mitigation Action #	Conduct Xeriscaping and water conservation workshops for the city..
Mitigation Goal/Objective	***Goal #2 Public Awareness*** **Goal #3: Natural Systems** **Goal #4 Partnerships and Implementation**
Priority	Medium
Funding Source(s)	City of Naples
Estimated Cost	Low (0-10k)
Responsible Agency	Naples Mayor
Estimated Completion Time	6 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Using native and drought resistant plants can help curtail excessive water usage.

Naples Drought Mitigation Action # 2	Develop and implement a drought contingency plan to include water conservation, building code requirements, and mandatory water rationing.
Mitigation Goal/Objective	**Goal#1: Protect Life and Property** **Goal #2: Natural Systems** **Goal #4: Partnerships and Implementation**
Priority	High
Funding Source(s)	City of Naples
Estimated Cost	Low (0-10k)
Responsible Agency	Naples Mayor
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	

Naples Extreme Heat Actions

Naples Extreme Heat Mitigation Action # 1	Conduct fan drives for low-income and elderly who cannot afford air conditioning.
Mitigation Goal/Objective	**Goal#1: Protect Life and Property** **Goal #4: Partnerships and Implementation**
Priority	High
Funding Source(s)	City of Naples, County
Estimated Cost	Low (0-10k)
Responsible Agency	Mayor of Naples
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Much can be accomplish when the private and public sector joins hands.

Naples Extreme Heat Mitigation Action #2	Radio/TV/newspapers PSA's advising public of hazards of heat and heat advisories
Mitigation Goal/Objective	***Goal #2: Public Awareness*** c) Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.
Priority	High
Funding Source(s)	None
Estimated Cost	Low
Responsible Agency	City of Naples
Estimated Completion Time	2 years
Effect on New Buildings	Not Applicable
Effect on Existing Buildings	Not Applicable
Comments:	

Naples Wildfire Actions

Naples Wild Fire Mitigation Action #1	Conduct a wildfire education program stressing the dangers of trash burning in order to help prevent wildfires
Mitigation Goal/Objective	Goal #2 Public Awareness
Priority	High
Funding Source(s)	City of Naples
Estimated Cost	Low (0-10k)
Responsible Agency	Naples Fire Chief
Estimated Completion Time	3 years
Effect on New Buildings	Out of control trash burning can destroy a new building
Effect on Existing Buildings	Out of control trash burning can destroy an existing building.
Comments:	Programs such as this can empower citizens to take precautionary action.

Naples Wild Fire Mitigation Action #2	Purchase emergency mobile generators for critical facility use during power outages.
Mitigation Goal/Objective	*Goal #1 Protect Life and Property*
Priority	Medium
Funding Source(s)	FEMA Grants
Estimated Cost	Medium (10k-25k)
Responsible Agency	Naples City Council/EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	It is important during times of stress and outages that critical facilities such as waste treatment plants and water supplies remain operational.

Omaha Mitigation Action Tables

NOTE: ***All Omaha projects are subject to availability of federal and local funding as well as availability of local staff to administer the project.***

Omaha Flood Actions

Omaha Flood Mitigation Action #1	Install permanent "Caution Road may Flood warning signs on roadways that flood.
Mitigation Goal/Objective	***Goal #1:Protect Life and Property*** ***Goal #2: Public Awareness***
Priority	High
Funding Source(s)	TX Dot
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha Public Works
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Signs make people more aware of Flooding Danger

Omaha Flood Mitigation Action #2	Widen ditches to increase volume capacity of flash flood waters
Mitigation Goal/Objective	**Goal # 1 Protect Life and Property**
Priority	High
Funding Source(s)	City of Omaha and grant money
Estimated Cost	Medium (10k-25k)
Responsible Agency	Omaha Public Works Department
Estimated Completion Time	3 years
Effect on New Buildings	This could protect new building from flash flooding
Effect on Existing Buildings	This could protect new building from flash flooding
Comments:	By widening ditches, especially in poor drainage areas the likelihood of flooding is decreased.

Omaha Tornado Actions

Omaha Tornado Mitigation Action #1	Develop and implement the Texas Individual Tornado Safe Room Program
Mitigation Goal/Objective	***Goal #1: Protect Life and Property***
Priority	High
Funding Source(s)	FEMA Grant
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha EMC
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	A safe room placed in a home or business will save lives.

Omaha Tornado Mitigation Action #2	Develop and implement a public education program that will provide the public with understanding of their risk to Tornado events and the mitigation methods to protect themselves, their family and their property.
Mitigation Goal/Objective	***Goal 1: Protect Life and Property*** **Goal 2: Public Awareness**
Priority	High
Funding Source(s)	City of Omaha
Estimated Cost	Low (0k-10k)
Responsible Agency	Omaha Fire Chief/EMC
Estimated Completion Time	2 years
Effect on New Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds.
Effect on Existing Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds
Comments:	Educating the public is an integral part of mitigation.

Omaha Thunderstorm Winds Actions

Omaha Thunderstorm Winds Mitigation Action #1	Create and enforce a city ordinance requiring approved mobile home tie-downs.
Mitigation Goal/Objective	***Goal #1 Protecting Life and Property***
Priority	Medium
Funding Source(s)	City of Omaha
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha Mayor
Estimated Completion Time	6 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	This relatively inexpensive action can reduce mobile home damage and resident injury

Omaha Thunderstorm Winds Mitigation Action #2	Provide public workshops and information regarding mitigating homes against windstorms.
Mitigation Goal/Objective	***Goal #1: Protects Life and Property***
Priority	Medium
Funding Source(s)	City of Omaha
Estimated Cost	Low (0-10K)
Responsible Agency	Omaha Fire Department/EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	The Storm Ready Program is about building community resilience in the face of increasing vulnerability to extreme weather and water events.

Omaha Winter Storm Actions

Omaha Winter Storm Mitigation Action #1	Develop and implement a pre-emptive strategy for removing dead limbs and overhangs that might fall during winter storms.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property*** **Goal #4: Partnership and Implementation**
Priority	Medium
Funding Source(s)	City of Omaha
Estimated Cost	Medium (10-25k)
Responsible Agency	Mayor of Omaha
Estimated Completion Time	7 years
Effect on New Buildings	This can protect both homes and businesses from power loss and damage from falling limbs.
Effect on Existing Buildings	This can protect both homes and businesses from power loss and damage from falling limbs.
Comments:	Develop and implement a pre-emptive strategy for removing dead limbs and overhangs that might fall during winter storms.

Omaha Winter Storm Mitigation Action #2	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities..
Mitigation Goal/Objective	**Goal #1: Protect Life and Property**
Priority	Low
Funding Source(s)	City of Omaha
Estimated Cost	Medium (10-25k)
Responsible Agency	Omaha Mayor
Estimated Completion Time	8 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	

Omaha Hail Actions

Omaha Hailstorm Mitigation Action #1	Install hail resistant film on the windows of critical facilities.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	Medium
Funding Source(s)	City of Omaha
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha Public Works
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	

Omaha Hailstorm Mitigation Action #2	Conduct a workshop for residents about the prevalence of hailstorms and how to protect your home and property form hail damage.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property*** ***Goal #2 Public Awareness***.
Priority	High
Funding Source(s)	City of Omaha
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha City Fire Dept./ EMC
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	

Omaha Drought Actions

Omaha Drought Mitigation Action #1	Conduct Xeriscaping and water conservation workshops for the city.
Mitigation Goal/Objective	***Goal #2 Public Awareness*** **Goal #3: Natural Systems** **Goal #4 Partnerships and Implementation**
Priority	Medium
Funding Source(s)	City of Omaha
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha Mayor
Estimated Completion Time	6 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Using native and drought resistant plants can help curtail excessive water usage.

Omaha Drought Mitigation Action #2	Replace municipal appliances or equipment with water saving parts as old ones wear out.
Mitigation Goal/Objective	**Goal #1: Protecting Life and Property**
Priority	Low
Funding Source(s)	City of Omaha
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha Public Works Department
Estimated Completion Time	8 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	This will conserve water and set examples for the residents of Hooks

Omaha Extreme Heat Actions

Omaha Extreme Heat Mitigation Action #1	Conduct fan drives for low-income and elderly who cannot afford air conditioning..
Mitigation Goal/Objective	**Goal#1: Protect Life and Property** **Goal #4: Partnerships and Implementation**
Priority	High
Funding Source(s)	City of Omaha, County
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha Mayor
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Much can be accomplish when the private and public sector joins hands.

Omaha Extreme Heat Mitigation Action #2	Provide workshops on how to mitigate infrastructure from the effects of extreme heat
Mitigation Goal/Objective	**Goal #2: Public Awareness**
Priority	Low
Funding Source(s)	City of Omaha
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha Mayor
Estimated Completion Time	8 years
Effect on New Buildings	The workshop would contain information about insulation.
Effect on Existing Buildings	The workshop would contain information about insulation.
Comments:	

Omaha Wildfire Actions

Omaha Wild Fire Mitigation Action #1	Develop and implement a vegetation management program to reduce the danger of wildfire reaching dwellings.
Mitigation Goal/Objective	**Goal #1 Protect Life and Property** **Goal #3 Natural Systems** **Goal # 4 Partnerships and implementation**
Priority	Medium
Funding Source(s)	City of Redwater
Estimated Cost	Medium (10-25k)
Responsible Agency	Mayor of Redwater
Estimated Completion Time	4 years
Effect on New Buildings	This would protect new buildings from encroaching wildfire.
Effect on Existing Buildings	This would protect new buildings from encroaching wildfire.
Comments:	

Omaha Wild Fire Mitigation Action #2	Conduct a wildfire education program stressing the dangers of trash burning in order to help prevent wildfires.
Mitigation Goal/Objective	**Goal #2 Public Awareness**
Priority	High
Funding Source(s)	City of Omaha
Estimated Cost	Low (0-10k)
Responsible Agency	Omaha Fire Chief
Estimated Completion Time	3 years
Effect on New Buildings	Out of control trash burning can destroy a new building
Effect on Existing Buildings	Out of control trash burning can destroy an existing building.
Comments:	Programs such as this can empower citizens to take precautionary action.

Morris County Mitigation Actions Table

NOTE: ***All Morris County projects are subject to availability of federal and local funding as well as availability of local staff to administer the project.***

Morris County Flood Actions

Morris County Flood Mitigation Action #1	Develop and implement the Turn Around, Don't Drown Program
Mitigation Goal/Objective	**Goal #1 Protect Life and Property**
Priority	High
Funding Source(s)	State of Texas
Estimated Cost	Low (0-10k)
Responsible Agency	Morris County Emergency Manage
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	This program is known to save lives.

Morris County Flood Mitigation Action #2	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities.
Mitigation Goal/Objective	***Goal 1: Protect Life and Property*** **Goal 2: Public Awareness**
Priority	High
Funding Source(s)	City
Estimated Cost	Low (0k-10k)
Responsible Agency	Morris County EMC
Estimated Completion Time	2 years
Effect on New Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds.
Effect on Existing Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds
Comments:	Educating the public is an integral part of mitigation.

Morris County Tornado Actions

Morris County Tornado Mitigation Action #1	Develop and implement a public education program that will provide the public with understanding of their risk to Tornado events and the mitigation methods to protect themselves, their family and their property.
Mitigation Goal/Objective	***Goal 1: Protect Life and Property*** **Goal 2: Public Awareness**
Priority	High
Funding Source(s)	City
Estimated Cost	Low (0k-10k)
Responsible Agency	Morris County EMC
Estimated Completion Time	2 years
Effect on New Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds.
Effect on Existing Buildings	This could help reduce damage by implementing ideas about home and business protection from tornadic winds
Comments:	Educating the public is an integral part of mitigation.

Morris County Tornado Mitigation Action #2	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities.
Mitigation Goal/Objective	**Goal #1: Protect Life and Property**
Priority	High
Funding Source(s)	County, fund raisers, county business leadership
Estimated Cost	Medium
Responsible Agency	VFD, EMC, County
Estimated Completion Time	Three years
Effect on New Buildings	Not Applicable
Effect on Existing Buildings	Not applicable
Comments:	

Morris County Thunderstorm Winds

Morris County Thunderstorm Winds Mitigation Action #1	Provide a community awareness campaign concerning the risks and consequences of windstorms. By educating the public n High winds, loss of life and property may be mitigated as they take steps to secure their property and respond to warning
Mitigation Goal/Objective	**Goal #2: Public Awareness**
Priority	High
Funding Source(s)	Morris County
Estimated Cost	Low (0-10k)
Responsible Agency	Morris County EMC
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Educating the Public will help protect life and property

Morris County Thunderstorm Winds Mitigation Action #2	Educate the public about the dangers of lightning and high winds found in thunderstorms.
Mitigation Goal/Objective	***Goal #2: Public Awareness***
Priority	Moderate
Funding Source(s)	None
Estimated Cost	Low
Responsible Agency	Morris County Staff/VFD
Estimated Completion Time	2 years
Effect on New Buildings	Not Applicable
Effect on Existing Buildings	Not Applicable
Comments:	

Morris County Winter Storm Actions

Morris County Winter Storm Mitigation Action #1	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities.
Mitigation Goal/Objective	**Goal #1: Protect Life and Property**
Priority	Medium
Funding Source(s)	FEMA Grant
Estimated Cost	Medium (10-25k)
Responsible Agency	Morris County EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Generators keep critical equipment operational during power outages.

Morris County Winter Storm Mitigation Action #2	Mitigate protecting power lines from the impacts of winter storms by establishing standards for all utilities regarding tree pruning around lines.
Mitigation Goal/Objective	***Goal 1: Protect Life and Property*** **Goal 3: Natural Systems**
Priority	Medium
Funding Source(s)	Morris County
Estimated Cost	Medium (10-25k)
Responsible Agency	Morris County EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Keeping roads and ditches free of limbs and debris opens transportation, could reduce flash flooding and prevents injury.

Morris County Hail Actions

Morris County Hail Mitigation Action #1	Install hail resistant film on the windows of critical facilities.
Mitigation Goal/Objective	***Goal #1 Protect Life and Property***
Priority	Medium
Funding Source(s)	Morris County
Estimated Cost	Low (0-10k)
Responsible Agency	Morris County Public Works
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	

Morris County Hail Mitigation Action #2	Conduct a workshop for residents about the prevalence of hailstorms and how to protect your home and property form hail damage.
Mitigation Goal/Objective	*Goal #1 Protect Life and Property* *Goal #2 Public Awareness.*
Priority	High
Funding Source(s)	Morris County
Estimated Cost	Low (0-10k)
Responsible Agency	Morris County EMC
Estimated Completion Time	3 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Public awareness and education can minimize loss and protect lives by giving citizens the tools needed to take action.

Morris County Drought Actions

Morris County Drought Mitigation Action #1	Conduct Xeriscaping and water conservation workshops for the county
Mitigation Goal/Objective	***Goal #2 Public Awareness*** **Goal #3: Natural Systems** **Goal #4 Partnerships and Implementation**
Priority	Medium
Funding Source(s)	Morris County
Estimated Cost	Low (0-10k)
Responsible Agency	Morris County EMC
Estimated Completion Time	6 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Using native and drought resistant plants can help curtail excessive water usage.

Morris County Drought Mitigation Action #2	Replace county appliances or equipment with water saving parts as old ones wear out.
Mitigation Goal/Objective	Goal #1: Protecting Life and Property
Priority	Low
Funding Source(s)	Morris County
Estimated Cost	Low (0-10k)
Responsible Agency	Morris County Public Works
Estimated Completion Time	8 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	This will conserve water and set examples for the residents of Hooks

Morris County Extreme Heat Actions

Morris County Extreme Heat Mitigation Action #1	Provide workshops on how to mitigate infrastructure from the effects of extreme heat.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	Low
Funding Source(s)	Morris County
Estimated Cost	Low (0-10k)
Responsible Agency	Morris County EMC
Estimated Completion Time	8 years
Effect on New Buildings	The workshop would contain information about insulation.
Effect on Existing Buildings	The workshop would contain information about insulation.
Comments:	

Morris County Extreme Heat Mitigation Action #2	Develop and implement new cooling centers and advertise their locations for extreme heat events in existing, air conditioned structures such as churches and county facilities. This would constitute a small investment yet provide a valuable service to people during episodes of extreme heat.
Mitigation Goal/Objective	**Goal #1: Protect Life and Property** **Goal 4# Partnership and Implementation** **Goal #5: Emergency Services**
Priority	Medium
Funding Source(s)	FEMA Grant
Estimated Cost	Medium (10-25k)
Responsible Agency	Morris County EMC
Estimated Completion Time	7 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	This action will be more critical as the earth grows warmer.

Morris County Wildfire Actions

Morris County Wildfire Mitigation Action #1	Conduct a wildfire education program stressing the dangers of trash burning in order to help prevent wildfires.
Mitigation Goal/Objective	**Goal #2 Public Awareness**
Priority	High
Funding Source(s)	Morris County
Estimated Cost	Low (0-10k)
Responsible Agency	Morris County EMC
Estimated Completion Time	3 years
Effect on New Buildings	Out of control trash burning can destroy a new building
Effect on Existing Buildings	Out of control trash burning can destroy an existing building.
Comments:	Programs such as this can empower citizens to take precautionary action.

Morris County Wild Fire Mitigation Action #2	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA Grant
Estimated Cost	Medium (10-25k)
Responsible Agency	County EMC
Estimated Completion Time	5 years
Effect on New Buildings	
Effect on Existing Buildings	
Comments:	Generators keep critical equipment operational during power outages.

SECTION VI
MITIGATION GOALS AND LONG TERM STRATEGY

GOALS

Mitigation Plan Goals

The Morris County Mitigation Action Plan goals describe the direction that Morris County agencies, organizations, and citizenry can take to minimize the impacts of natural hazards. Specific recommendations are outlined in the action items. These goals help guide direction of future activities aimed at reducing risk and preventing loss from natural hazards.

Goal #1: Protect Life and Property

- Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to natural hazards.
- Improve hazard assessment information to make recommendations for discouraging new development in areas vulnerable to natural hazards.

Goal #2: Public Awareness

- Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.
- Provide information on tools, and funding resources to assist in implementing mitigation activities.

Goal #3: Natural Systems

- Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions.

Goal #4: Partnerships and Implementation

- Encourage leadership within public and private sector organizations to prioritize and implement local, county, and regional hazard mitigation activities.

Goal #5: Emergency Services

- Establish policy to ensure mitigation projects for critical facilities, services and infrastructure.
- Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations and business.
- Integrate natural hazard mitigation activities with emergency operation plans and procedures.

SECTION V
Monitoring, Implementation, Evaluating, Updating and Integration

Morris County and each participating jurisdiction will be responsible for implementing its own mitigation actions contained in Section IV. Each action has been assigned to a specific person or local government office that is responsible for implementing it. Morris County and its jurisdictions have very lean budgets and staff. They rely on grants and federal funding for many of the improvements that are made within their borders. State law requires that the city council and the Commissioners' Court of Morris County approve changes to budgets, improvement plans and mitigation plans. The governing bodies of each participating jurisdiction have adopted the mitigation action plan for their jurisdictions.

The Morris County Commissioners will be responsible for adopting the Morris County Mitigation Action Plan. (All jurisdictions must officially adopt and commit to implementation of the plan to be covered by the plan. This includes all participating cities/towns). This governing body has the authority to make public policy regarding natural hazards. The Morris County Mitigation Plan will be submitted to the Texas Department of Emergency Management for review and upon their approval, TDEM will then submit the plan to the Federal Emergency Management Agency (FEMA) for review and final approval. The review will address the federal criteria outlined in FEMA Interim Final Rule 44 CFR Part 201. Once accepted by FEMA, Morris County/City will formally adopt it and gain eligibility for Hazard Mitigation Grant Program funds.

Monitoring

To prevent issues regarding meeting the goals of The Morris County Hazard Mitigation Action Plan it is agreed that the county and participating jurisdictions will evaluate the plan on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The evaluation process will include a definite schedule and timeline, and will identify the local agencies and organizations participating in plan evaluation. Agencies participating in the plan review will include public works, emergency management or fire department, representatives for the city councils or commissioners' court, and mayors or city managers.

Also at this meeting time the Hazard Mitigation Committee Members will monitor the progress of the mitigation actions for their respective communities. The County Judge or his/her designated appointee will organize the meeting. The public will be invited to attend and will be encouraged to provide feedback. Monitoring and evaluation will occur at this meeting.

The meeting will review the progress of each action for each community to assess if the action is being completing in a timely fashion and if additional resources need to be directed to complete the actions. Monitoring the plan's actions is important to keep accountability for all team members.

They will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. This plan can and will pave the way for other

plans, codes and programs. A written record of the annual meeting, along with any project reports, will be accomplished and kept on file in the county office. Every five years the updated plan will be submitted to the State Hazard Mitigation Officer.

The Status of the Hazard Mitigation Actions will be monitored by the designated emergency management coordinator for each jurisdiction on a quarterly basis. Preparation for the Five Year Plan Update will begin no later than 1 year prior to the plan expirations date. Again, the public will be invited to attend and will be encouraged to provide feedback.

Implementation

The Morris County Hazard Mitigation Committee will be responsible for coordinating implementation of the five year plan action items and undertaking the formal review process. The county formed a Hazard Mitigation Committee that consists of members from local agencies, organizations, and citizens.

Upon formal adoption of the plan, hazard mitigation team members from each participating jurisdiction will review all comprehensive land use plans, capital improvement plans, Annual Budget Reviews, Emergency Operations or Management Plans, transportation plans, and any building codes to guide and control development. The hazard mitigation team members will work to integrate the hazard mitigation strategies into these other plans and codes. Each jurisdiction will conduct annual reviews of their comprehensive and land use plans and policies and analyze the need for any amendments in light of the approved hazard mitigation plan. Participating jurisdictions will ensure that capital improvement planning in the future will also contribute to the goals of this hazard mitigation plan to reduce the long-term risk to like and property from all hazards. Within one year of formal adoption of the hazard mitigation plan, existing planning mechanisms will be reviewed by each jurisdiction.

The Morris County HMAP will be incorporated into a variety of new and existing planning mechanisms for **Daingerfield, Lone Star, Naples, Omaha and Morris County government** including: grant applications, human resource manuals, ordinances, building codes and budgets. Each team member will communicate new ideas and issues found within the plan to the city boards. The county and its participating jurisdictions will consider how to best incorporate the plans together. This includes incorporating the mitigation plan into county and local comprehensive or capital improvement plans as they are developed.
The Status of the Hazard Mitigation Actions will be monitored by the designated emergency management coordinator for each jurisdiction on a quarterly basis. Preparation for the Five Year Plan Update will begin no later than 1 year prior to the plan expirations date.

Updating

Preparation for the Five Year Plan Update will begin no later than 1 year prior to the plan expirations date. The County Judge or his/her designated appointee will organize a meeting with the Hazard Mitigation Committee Members to begin the update process. The committee member will organize all data gathered during the monitoring and evaluation meetings to assist will the plan update. The

committee members will also assess the need for additional participating jurisdictions for the plans update. The public will be invited to attend and will be encouraged to provide feedback.

Copies of the Plan will be kept at the county courthouse and all city halls. The existence and location of these copies will be publicized in the appropriate local papers. The plan includes the address and the phone number of the county department responsible for keeping track of public comments on the Plan.

Morris County is committed to supporting the cities, communities and other jurisdictions in the planning area as they implement their mitigation plans. Morris County will review and revise as needed, the long-range goals and objectives in its strategic plan and budgets to ensure that they are consistent with this mitigation action plan Morris County will work with participating jurisdictions to advance the goals of the is hazard mitigation plan through its routine, ongoing, long-range planning, budgeting and work processes.

Integration

DeKalb, population 1,685,The following are the city of DeKalb's authorities, policies, programs and resources available to accomplish hazard mitigation actions and strategies. The city of DeKalb has a mayor, a fire chief, and a police department, and maintenance department. DeKalb has building codes, and zoning ordinances DeKalb will integrate data and action recommendations into the existing capital improvements plan so that hazard mitigation will always be a consideration for future growth. A city council member or the mayor will propose the plans integration into the city council who will vote on it at the monthly city council meeting. The mayor will sign this into action after a majority vote. To improve and expand capabilities, the City of DeKalb should establish a Hazard Mitigation Team to address their Hazard Mitigation Plan. They could benefit from additional training and staff to support mitigation plan activities.

Hooks, population 2,757. The following are the city of Hooks authorities, policies, programs and resources available to accomplish hazard mitigation actions and strategies. The city of Hooks has a mayor, a fire chief, who also serves as the emergency management coordinator, and a maintenance program and chief building official. The city of Hooks will integrate data and action recommendations from the mitigation plan into the existing capital implements plan into the local emergency operations plan. A city council member or the mayor will propose the plans integration to the city council who will vote on it at the monthly city council meeting. The mayor will sign thin into action after a majority vote. To improve and expand the City of Hooks should establish a Hazard Mitigation Team to address their Hazard Mitigation Plan recommendations. They could also benefit from additional training and staff to support mitigation plan activities.

Leary, Population 478, The following are the city of Leary's authorities, policies, programs and resources available to accomplish hazard mitigation actions and strategies. The city of Leary has a mayor and a city council The jurisdiction of Leary will integrate data and action recommendations into the existing maintenance program. The city of Leary will integrate data and action recommendations from the mitigation plan into the existing capital implements plan and into the local emergency operations plan. A city council member or the mayor will propose it to the city council who will vote on it at the monthly city council meeting. The mayor will sign this into action after a

majority vote. To improve and expand capabilities, the City of Leary should establish a Hazard Mitigation Team to address their Hazard Mitigation Plan recommendations.

Maud, population, 1,060. The following are the city of Maud's authorities, policies, programs and resources available to accomplish hazard mitigation actions and strategies. The city of Maud has a mayor, a fire chief, who also serves as the emergency management coordinator, and a public works department as well as a police officer. The city of Maud will integrate data and actions recommendations into elements of the local emergency management plan and the zoning ordinance. A city council member or the mayor will submit proposals to the city council who will vote on it at the monthly city council meeting. The mayor will sign this into action after a majority vote. To improve and expand capabilities, the City of Maud should establish a Hazard Mitigation Team to address their Hazard Mitigation Plan recommendations.

Nash, population 3,081. The following are the city of Nash's authorities, policies, programs and resources available to accomplish hazard mitigation action and strategies The city of Nash has a mayor, city manager, fire department, police department, and public works department. It also has building codes and zoning ordinances. The city of Nash will integrate mitigation data and action recommendations into elements of the local master plan. The mayor will make this proposal at the quarterly city council meeting. The mayor will sign this update upon the city council's majority vote. To improve and expand capabilities the City of Nash should establish a Hazard Mitigation Team to address their Hazard Mitigation Plan recommendations. They could also benefit from additional training and staff to support mitigation plan activities.

Red Lick, population 1,010. The following are the city of Red Lick's authorities, policies, programs and resources available to accomplish hazard mitigation action and strategies The city of Red Lick has a mayor, and a city council. The city of Red Lick will integrate data and action recommendations from the mitigation plan into the existing capital implements plan and into the local emergency operations plan. The Emergency Management Coordinator will propose this at the monthly city council meeting. The mayor will sign this into + action after a majority vote. To improve and expand capabilities, the City of Red Lick should establish a Hazard Mitigation Team to address their Hazard Mitigation Plan recommendations.

Redwater, population 1,057. The following are the city of Redwater's authorities, policies, programs and resources available to accomplish hazard mitigation action and strategies. Redwater has a mayor, a city council and a fire chief. Redwater will integrate actions and recommendations of the mitigation plan into the Redwater Capital Improvement Plan. The mayor or city council member will propose this action at the monthly city council meeting. The mayor will sign this into action after a majority vote. To improve and expand capabilities, the City of Redwater should establish a Hazard Mitigation Team to address their Hazard Mitigation Plan recommendations. They could also benefit from additional training and staff to support mitigation plan activities

Wake Village, population 5,488: The **following are the city of Wake Village's** authorities, policies, programs and resources available to accomplish hazard mitigation action and strategies Wake village has a mayor and a city manager. It also has a fire department, a police department and a public works department. International building codes are in place and enforced. Wake Village will integrate actions and recommendations of the mitigation plan into the Capital improvements plan and the

master plan the city manager will propose these actions at the monthly city council meeting. The mayor will sign this into action after a majority vote. To improve and expand capabilities, the city of Wake Village should establish a Hazard Mitigation Team to address their Hazard Mitigation Plan recommendations. They could also benefit from additional training and staff to support mitigation plan activities

Unincorporated Bowie County population 34,910. The following are Bowie County's Village's authorities, policies, programs and resources available to accomplish hazard mitigation action and strategies. Bowie County has a county judge and four commissioners. It has volunteer fire departments and a public works department. There is a county emergency management coordinator. Unincorporated Bowie County will integrate data and action recommendations into the existing maintenance program. The county judge or county commissioner will propose the integration to the County which will vote on it at the monthly city council meeting. The county judge will sign this into action after a majority vote. To improve and expand capabilities, Bowie County should establish a team to develop public-private initiatives addressing disaster related issues.

"The bureaucracy is expanding to meet the needs of the expanding bureaucracy."

Oscar Wilde

Copies of the Plan will be kept at the county courthouse and city hall. The existence and location of these copies will be publicized in the county's newspapers. The County Judge's Office will be responsible for keeping track of public comments on the Plan.

Acronyms

ATCOG	Ark-Tex Council of Governments
BEA	Bureau of Economic Analysis
CFR	Code of Federal Regulations
EDAP	Economically Distressed Areas Program
FEMA	Federal Emergency Management Agency
HAZMAT	Hazardous Materials
HAZUS	Hazards, U. S.
HMIS	Hazardous Material Information System
HMPG	Hazard Mitigation Program Grant
HMT	Hazard Mitigation Team
MAP	Mitigation Action Plan
PA	Public Assistance
PDM	Pre-Disaster Mitigation
PI	Project Impact
PL	Public Law
PP-M	Property-Project Mitigation Program
TWDB	Texas Water Development Board

R E S O L U T I O N

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha recognize their vulnerability and the many potential hazards shared by all residents; and

WHEREAS; the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha of each have recognized the need to prepare a Mitigation Action Plan; and

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha have decided to jointly prepare one Mitigation Action Plan.

THEREFORE BE IT RESOLVED that the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha hereby jointly adopt and approve said Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the Morris County Judge and the Mayors of Daingerfield, Lone Star, Naples, and Omaha shall mutually appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Mitigation Action Plan including its review and maintenance, for the County of Morris and the Cities of Daingerfield, Lone Star, Naples, in accordance with this resolution.

RESOLVED THIS _____ DAY OF _____, 2011.

_____
County Judge, Morris County

ATTEST_____
County Clerk

R E S O L U T I O N

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha recognize their vulnerability and the many potential hazards shared by all residents; and

WHEREAS; the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha of each have recognized the need to prepare a Mitigation Action Plan; and

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha have decided to jointly prepare one Mitigation Action Plan.

THEREFORE BE IT RESOLVED that the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha hereby jointly adopt and approve said Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the Morris County Judge and the Mayors of Daingerfield, Lone Star, Naples, and Omaha shall mutually appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Mitigation Action Plan including its review and maintenance, for the County of Morris and the Cities of Daingerfield, Lone Star, Naples, in accordance with this resolution.

RESOLVED THIS _____ DAY OF _____, 2011.

_____
Mayor, City of Daingerfield

ATTEST_____
City Secretary

R E S O L U T I O N

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha recognize their vulnerability and the many potential hazards shared by all residents; and

WHEREAS; the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha of each have recognized the need to prepare a Mitigation Action Plan; and

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha have decided to jointly prepare one Mitigation Action Plan.

THEREFORE BE IT RESOLVED that the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha hereby jointly adopt and approve said Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the Morris County Judge and the Mayors of Daingerfield, Lone Star, Naples, and Omaha shall mutually appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Mitigation Action Plan including its review and maintenance, for the County of Morris and the Cities of Daingerfield, Lone Star, Naples, in accordance with this resolution.

RESOLVED THIS _____ DAY OF _____, 2011.

_____
Mayor, City of Lone Star

ATTEST_____
City Secretary

R E S O L U T I O N

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha recognize their vulnerability and the many potential hazards shared by all residents; and

WHEREAS; the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha of each have recognized the need to prepare a Mitigation Action Plan; and

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha have decided to jointly prepare one Mitigation Action Plan.

THEREFORE BE IT RESOLVED that the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha hereby jointly adopt and approve said Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the Morris County Judge and the Mayors of Daingerfield, Lone Star, Naples, and Omaha shall mutually appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Mitigation Action Plan including its review and maintenance, for the County of Morris and the Cities of Daingerfield, Lone Star, Naples, in accordance with this resolution.

RESOLVED THIS _____ DAY OF _____, 2011.

_____
Mayor, City of Omaha

ATTEST_____
City Secretary

R E S O L U T I O N

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha recognize their vulnerability and the many potential hazards shared by all residents; and

WHEREAS; the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha of each have recognized the need to prepare a Mitigation Action Plan; and

WHEREAS, the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha have decided to jointly prepare one Mitigation Action Plan.

THEREFORE BE IT RESOLVED that the County of Morris and the Cities of Daingerfield, Lone Star, Naples, and Omaha hereby jointly adopt and approve said Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the Morris County Judge and the Mayors of Daingerfield, Lone Star, Naples, and Omaha shall mutually appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Mitigation Action Plan including its review and maintenance, for the County of Morris and the Cities of Daingerfield, Lone Star, Naples, in accordance with this resolution.

RESOLVED THIS _____ DAY OF _____, 2011.

_____
Mayor, City of Omaha

ATTEST_____
City Secretary

APPENDIX

Worksheet #3a Inventory Assets step 3

Date: June, 2004 *What will be affected by the hazard event?*

Jurisdiction: Morris County, Census Tract Sector 1

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Hazard: Tornados, Winter Storms, Thunderstorm Winds, Drought, Hazardous Materials, Earthquakes, Wildfires

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community Or State	# in Hazard Area	% in Hazard Area	$ in Community Or State	$ in Hazard Area	% in Hazard Area	# in Community Or State	# in Hazard Area	% in Hazard Area
Residential	5,376	1,923	36	445,817,000	164,878,000	37	13,048	4,647	36
Commercial	55	15	27	49,370,000	12,354,000	25	13,048	4,647	36
Industrial	36	0	0	32,199,000	1,251,000	4	13,048	4,647	36
Agricultural	3	3	100	504,000	475,000	94	13,048	4,647	36
Religious/ Non-profit	5	2	40	5,266,000	1,859,000	35	13,048	4,647	36
Government	0	0	0	1,486,000	512,000	34	13,048	4,647	36
Education	4	0	0	4,571,000	0	0	13,048	4,647	36
Utilities	3,216.51 kms	1,494.5 kms	46	405,035,000	*NA	*NA	13,048	4,647	36
Total	**5,479	**1,943	**35	**539,213,000	**181,329,000	**34	13,048	4,647	36

*NA – Not Available Source: HAZUS

**-Excluding Utilities

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where your greatest damages may occur in your hazard areas?	X	
2. Do you know whether your critical facilities will be operational after a hazard event?	X	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	X	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	X	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	X	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		X
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		X

Worksheet #3a Inventory Assets step 3

Date: June, 2004 *What will be affected by the hazard event?*

Jurisdiction: Morris County, Census Tract Sector 2

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Hazard: Tornados, Winter Storms, Thunderstorm Winds, Drought, Hazardous Materials, Earthquakes, Wildfires

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community Or State	# in Hazard Area	% in Hazard Area	$ in Community Or State	$ in Hazard Area	% in Hazard Area	# in Community Or State	# in Hazard Area	% in Hazard Area
Residential	5,376	2,470	46	445,817,000	187,843,000	42	13,048	5,868	45
Commercial	55	16	29	49,370,000	16,003,000	32	13,048	5,868	45
Industrial	36	32	89	32,199,000	27,514,000	85	13,048	5,868	45
Agricultural	3	0	0	504,000	15,000	3	13,048	5,868	45
Religious/ Non-profit	5	1	20	5,266,000	965,000	18	13,048	5,868	45
Government	0	0	0	1,486,000	664,000	45	13,048	5,868	45
Education	4	1	25	4,571,000	1,384,000	30	13,048	5,868	45
Utilities	3,216.51 kms	1,510.59 kms	47	405,035,000	*NA	*NA	13,048	5,868	45
Total	**5,479	**2,520	**46	**539,213,000	**234,391,000	**43	13,048	5,868	45

*NA – Not Available Source: HAZUS

**-Excluding Utilities

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where your greatest damages may occur in your hazard areas?	X	
2. Do you know whether your critical facilities will be operational after a hazard event?	X	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	X	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	X	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	X	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		X
7. Is additional data needed to justify the expenditure of community or state funds for mitigation activities?		X

Worksheet #3a Inventory Assets step 3

Date: June, 2004 *What will be affected by the hazard event?*

Jurisdiction: Morris County, Census Tract Sector 3

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Hazard: Tornados, Winter Storms, Thunderstorm Winds, Drought, Hazardous Materials, Earthquakes, Wildfires

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community Or State	# in Hazard Area	% in Hazard Area	$ in Community Or State	$ in Hazard Area	% in Hazard Area	# in Community Or State	# in Hazard Area	% in Hazard Area
Residential	5,376	983	18	445,817,000	93,096,000	21	13,048	2,533	19
Commercial	55	24	44	49,370,000	21,013,000	43	13,048	2,533	19
Industrial	36	4	11	32,199,000	3,434,000	11	13,048	2,533	19
Agricultural	3	0	0	504,000	14,000	3	13,048	2,533	19
Religious/ Non-profit	5	2	40	5,266,000	2,442,000	46	13,048	2,533	19
Government	0	0	0	1,486,000	310,000	21	13,048	2,533	19
Education	4	3	75	4,571,000	3,187,000	70	13,048	2,533	19
Utilities	3,216.51 kms	211.42 kms	7	405,035,000	*NA	*NA	13,048	2,533	19
Total	**5,479	**1,016	**19	**539,213,000	**123,496,000	**23	13,048	2,533	19

*NA – Not Available Source: HAZUS

**-Excluding Utilities

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where your greatest damages may occur in your hazard areas?	X	
2. Do you know whether your critical facilities will be operational after a hazard event?	X	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	X	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	X	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	X	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		X
7. Is additional data needed to justify the expenditure of community or state funds for mitigation activities?		X

Worksheet #3b Inventory Assets step 3

Date: June, 2004 *What will be affected by the hazard event?*

Task C. Compile a detailed inventory of what can be damaged by a hazard event.

Inventory the assets (critical facilities, businesses, historic, cultural, and natural resource areas, and areas of special consideration), that can be damaged by a hazard event.

Hazard Tornados, Winter Storms, Thunderstorm Winds, Drought, Hazardous Materials, Earthquakes, Floods, Wildfires

Name or Description of Asset	Sources of Information	Critical Facility ✓	Vulnerable Populations ✓	Economic Assets ✓	Special Considerations ✓	Historic/Other Considerations ✓	Size of Building (sq ft)	Replacement Value ($)	Contents Value ($)	Function Use or Value ($)	Displacement Cost ($ per day)	Occupancy or Capacity (#)	Other Hazard Specific Information
Courthouse	Tax Roles	X					NA	$1,300,000	$150,000	NA	NA	NA	NA
Appraisal Office	Tax Roles	X					NA	$265,000	$12,500	NA	NA	NA	NA
Annex	Tax Roles	X					NA	$280,000	NA	NA	NA	NA	NA
Jail Facility	Tax Roles	X					NA	$1,000,000	$75,000	NA	NA	NA	NA
Old Jail	Tax Roles	X					NA	$10,000	NA	NA	NA	NA	NA
Health Department	Tax Roles	X					NA	$36,000	NA	NA	NA	NA	NA
Radio Tower Building	Tax Roles	X					NA	$8,000	$40,000	NA	NA	NA	NA
Cason Courthouse	Tax Roles	X					NA	$400	NA	NA	NA	NA	NA
Precinct #2 Barn	Tax Roles	X					NA	$4,320	NA	NA	NA	NA	NA
Precinct #3 Barn	Tax Roles	X					NA	$10,350	NA	NA	NA	NA	NA
Precinct #4 Barn	Tax Roles	X					NA	$4,700	NA	NA	NA	NA	NA
Daingerfield													
Chamber of Commerce	Tax Roles	X					NA	$61,600	NA	NA	NA	NA	NA

Fire Station	Tax Roles	X					NA	$155,500	$30,000	NA	NA	NA	NA
Library	Tax Roles				X		NA	$80,500	$200,000	NA	NA	NA	NA
City Hall	Tax Roles	X					NA	$172,900	$75,000	NA	NA	NA	NA
Police Dept.	Tax Roles	X					NA	$136,200	$25,000	NA	NA	NA	NA
Pump House	Tax Roles	X					NA	$16,400	$10,000	NA	NA	NA	NA
Pump House	Tax Roles	X					NA	$4,400	$5,000	NA	NA	NA	NA
Pump House	Tax Roles	X					NA	$4,000	NA	NA	NA	NA	NA
Sewer Pump	Tax Roles	X					NA	$7,200	$15,000	NA	NA	NA	NA
Pump Motors	Tax Roles	X					NA	$95,000	NA	NA	NA	NA	NA
Sewer Plant	Tax Roles	X					NA	$25,000	$1,000	NA	NA	NA	NA
Water Storage	Tax Roles	X					NA	$372,200		NA	NA	NA	NA
Water Storage	Tax Roles	X					NA	$10,200	$10,000	NA	NA	NA	NA
Chlorine Building	Tax Roles	X					NA	$3,400	NA	NA	NA	NA	NA
Lift Station	Tax Roles	X					NA	$7,100	$15,000	NA	NA	NA	NA
Lone Star													
City Hall & Police Dept.	TML-Persnl. Prop. Schedule	X					NA	$181,700	$372,000	NA	NA	NA	NA
Fire Station	"	X					NA	$166,800	$170,000	NA	NA	NA	NA
Water Plant	"	X					NA	$25,000	$20,000	NA	NA	NA	NA
Waste Water Plant	"	X					NA	$800,000	NA	NA	NA	NA	NA
Lift Station	"	X					NA	$75,000	NA	NA	NA	NA	NA
Lift Station	"	X					NA	$75,000	NA	NA	NA	NA	NA
Lift Station	"	X					NA	$50,000	NA	NA	NA	NA	NA
Lift Station	"	X					NA	$50,000	NA	NA	NA	NA	NA
Lift Station	"	X					NA	$50,000	NA	NA	NA	NA	NA
Lift Station	"	X					NA	$60,000	NA	NA	NA	NA	NA
Lift Station	"	X					NA	$70,000	NA	NA	NA	NA	NA
Water Tower	"	X					NA	$207,000	$100,000	NA	NA	NA	NA
Naples													
Fire Station	"	X					NA	$27,000	$3,000	NA	NA	NA	NA
Water Well	"	X					NA	$8,000	$2,000	NA	NA	NA	NA
Water Tank	"	X					NA	$20,750	NA	NA	NA	NA	NA

Water Tank	"	X					NA	$336,120	NA	NA	NA	NA	NA
Community Center	"	X				X	NA	$128,513	$3,000	NA	NA	NA	NA
City Hall	"	X					NA	$150,000	$75,000	NA	NA	NA	NA
Police Library	"					X	NA	$80,000	$25,000	NA	NA	NA	NA
Water Tower	"	X					NA	$180,000	NA	NA	NA	NA	NA
Water Tank	"	X					NA	$19,000	NA	NA	NA	NA	NA
Water Tank	"	X					NA	$19,000	NA	NA	NA	NA	NA
Water Tank	"	X					NA	$23,375	NA	NA	NA	NA	NA
Water Tank	"	X					NA	$124,150	NA	NA	NA	NA	NA
Water Tank	"	X					NA	$34,500	NA	NA	NA	NA	NA
Omaha													
Water Well	Tax Roles	X					NA	$1,460	$49,000	NA	NA	NA	NA
Water Well	Tax Roles	X					NA	$2,210	$40,000	NA	NA	NA	NA
Water Well	Tax Roles	X					NA	$2,700	$30,000	NA	NA	NA	NA
Water Well	Tax Roles	X					NA	$1,500	$30,500	NA	NA	NA	NA
Water Tower	Tax Roles	X					NA	NA	NA	NA	NA	NA	NA
City Hall & Water Tower	Tax Roles	X					NA	NA	$122,580	NA	NA	NA	NA

NA—Not Available

METHODOLOGY: **Methodology used to determine the potential dollar loss estimates includes information from 1990 Hazus, 2000 Census data, insurance policies, and data from the County Tax Assessor's Office.**