HAZARD MITIGATION ACTION PLAN

FOR

FRANKLIN COUNTY TEXAS

AND THE JURISDICTIONS OF

MT. VERNON, CYPRESS SPRINGS SPECIAL UTILITY DISTRICT and FRANKLIN COUNTY WATER DISTRICT

Five Year Update

INCORPORATED AND UNINCORPORATED AREAS

DEVELOPED BY ARK-TEX COUNCIL OF GOVERNMENTS

2023

TABLE OF CONTENTS

SECTION I

PURPOSE

The goal of all mitigation efforts is long-term risk reduction. 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 Franklin County, Texas 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, research, and data analysis. This plan is intended to serve as a guide in coordinating and implementing hazard mitigation policies, programs, and projects.

The Franklin County Emergency Management Plan has been developed, and the assessment level of planning preparedness is Intermediate. **The Mitigation Action Plan update** will only serve to enhance the County's already considerable capabilities in recognizing, planning for, responding to, and recovering from disaster. The County's history of 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 were considered in the plan development.

- 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 Franklin 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 Franklin 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 County during plan development.
- Submit the final plan to the State of Texas and provide follow-up technical assistance to the Franklin 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 Franklin 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, Board Meetings 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 Franklin 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 Franklin County HMPT includes representatives from the neighborhood stakeholder 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 Franklin County for Hazards. The Ark-Tex Council of governments worked hand in hand with the jurisdictions within the planning area of Franklin 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 public meetings that were advertised with notices in public places and by media press releases.

- ✓ Each participant was explained 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 were 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 Franklin 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 use 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 Franklin 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.

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 Franklin Mitigation Plans.

The Emergency Management Plan of Franklin 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 were used to organize and clarify the actions.

Texas Wildfire Risk Assessment Portal (TXWRAP) provided statistical graphs and maps regarding wildfire activity in Franklin 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.

Team Members were informed of the progress, discussed issues, and were notified of any changes to FEMA guidelines for the creation of the plan. Existing plans were reviewed to determine how they might be incorporated into the HMAP. The Emergency Management Coordinator of Franklin County and the Mayor (or their appointees) of Mt. Vernon, and representative of Cypress Springs Special Utility District, and Franklin County Water District will oversee the Mitigation Plan.

Adoption, Implementation and Maintenance:
This describes the system that Franklin County and the participating jurisdictions have established to monitor the plan; provides a description of how, when, and by whom the HMPT process and mitigation actions will be evaluated; presents the criteria used to evaluate the plan; and explains how the plan will be maintained and updated.

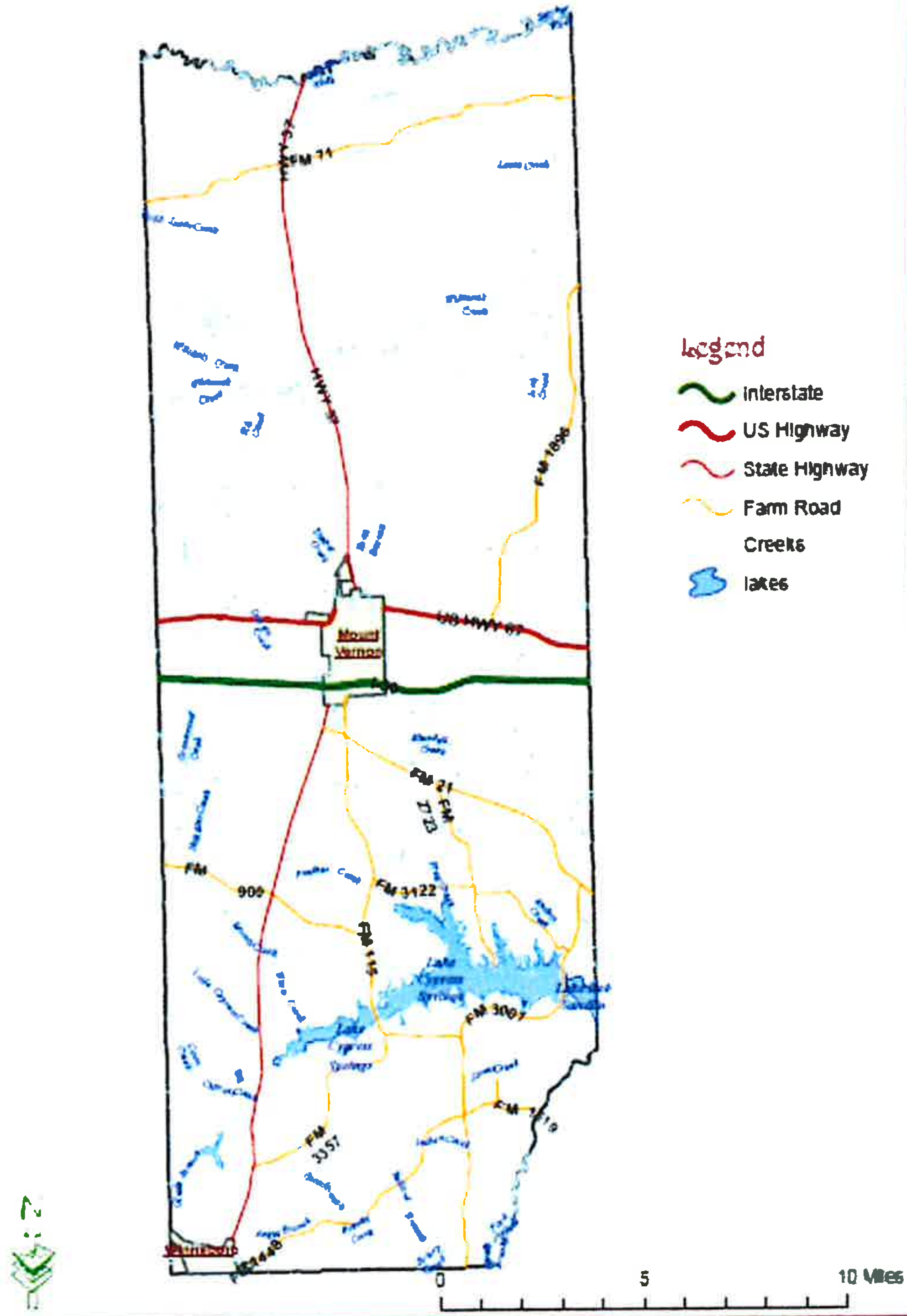
Through citizen involvement, the plan reflects community issues, concerns, and new ideas and perspectives on mitigation opportunities. Mitigation team members consist of representatives from various county departments and representatives from private organizations, businesses, and various city government officials. Franklin County entered into a contract with The Ark-Tex Council of Governments Texarkana, Texas, to develop the plan. The Mitigation Action Team assisted in developing plan goals and action items and shared their expertise to create a more comprehensive plan.

Newspaper postings helped publicize the meeting to neighboring counties and non-profits or other interested parties. The Ark-Tex Council of Governments staff has also met numerous times, had numerous telephone conversations, and worked individually with officials and employees from each jurisdiction in gathering the data necessary for the plan.

Upon approval by FEMA the plan will be submitted to the County by the Mitigation Planner for final signatures. The Plan will be available for public viewing at the county seat and the city hall of Mt. Vernon and the Main Office of Cypress Springs Special Utility District, and Franklin County Water District.

FRANKLIN COUNTY TEXAS

Franklin


Legend
Interstate
US Highway
State Highway
Farm Road
Creeks
lakes
FM 71
FM 1896
US HWY 67
Mount Vernon
FM 21
FM 900
FM 3122
FM 115
FM 3007
FM 3357
0
5
10 Miles

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. Franklin County has four-precinct commissioners and a county judge who serves on this court. This body conducts the general business of the county and oversees financial matters. The major elective offices found include the county 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.

PARTICIPATING JURISDICTIONS

The plan is a result of a joint effort between Franklin County officials, mayors, council members, and employees of the city of Mt. Vernon and representatives of the Special Districts of Cypress Springs Special Utility District, and Franklin County Water District. Each of these entities has participated in the formation of this plan and Update.

Economic Considerations

Franklin County and the jurisdiction of Mount Vernon 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. Franklin County experienced a 0% growth rate between 2010 to 2020. Texas has 254 counties and Franklin County ranks 163rd in median household income. It is ranked 246th in land area size in the state.

Franklin County Jurisdictions Ranked by Population

Ranking	Jurisdiction	Population
1	Franklin County Unincorporated	10,359
2	Mt. Vernon	2,780
	Franklin County Water District	N/A
	Cypress Springs Special Utility District	N/A

The Franklin County Hazard Mitigation Plan consists of Franklin County and the jurisdictions of Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District.

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 providing 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. The kick-off meeting was held in person at the Sheriff's Office in Mt. Vernon on August 17, 2022 at 2:00pm.

HAZARD MITIGATION TEAM MEMBERS

Scott Lee	Judge, Franklin County
Tim Dial	EMC, Franklin County
Brantin Carr	Constable, Franklin County
Tina Rose	City Administrator, Mt. Vernon
Kevin Spence	General Manager, Cypress Springs Special Utility District
David Weidman	General Manager, Franklin County Water District

Franklin County Team Members
Background and Contributions

Scott Lee
Scott Lee is the County Judge for Franklin County. Judge Lee participated in the kick off meeting and providing information on hazards of concern in Franklin County. He was available for correspondence through phone and email. He contributed giving information on dams of concern in the County.

Tim Dial
Tim Dial is the Emergency Management Coordinator for Franklin County. Mr. Dial was the point of contact for most information needed. He participated in the kickoff meeting and follow up meeting with the Constable, Fire Chiefs, and the Texas A & M Forest Service. He was available for phone and email correspondence. Mr. Dial gave input on hazards of concern in Franklin County. He reviewed actions and provided information for the plan update.

Brantin Carr
Brantin Carr is the Franklin County Constable. Mr. Carr helped build the team, participated in the Kick Off meeting, and follow up meeting with the EMC, Fire Chiefs, and the Texas A & M Forest Service. He was available for correspondence through phone and email.

Tina Rose
Tina Rose if the City Administrator for Franklin County. Mrs. Rose participated in the kick off meeting. She helped with the Hazard review and review of 2017 actions. She also helped with Hazard events and creating new Hazard Mitigation Actions. She was available for phone and email correspondence.

Kevin Spence
Kevin Spence is the General Manager of Cypress Springs Special Utility District (CSSUD). Mr. Spence attended the kick off meeting and providing insight on hazards on concern. He provided

information on property values for the district. He created actions for the plan update. He was a part of creating the Mitigation Actions for CSSUD. He was available for email and phone correspondence.

David Weidman

David Weidman is the General Manager of Franklin County Water District. Mr. Weidman attended the kick off meeting and gave insight on hazards. He created new actions for the plan update. Mr. Weidman and the District engineers provided information on the Franklin County Dam. He was available for phone and email correspondence.

A list of possible stakeholders was developed, and contacts were made by phone and/or by e-mail. The list includes the neighboring county judges, member of the school system, and city officials. A draft of the plan was posted on the Franklin County Website on insert date and notices were sent to stakeholders on insert date.

No identified stakeholders replied to the emails or the posting notice.

Area Stakeholder Contacts				
Name	**Title**	**Company**	**Location**	**Type of Contact**
Brad Hyman	Mayor	Mt. Vernon, Texas	Mt. Vernon	Email
Marla White	Auditor	Franklin County	Mt. Vernon	Email
Jason McCullough	Superintendent	Mt. Vernon ISD	Mt. Vernon	Email
Robert Newsom	County Judge	Hopkins County	Sulphur Springs	Email
Russell McCurdy	Chief Appraisal	Franklin County Appraisal District	Mt. Vernon	Email
Ricky Jones	Sheriff	Franklin County	Mt. Vernon	Email
Lucy Hebron	County Judge	Wood County	Quitman	Email
AJ Mason	County Judge	Camp County	Pittsburgh	Email
Brian Lee	County Judge	Titus County	Mt. Pleasant	Email
Debra Ottinger	Director	Housing Authority	Mt. Vernon	Email
Mt. Vernon EDC		Economic Development Commission	Mt. Vernon	Email
Christal Prince	Director	American Red Cross	Texarkana	Email
Dr. Jean Latortue	Medical Director	Franklin County Rural Health Clinic	Mt. Vernon	Email
		Main Street America	Mt. Vernon, TX	Email

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 Franklin County to participate in planning and to review the plan.

On insert date a plan draft was posted on the Franklin County website. Contact information was posted on the site. Notices were posted at the courthouse and the county clerk's office on insert date and in the local newspaper running insert date and insert date. There was no public feedback regarding the Franklin Mitigation Plan.

SECTION II

HAZARD IDENTIFICATION AND ASSESSMENT

Extreme Weather and Climate Change

Currently there is a strong scientific consensus that the Earth is warming and that this warming is mainly caused by human activities. This consensus is supported by various studies of scientists' opinions and by position statements of scientific organizations, many of which explicitly agree with the Intergovernmental Panel on Climate Change (IPCC) synthesis reports.

Nearly all publishing climate scientists (97-98%) support the consensus on anthropogenic climate change, and the remaining 3% of contrarian studies either cannot be replicated or contain errors.

One of the most visible consequences of a warming world is an increase in the intensity and frequency of extreme weather events. The National Climate Assessment finds that the number of heat waves, heavy downpours, and major hurricanes has increased in the United States, and the strength of these events has increased, too.

There are no national or major scientific institutions anywhere in the world that would dispute the theory of anthropogenic climate change ***that will increase the likelihood of unstable weather patterns.***

Climate models have previously shown that Earth will see more heavy rainstorms as the atmosphere warms, but a new climate model developed by NASA researchers is the first to show the difference in strength between storms that occur over land and those over the ocean and how storms strengths will change in general.

These conclusions are particularly bad news for the storm-prone portions of the central and eastern United States, where strong winds are a major source of weather-related casualties. Also, according to NASA, Global warming will make severe thunderstorms and tornadoes a more common feature of U.S. weather.

The western United States will not catch a break either – while it is expected to get drier, the storms that so form are likely to have more lightning, which could then trigger more wildfires.

No single weather event can be directly attributed to climate change. But as the globe warms up, Americans can expect more storms bearing done on much of the United States, scientist say.

Even increased snowfall has a climate change connection. That is not because the Feb. 1, 2011, storm can be linked to rising atmospheric carbon dioxide levels or increasing global temperature – again, such a connection is impossible to make – but, according to climatologists, an increased propensity for winter storms is exactly what you would expect in a warming climate.

"There's no consistency at all," Michael Mann, the director of the Penn State Earth System Science Center, told LiveScience. "If anything, this is what the models project: that we see more of these very large snowfalls."

"Drier conditions near the ground combined with higher lightning flash rates per storm may end up intensifying wildfire damage," said study leader Tony Del Genio of NASA's Goddard Institute for Space Studies in New York.

"Climate is the statistic of weather over the long term," Ken Caldeira, a senior scientist at the Carnegie Institute for Science at Stanford University, told LiveScience. "No specific weather event can by itself confirm or disprove the body of scientific knowledge associated with climate change."

Regardless of individual views regarding global warming, extreme weather patterns over the last ten years are self-evident. We can easily predict that continued extremes in weather, like those mentioned above, will occur in the near future.

Hazard Identification

All of Franklin County including the jurisdictions of Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District are susceptible to several possible natural hazards. According to the FEMA National Risk Index Franklin Counties risk for all hazards is relatively low. 48.9% of U.S. Counties have a lower risk index and 33.4% of counties in Texas have a lower Risk Index. The Hazard Mitigation Team, with the assistance of the Ark-Tex Council of Governments Hazard Mitigation Planners, conducted a comprehensive Hazard Analysis beginning in August 2022. The hazard analysis will be reviewed annually and updated as needed during the Formal Review Process.

Franklin County and Mt. Vernon identified the following hazards that had the potential to cause personal or property damage:

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

Cypress Springs Special Utility District identified the following hazards that had the potential to cause personal or property damage:

- Flood
- Thunderstorm Winds
- Lightning
- Winter Storm
- Hailstorm
- Drought
- Extreme Heat

Franklin County Water District identified the following hazards that had the potential to cause personal or property damage:

- Flood
- Drought
- Dam Failure

AREAS OF RISK

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

Hazards Listed in the Texas Hazard Mitigation Plan Not Included in the Franklin County Plan

Hazard	Reason for Exclusion
Tropical storms	Franklin County is over 300 miles from the Texas coast. Tropical storms are not an issue for Franklin County. The planning area has no history of Tropical Storms hazards: therefore, no impacts are expected in the future.
Coastal erosion	Franklin County is over 300 miles from the coast. Coastal erosion is not an issue for Franklin County. The planning area has no history of Coastal erosion hazard: therefore, no impacts are expected in the future.
Expansive soils	There is no evidence that expansive soil is an issue for Franklin County. The planning area has no history of expansive soils hazard; therefore, no impacts are expected in the future.
Land subsidence	There is no evidence that land subsidence is an issue for Franklin County. The planning area has no history of Land Subsidence hazard; therefore, no impacts are expected in the future.
Earthquake	The risk level for earthquake in Franklin County is very low. There have been 0 earthquakes in Franklin County since 1931.

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

Hazards How and Why

Hazard	How Identified	Why Identified
Flood	• 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	• Public Input • National Weather Service • Past History • NCDC Data Base	• Public Concern • Past History • Frequency
Winter Storm	• 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 • The population is not educated about dealing with outages etc.
Thunderstorm Winds	• NOAA reports • Public Input • Newspaper Accounts	• Wind shears an ongoing problem • Severe thunderstorms with accompanying high winds occur every year
Hail	• Newspaper accounts • NOAA • Input from public	• Frequency • Past History • Public Concern
Droughts	• History • Review of NCDC database • Public Input	• Costly to agri-business • Drought common to state and county
Extreme Heat	• History • Review of NCDC database • Public Input	• Costly to agri-business • Extreme heat common to state and county
Wildfire	• 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
Dam Failure	• Public Input	• Dams in the county could pose threats to life and property

Determining Risk

The following tables represent the factors used to calculate overall risk in Franklin County or in the participating jurisdictions.

Severity x .45 + Probability x .30 + Warning Time x .15 + Duration x .10 = Risk

Potential Severity of Impact: (45% of Priority Risk Index)	
SUBSTANTIAL Index Value = 4	• Possible fatalities • Complete shutdown of facilities for 30 days or more • More than 50 percent of property destroyed or with major damage
MAJOR Index Value - 3	• Possible permanent disability from injuries and illnesses • 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	• Injuries and/or illnesses do not result in permanent disability • 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	• Injuries and/or illnesses are treatable with first aid • 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: (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:

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.

PROPRTY DAMAGE ASSESSMENT

The following damage assessment tables are used to estimate monetary loss due to natural hazards in Franklin County.

FRANKLIN COUNTY				
Structure Type	$ Value	75%	50%	25%
Residential	$1,236,557,590	$927,418,193	$618,278,795	$309,139,398
Commercial	$19,585,543	$14,689,157	$9,792,772	$4,896,386
Industrial	$20,683,030	$15,512,273	$10,341,515	$5,170,758
Exempt Property	$30,200,650	$22,650,487	$15,100,325	$7,550,162
Totals	$1,307,026,813	$980,270,109	$653,513,406	$326,756,703

MT. VERNON				
Structure Type	$ Value	75%	50%	25%
Residential	$121,711,207	$91,283,405	$60,855,604	$30,427,802
Commercial	$42,802,647	$32,101,985	$21,401,324	$10,700,662
Industrial	$0	$0	$0	$0
Exempt Property	$36,678,760	$27,509,070	$18,339,380	$9,169,690
Totals	$201,192,614	$150,894,460	$100,596,307	$50,298,153

FRANKLIN COUNTY WATER DISTRICT				
Structure Type	$ Value	75%	50%	25%
Residential	$1,358,268,787	$1,018,701,598	$679,134,399	$339,567,199
Commercial	$62,388,190	$46,791,143	$31,194,095	$15,597,048
Industrial	$20,683,030	$15,512,273	$10,341,515	$5,170,758
Exempt Property	$66,879,41	$50,159,557	$33,439,705	$16,719,852
Totals	$1,508,219,427	$1,131,164,570	$754,109,713	$377,054,856

CYPRESS SPRINGS SPECIAL UTILITY DISTRICT				
Structure Type	$ Value	75%	50%	25%
Residential	$0	$0	$0	$0
Commercial	$0	$0	$0	$0
Industrial	$0	$0	$0	$0
Exempt Property	$18,820,600	$14,115,450	$9,410,300	$4,705,150
Totals	$18,820,600	$14,115,450	$9,410,300	$4,705,150

Hazard Assessment Elements

The Hazard Profiles, found in the following sections, were prepared for each identified natural hazard, and assess the hazard per the following seven elements.

1. **Description:** Identification and description of hazards likely to affect the multi-jurisdictional area along with the sources used to identify these hazards.
2. **Location:** The location or geographic area affected by each natural hazard along with a map of the area affected.
3. **Impact:** Impact describes the hazard's potential severity of impact that the hazard event is capable of inflicting upon the county and jurisdictions. Classification methods such as the Fujita Scale and Richter Scales are used to illustrate the extent. Due to the limited amount of county and city specific documented data, some of the analysis for determining potential severity was limited to obtaining opinion and information furnished by local residents, emergency responders, and the county and city Emergency Management Coordinators.
4. **Previous Occurrences:** Previous Occurrences describe the hazard in terms of what, when, and where past events have occurred and the extent of damages.
5. **Probability of Future Events**: Probability of Future Events described the probability that the hazard will occur within the county and jurisdictions.
6. **Vulnerability:** Vulnerability describes how exposed or susceptible to damage the county is in terms of why and where the hazard can occur within the county and/or the other jurisdictions. The vulnerability is the risk of future occurrences. HAZUS, THMP, and other local data were used to establish a base map and conduct risk assessments.
7. **Overall Summary of Vulnerability and Impacts:** This section summarizes the vulnerability of the entire county and the possible impacts of the natural disaster.

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/city.
- Estimating Losses. Determining how the hazards will affect the county/city.

SECTION III

HAZARD DESCRIPTIONS

FLOOD

Floods are the most common natural disaster in the United States. They have brought destruction to every state and nearly every county, and in many areas, they are getting worse. As global warming continues to exacerbate sea level rise and extreme weather, our nation's floodplains are expected to grow by approximately 45 percent by century's end. (www.nrdc.org)

FLOOD TYPES

Flash Flood: A flash flood generally results from 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

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.

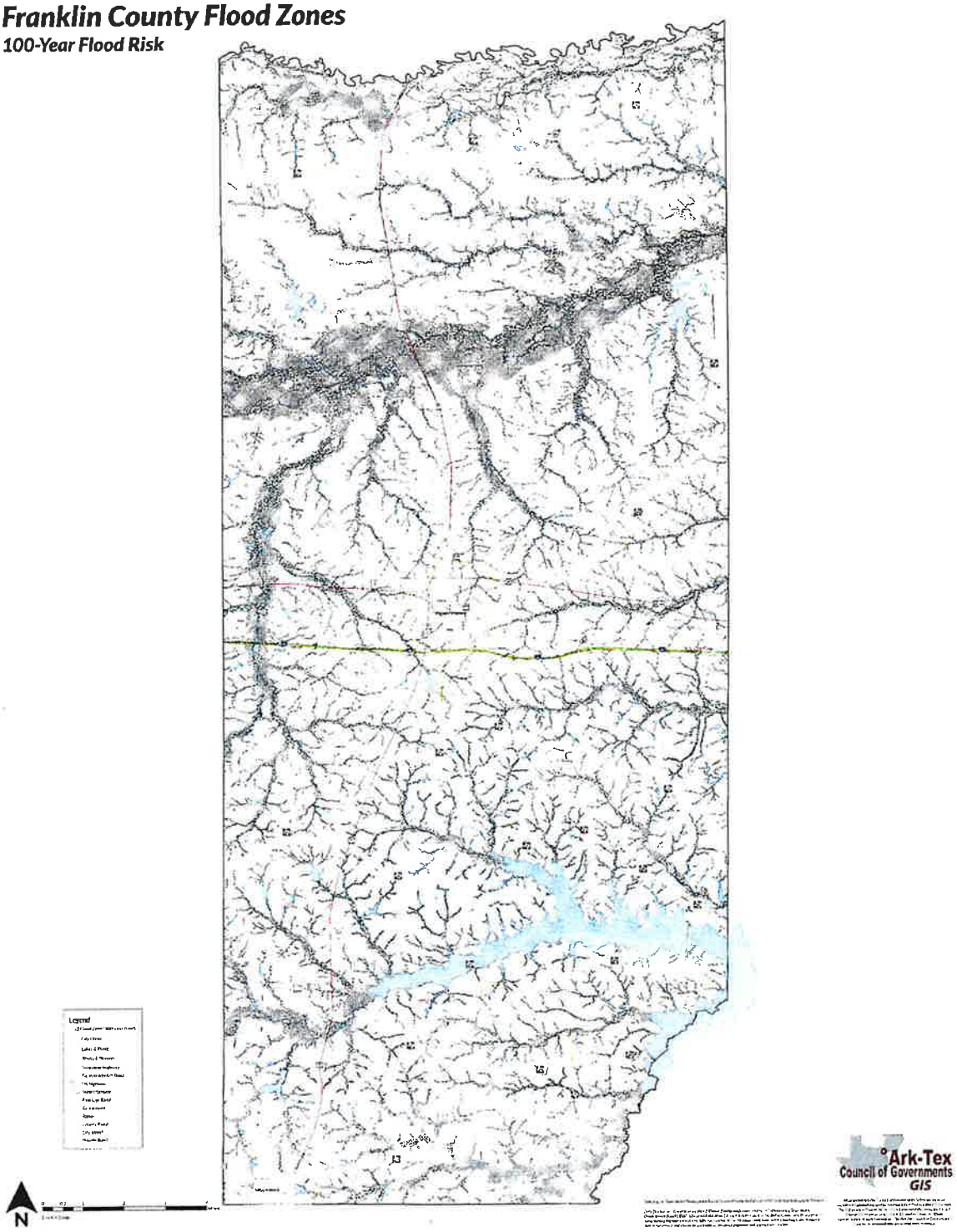
100-Year Flood: There is one chance in 100, or a 1% chance of a flood of such magnitude or greater occurring in any given year. There is no guarantee that a similar flood will not occur in the next year, or in the next month.

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.

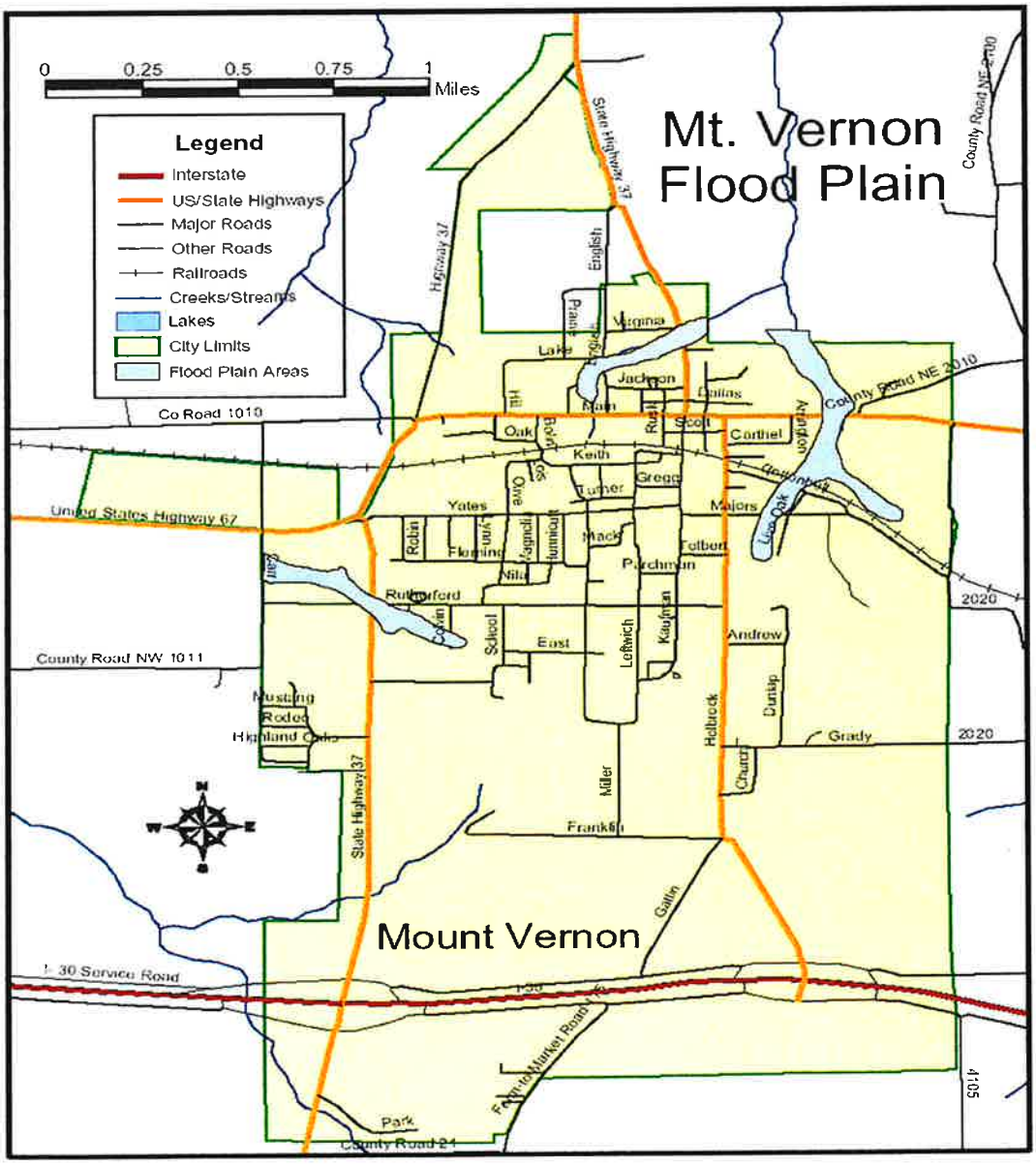
Impact: The magnitude of observed or forecast flooding is conveyed using flood severity categories. These flood severity categories include minor flooding, moderate flooding, and major flooding. Each category has a definition based on property damage and public threat. Minor damage is defined as minimal or no property damage, but possibly some public threat or inconvenience. Moderate damage is defined as some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations are necessary. Major damage is defined as extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations. The impact of floods varies locally.

Franklin County Flood Zones

100-Year Flood Risk



Mt. Vernon Floodplain



Flood Plain Map Narrative

Franklin County and Mt. Vernon participate in the NFIP program. They have flood plain maps and a designated representative to monitor new construction to prevent anyone from developing in low areas. Priority was given to each action by the HMPT. Each NFIP action was weighed regarding ultimate impact on buildings and infrastructure. These participating jurisdictions are taking positive steps to remain in compliance such as widening ditches and revising building codes. These jurisdictions will use NFIP community workshops to provide information and incentives for property owners to acquire flood insurance and taking action to minimize the effects of flooding on people, property, also, through measures including flood warning, emergency response, and evacuation planning. As a special districts, Cypress Springs Special Utility District and Franklin County Water District are not eligible to participate in the NFIP program.

A repetitive Loss Structure is an NFIP-insured structure that has had at least 2 paid flood losses of more than $1,000 each in any 10-year period since 1978. Mt. Vernon has no repetitive flood properties on record. Unincorporated Franklin County has one structure with repetitive flood loss listed below.

Repetitive Loss Structures

Source: Repetitive Loss Structures Texas Water Development Board

Unincorporated Franklin County:
Repetitive Loss Structures: 1
Structure Type: Unknown
Total Losses: 3
Total Paid: $96,743.52

Franklin County

Franklin County is small in physical size and population. The county passed a resolution on May 22, 2000 to participate in the National Flood Insurance Program. Franklin County has locally generated maps that assist them in tracking areas that may be at risk for flooding and the county monitors new development to ensure that building codes are adhered to. The county has not been mapped by FEMA. The Emergency Management Coordinator for Franklin County is designated to monitor floodplain activity. There has been one structure with repetitive loss in the county.

Mt. Vernon

Mount Vernon has 2,361 acres inside the city limits. The 100-year flood plain covers approximately 94 acres or 4% of the total acreage. Due to the location of the flood plain, it is estimated that a 100-year flood event in the city would cause minimal damage. There would be minimal or no property damage, but possibly some public threat or inconvenience. The total taxable value of all property in the city is approximately 201 million dollars. There is no record of repetitive flood loss in Mt. Vernon. The city manager of Mount Vernon is designated to monitor floodplain activity. Mount Vernon Texas, CID: 480821 passed a floodplain management

resolution, dated May 22, 2000. The city of Mount Vernon possesses floodplain maps and the city has a designated employee who monitors for development activity in that area.

Cypress Springs Special Utility District

Cypress Springs Special Utility District provides safe, high quality water services to the community, while maintaining a standard of excellence in customer service and environmental conservation. Cypress Springs SUD has three surface water treatment plants on Lake Cypress Springs in Franklin County, Texas. The three combined plants serve 5,005 connections with a total capacity for 5,630 connections.

Franklin County Water District

Franklin County Water District is a conservation and reclamation district created by a special act of the legislature in 1965. The duty of the District is to control, store, preserve and distribute its waters for all useful purposes. The District owns and operates Lake Cypress Springs and the Franklin County Dam. Lake Cypress Springs has 1500 waterfront homes and seven public parks. The homes on District property represent approximately 45% of the total tax base of Franklin County. Lake Cypress Springs is the sole source of potable water for all of Franklin County.

PAST OCCURRENCES OF FLOODING IN FRANKLIN COUNTY
(Data form National Climatic Data Center)
Ten Year Profile

March 20, 2012 (Franklin County) A woman and her two children had to be rescued when they drove their car into a flooded roadway. Numerous roads were underwater across the county due to flooding.

December 12, 2015 (Cypress) Several Farm to Market roads, including 3250 and 3170 were flooded and closed near the Purley community.

December 27, 2015 (Mt. Vernon) Widespread flooding was reported in Mount Vernon and across the entire county.

July 5, 2017 (Franklin County) Thunderstorms developed across Northeast Texas originating from the earlier cluster of storms. Low water crossings were flooded in and near Mount Vernon.

February 22, 2018 (Hagansport) Highway 37 was closed at the Sulphur River bridge along the Franklin/Red River County line due to a prolonged period of moderate to heavy rainfall across the basin which led to rapid rises on the Sulphur River and extensive backwater flooding.

February 22, 2018 (Eureka) Widespread heavy rainfall of ten to in excess of twelve inches across the Sulphur River basin of Northeast Texas during the final week of February resulted in rapid rises on the Sulphur River north of Talco, with the river cresting at 26.81 feet during the early evening hours on February 22nd. This resulted in major backwater flooding along the river, with numerous secondary roads (and State Highway 37) flooded across Southern Red River and Northern Franklin Counties.

February 12, 2020 (Franklin County) Interstate 30 was flooded and closed at the Franklin/Hopkins County line between County Road 1017 and County Road 1016.

February 21, 2021 (Eureka) Widespread rainfall amounts of four to in excess of nine inches fell across much of East Texas during this 3-day period, resulting in widespread flash flooding. Many low lying, poor drainage areas were flooded across Franklin County.

Major Declarations for Planning Area: Franklin County was a designated area for Public Assistance in the FEMA 4255-DR, Texas Disaster Declaration, February 2016, Texas Severe Winter Storms, Tornadoes, Straight Line Winds, and Flooding and in the FEMA 4416-DR, Texas Disaster Declaration, February 2019, Texas Severe Storms and Flooding.

Franklin County Flood Risk					
Jurisdiction	**Impact (45%)**	**Probability (30%)**	**Warning Time (15%)**	**Duration (10%)**	**PRI Score**
Franklin County	Major PRI=3	Highly Likely PRI=4	6-12 hrs. PRI= 2	< 24 hrs. PRI=2	High 3.2
Mt. Vernon	Limited PRI=1	Unlikely PRI= 1	6-12 hrs. PRI= 2	< 24 hrs. PRI=2	Low 1.25
Cypress Springs Special Utility District	Limited PRI=1	Unlikely PRI= 1	6-12 hrs. PRI= 2	< 24 hrs. PRI=2	Low 1.25
Franklin County Water District	Limited PRI=1	Unlikely PRI= 1	6-12 hrs. PRI= 2	< 24 hrs. PRI=2	Low 1.25

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	3	1		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant			3	
County Seat		1		

All critical facilities in Franklin County are vulnerable to the effects of flooding.

Location: Historically, the rural areas of the county have experienced the most damage from flooding. If future trends occur as they have in the past, the county will continue to have floods. Countywide, the Highways and County roads will continue to flood. Franklin County and all the participating jurisdictions may have flooding during heavy and prolonged rains.

Probability: Flash floods are possible at any time during the storm season. These types of floods occur often during that period. According to the NOAA weather service in Shreveport, LA, a flash flood is defined as flooding that occurs within 6 hours after or during a rain. The FEMA National Risk Index gives Franklin County a very low risk for Riverine Flooding.

Climate change is increasing the risk of flooding in the US by rising sea levels, increasing extreme precipitation and total precipitation, intensifying storm precipitation, and increasing

rates of snow and ice melt. Worsening floods due to climate change are putting a growing number of inland and coastal communities at risk. (climatesignals.org)

Estimated Property Damage from Flood at 75%

Franklin County Unincorporated	$980,270,109
Mt. Vernon	$150,894,460
Cypress Springs Special Utility District	$14,115,450
Franklin County Water District	$1,131,164,570

Impact: The impact of floods varies locally. The possible damage to Franklin County, Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District are addressed in the tables found on page 26. Rising flood waters can destroy structures and endanger lives. Many rural roads in Franklin County are subject to flooding in heavy rain. Rainfall from 2 to 4 inches in a given hour can cause flash flooding. Flash flooding can be magnified when the ground is already saturated with moisture. Based on historical evidence it is possible for limited flooding to take place within all Franklin County jurisdictions.

Vulnerability: The inability to accommodate the existing drainage during a slash flood on some of the FM roads is a constant problem.

Extent: Over 2 to 3 inches of rain per hour is considered heavy rain in Franklin County. Some seepage into homes or other structures could occur during a heavy downpour.

Possible Amounts of Flooding Within Jurisdictions		
Jurisdiction	**From**	**To**
Franklin County Unincorporated	2 inches	3 inches
Mt. Vernon	2 inches	3 inches
Cypress Springs Special Utility District	2 inches	3 inches
Franklin County Water District	2 inches	3 inches

Summary: All jurisdictions in Franklin County may experience flooded streets due to flash flooding. All the jurisdictions have emergency procedures in place to warn citizens about flooded streets. Barricades and cones are on hand to warn drivers of flooded areas. In Franklin County identified sections of rural roads and highways frequently flood after heavy rains. In these areas' roads are well marked to warn drivers of impending danger. Educational programs like "Turn Around, Don't Drown" will help citizens become more informed about the dangers of flooded roadways.

TORNADOES

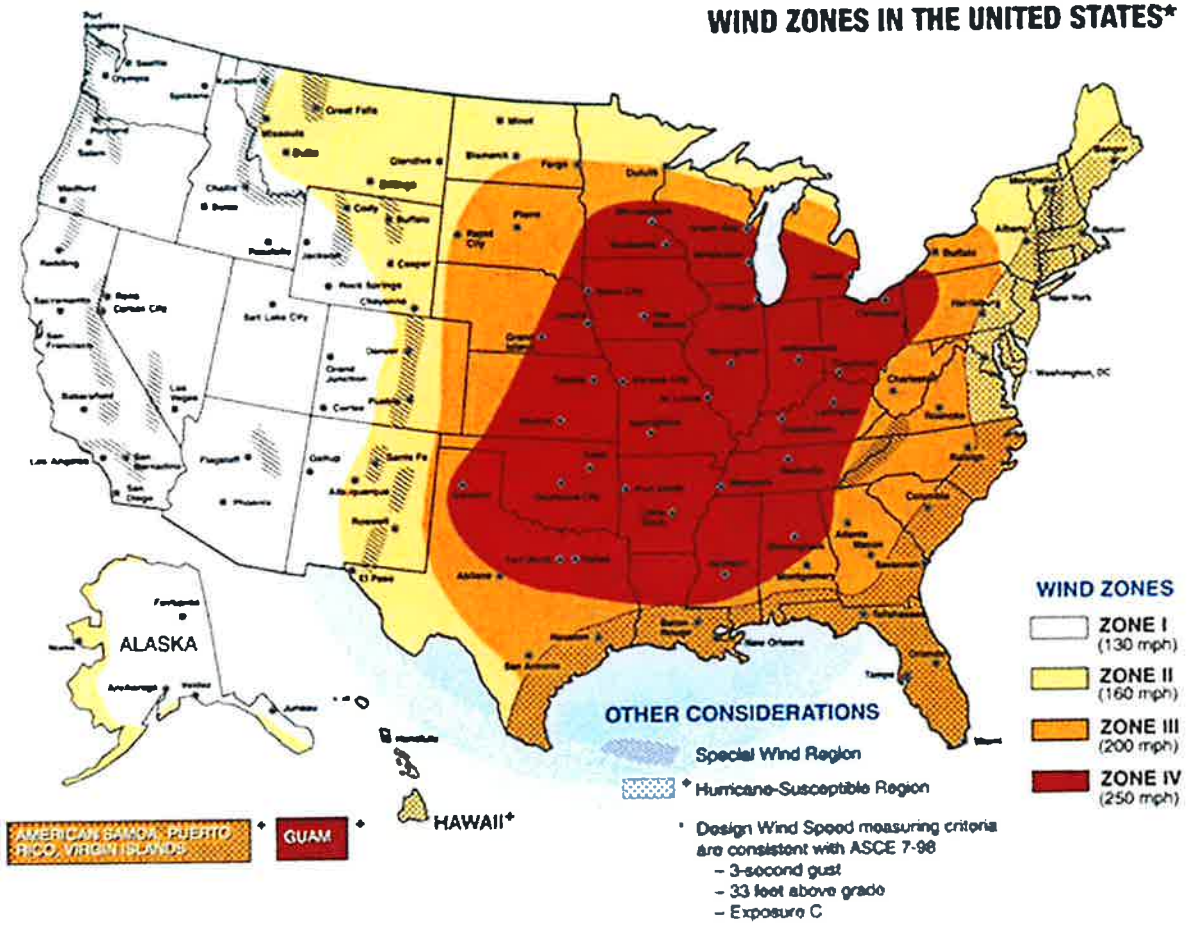
A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. The damage from a tornado is a result of the high wind velocity and wind-blown debris. According to Wikipedia, most tornados have wind speeds of less than 110 miles per hour, are about 250 feet across, and travel a few miles before dissipating. The most extreme tornado can attain wind speed of more than 300 miles per hour, are more than two miles in diameter, and stay on the ground for dozens of miles.

On earthnetworks.com it states wind shear is one of the most critical components for the formation of a tornado. Wind shear is the change of direction and speed of the wind with height. This can create a horizontal spinning effect within a storm cell. The rotating air of an updraft meets the rotating air of a downdraft and creates that iconic and scary funnel cloud. Tornadoes are visible because, nearly all the time they have a condensation funnel made up of water droplets, dust, dirt, and debris.

Tornado season is from March through August, although tornadoes can occur at any time of the year. They tend to occur in the afternoons and evenings while over 80 percent of all tornadoes strike between noon and midnight.

Compared to other States, Texas ranks number one for frequency of Tornadoes, number one of deaths, number one of injuries and number one 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 per area and number 21 for cost per area.

According to homefacts.com, Franklin County, Texas is listed as moderate risk for Tornadoes. The largest tornado in the Franklin County area was an F3 in 1982 that caused 4 injuries and 1 death. There have been 121 tornadoes since 1950.


WIND ZONES IN THE UNITED STATES*
ALASKA
HAWAII+
AMERICAN SAMOA, PUERTO RICO, VIRGIN ISLANDS+
GUAM+
WIND ZONES
ZONE I (130 mph)
ZONE II (160 mph)
ZONE III (200 mph)
ZONE IV (250 mph)
OTHER CONSIDERATIONS
Special Wind Region
+ Hurricane-Susceptible Region
* Design Wind Speed measuring criteria are consistent with ASCE 7-98
– 3-second gust
– 33 feet above grade
– Exposure C

The **Enhanced Fujita Scale**, or **EF Scale** shown below, 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 considers 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.
EF5	>200	**Incredible damage.** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd.); high-rise buildings have significant structural deformation; incredible phenomena will occur.

source : http://en.wikipedia.org/wiki/Enhanced_Fujita_Scale

TORNADO PAST OCCURANCES IN FRANKLIN COUNTY

(Data from National Climatic Data Center)

Ten Year Profile

April 3, 2012 (Hagansport) A damage survey concluded that an EF0 tornado touched down about 2 miles east of Hagansport in Franklin County, Texas. The tornado touched down in an open field just north of Farm to Market Road 71, where several trees were snapped. The tornado traveled northeast across County Road Northeast 2130, where a top of a tree was snapped off, with the tornado continuing across another open field, snapping large branches and uprooting a large tree. This tornado lifted shortly thereafter in a heavily wooded area near the Sulphur River inaccessible by vehicle. The maximum winds are estimated at 65-75 mph.

December 12, 2015 (Cypress) An NWS Storm Survey team concluded that the damage in Franklin County, Texas west of Purley community was consistent with that of tornado damage. The EF-2 tornado first touched down near County Road 3250 and traveled in a northerly direction, crossing County Road 2376 before lifting after crossing County Road 3055. The worst of the damage was noted near the intersection of County Road 3170 and County Road 2376. Numerous trees were snapped and/or uprooted along the path of this tornado. Around 20 structures suffered damage including 4 mobile homes that were completely destroyed. Four of the 20 homes suffered major damage. Two people were injured in one of the mobile homes.

May 29, 2019 (Scroggins) Storms produced damaging winds which downed trees and damaged structures, while also producing a couple of isolated tornadoes across portions of Wood and Southeast Franklin Counties before weakening during the mid-evening hours. This is a continuation of the Wood County EF-2 tornado. This tornado crossed Highway 115 and County Road 4426 in the Scroggins community, where numerous trees were snapped or uprooted, a tree fell through a mobile home, and another tree had fallen on a home. The tornado continued northeast crossing County Road 4410 where a few trees were snapped or uprooted, and a metal outbuilding suffered minor damage. The tornado then moved across Farm to Market Road 1519 and along the west side of Lake Bob Sandlin where a few additional trees were snapped or uprooted, before lifting along the lake just off of County Road 4397. Throughout its path across extreme Southeast Franklin County, the maximum estimated winds had weakened to near 105 mph.

Major Declarations for Planning Area: Franklin County was a designated area for Public Assistance in the FEMA 4255-DR, Texas Disaster Declaration, February 2016, Texas Severe Winter Storms, Tornadoes, Straight Line Winds, and Flooding.

Tornadoes in Franklin County 1996-2021
Probability Severity

Fujita Scale	Tornados	Estimated Damage
EF0	5	$2,040,000
EF1	2	$10,000
EF2	1	$100,000
EF3	1	$0
EF4	0	$0
EF5	0	$0
Total	9	$2,150,000

Franklin County Tornado Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Franklin Unincorporated	Substantial PRI=4	Highly Likely PRI=4	< 6 hrs. PRI=4	< 6 hrs. PRI=1	High 3.7
Mt. Vernon	Substantial PRI=4	Unlikely PRI=1	< 6 hrs. PRI=4	< 6 hrs. PRI=1	Medium 2.8
Cypress Springs Special Utility District	Substantial PRI=4	Unlikely PRI=1	< 6 hrs. PRI=4	< 6 hrs. PRI=1	Medium 2.8
Franklin County Water District	Substantial PRI=4	Unlikely PRI=1	< 6 hrs. PRI=4.	< 6 hrs. PRI=1	Medium 2.8

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	3	1		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant		1		
County Seat		1		

All critical facilities in Franklin County are vulnerable to the destructive forces of a tornado.

Location: Tornado Alley is a term often used by the media to denote a zone in the Great Plains region of the central United States, often a north-south oriented region centered on north Texas, Oklahoma, Kansas, and Nebraska, where tornadoes are most frequent. Franklin County and the participating jurisdictions can be struck by a tornado.

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 25 years, there is a 32% chance that a tornado will strike Franklin County in any given year. Strong scientific evidence predicts an increase in violent weather in Franklin County. Most tornadoes are expected to touchdown for short periods of time in a bounce type pattern. The possibility of a tornado touchdown on an annual basis is considered likely for the County. According to the FEMA National Risk Index, Franklin County risk for Tornado is relatively moderate.

The growing intensity and frequency of severe weather events like extreme rainfall, extreme heat, and drought can be directly attributed to climate change, but the link between tornadoes and climate change is currently not fully understood. Challenges remain that prevent clearer attribution, including: limited data collection methods, high year-to-year variability, and difficulty modeling key physical elements that help tornadoes form as well as directly modeling tornadoes due to their small size. (c2es.org)

Impact: A strategically placed F4 or F5 Tornado could destroy any area of Franklin County. Fortunately, a storm of that magnitude has never occurred. Damages *could* be substantial. The full range of 65 (F0) to 200 mph (F4 +) is considered to determine the extent. Tornadoes can produce damage that ranges from minor wind damage to total destruction.

Estimated Property Loss at 50%	
Franklin County Unincorporated	$653,513,406
Mt. Vernon	$100,596,307
Cypress Springs Special Utility District	$9,410,300
Franklin County Water District	$754,109,713

Vulnerability: Due to the frequency and unpredictable pattern of tornadoes, all of Franklin County is vulnerable to tornado-induced damage. The damage potential is high due to the concentrations of populated areas, number of mobile homes and manufactured housing units throughout the county. Because the history of impacts associated with tornadoes have been negligible, Cypress Springs Special Utility District and Franklin County Water District have elected to not address this hazard.

Extent: Historically the severity has ranged from EF0 to EF3 on the Enhanced Fujita (EF) Scale. The entire scale presented is used to determine ranges and severity. The expected tornado size would range between 25 to 1000 yards wide, with a path from one to several miles long. The full range of 65 (EF0) to 200 mph (EF5 +) are possible in Franklin County and its jurisdictions.

Unincorporated Franklin County in general covers more territory so it is more likely that a tornado would occur there than in smaller jurisdictions.

Summary: Franklin County and the jurisdictions of Mt. Vernon, Cypress County Special Utility District, and Franklin County Water District could experience substantial damage from tornadoes. Many of the businesses are prefabricated structures and most of the housing is older, wood frame dwellings. Even EF 2 winds would cause major damage. The school systems have emergency plans in place to protect the children. EMS and the fire department have planned evacuation procedures if needed. It is conceivable that a targeted tornado strike could result in a 50 to 75% property loss. Upgrades in building codes and safe room construction are important life savers in these rural communities.

THUNDERSTORM WINDS

Thunderstorms winds 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 broke 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

THUNDERSTORM WINDS PAST OCCURANCES IN FRANKLIN COUNTY
(Data from National Climatic Data Center)
Ten Year Profile

There have been 28 days of recorded events, 6 days with Property Damage in the last ten years. Property damage was estimated to be $560,000. This is a list of events with property damage.

April 11, 2011 (Cypress) 10K: A large tree was uprooted in a front yard...along with 3 other trees downed in Mount Vernon, Texas. Shingles were also off a home along County Road 3330. A large tree was also downed on Hwy. 37.

April 25, 2011 (Macon) 250K: Strong to severe thunderstorms produced large hail, damaging thunderstorm wind gusts and isolated tornadoes. Numerous trees downed on homes near Lake Cypress Springs with several roofs damaged.

July 4, 2011 (Franklin County and Mt. Vernon) 5K: Trees were downed along CR. 3310. Portions of a tin roof were removed from a building in town.

August 13, 2013 (Purley) 5K: Trees were downed on Hwy. 37 and FM. 900 near Purley, Texas. There was also a report of minor roof damage from thunderstorm wind gusts near Purley, Texas.

April 3, 2014 (Franklin County) 50K: A supercell thunderstorm moved into Franklin County. The damage associated with this supercell thunderstorm was consistent with straight line winds of 70-80 mph. This storm downed trees, caused considerable damage to outbuildings and removed shingles from several roofs.

October 13, 2014 (Franklin County) 250K: A severe squall line moved east into Franklin County, Texas during the early morning hours of October 13th. This line of storms produced a 70-80mph wind gust across the south side of Mount Vernon, Texas. A storm National Weather Service Storm Survey crew determined that the damage was consistent with that of a downburst. Damage consisted of significant loss of a roof of a poorly constructed small business and a partial collapse of the exterior walls. A nearby bank also experienced minor roof damage. Two 18 wheelers were overturned and there was damage to a Cefco Gas Station at the intersection of Hwy. 37 and Interstate 30.

April 12, 2022: (Franklin County) Showers and thunderstorms developed across East Texas during the mid-morning through the early afternoon hours of April 13th along a cold front, with some of these storms also becoming severe, downing trees just southwest of Mount Vernon.

May 15, 2022: (Franklin County) Numerous trees and tree limbs were downed all over Franklin County. Multiple trees were downed along the north shore of Lake Cypress Springs. A roof was partially removed from a home near the intersection of Highway 37 and County Road 3330.

Major Declarations for Planning Area: Franklin County was a designated area for Public Assistance in the FEMA 4255-DR, Texas Disaster Declaration, February 2016, Texas Severe Winter Storms, Tornadoes, Straight Line Winds, and Flooding and in the FEMA 4416-DR, Texas Disaster Declaration, February 2019, Texas Severe Storms and Flooding.

Franklin County Thunderstorm Winds Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Franklin Unincorporated	Minor PRI=2	Highly Likely PRI=4	6-12 hrs. PRI=3	<6 hrs. PRI=1	Medium 2.65
Mt. Vernon	Minor PRI=2	Highly Likely PRI=4	6-12 hrs. PRI=3	<6 hrs. PRI=1	Medium 2.65
Cypress County Special Utility District	Minor PRI=2	Highly Likely PRI=4	6-12 hrs. PRI=3	<6 hrs. PRI=1	Medium 2.65
Franklin County Water District	Minor PRI=2	Highly Likely PRI=4	6-12 hrs. PRI=3	<6 hrs. PRI=1	Medium 2.65

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	4	2		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant		1		
County Seat		1		

All Critical Facilities in Franklin County are vulnerable to the effects of thunderstorm winds.

Location: Historically, all of Franklin County has been affected by thunderstorms. If this trend continues, the entire County will be subject to their damage.

Probability: Given the climate and history, thunderstorms are highly likely during the storm season. Thunderstorms and their accompanying high winds are most prolific in the Spring and Summer months; however, they may occur at any time in Franklin County given the right conditions. Franklin County and its' jurisdictions are susceptible to damage from thunderstorm winds. Microbursts and downbursts produce winds severe enough to be mistaken for tornadoes. The entire county is vulnerable to high winds associated with thunderstorms. FEMA National Risk Index for Strong Winds in Franklin County is relatively low.

With increasing global surface temperatures, the possibility of more droughts and increased intensity of storms will likely occur. As more water vapor is evaporated into the atmosphere it becomes fuel for more powerful storms to develop. (usgs.gov)

Impact: According to NOAA Satellite and Information Service of the National Climatic Data Center, there were 26 thunderstorm wind events reported in Franklin County between 2011 and 2021. Damage was reported 6 of the 26 days. The magnitude ranged from 52 kts. to 65 kts.

Vulnerability: The County is susceptible to flash flooding and wind damage from severe thunderstorms. Most of the flooding occurs in the rural areas where crops and property can be severely damaged. Because the history of impacts associated with thunderstorm winds have been negligible, Franklin County Water District has elected to not address this hazard.

Extent: There were no reported injuries or deaths from thunderstorm winds in Franklin County. Storms cause power outages, disruptions or transportation and property damage. Historical data indicate that the entire county is susceptible to windstorms with a Beaufort Scale rating of 10 during the thunderstorm season and, depending on the severity, cost will vary. See the Damage Assessment Tables on page 26 demonstrating loss for the county and each participating jurisdiction.

Estimated Property Loss at 15%	
Franklin County Unincorporated	$196,054,021
Mt. Vernon	$30,178,892
Cypress Springs Special Utility District	$
Franklin County Water District	$226,232,914

Summary: High winds in Franklin County can be a destructive force associated with thunderstorms. Thunderstorms also spawn tornadoes. Deteriorating infrastructure, mobile homes, business signage and crops are most susceptible to damage. The city of Mt. Vernon, Cypress Springs Special Utility District, Franklin County Water District, and Franklin County residents share susceptibility to thunderstorm wind damage.

LIGHTNING

Description

Lightning is a massive electrostatic discharge between electricity charged regions within clouds, or between a cloud and the earth's surface. Lightning can strike communications equipment like radiocommunication and emergency response. Lightning strikes can also cause severe damage to buildings, critical facilities, and infrastructure, by igniting a fire. Lightning can strike and kill people. It can also ignite wildfire.

The National Lightning Safety Institute (http://lightningsafety.com) defines the following forms of lightning:

Direct Strike: This is the most dangerous hazard, wherein the person or structure is in a direct path for lightning currents. The magnitude of the current determines its effects. A typical amperage of 20kA acting on a ground of 10 ohms creates 200,000V. A large strike can attain 150kA levels. More than 50 volts will drive a potentially lethal current through the body.

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

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

Structure Voltage Gradient: Current passing through two or more structures create momentary voltage differential. Poor interconnect bonding may cause a completed circuit potential difference. The same hazard is created, for example, by a person touching an ungrounded object while they are grounded. The electrical circuit is completed through the person, sometimes with fatal consequences.

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

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

Sequelae: These secondary effects are many. Forest and grass fires, explosive steam conditions in masonry, trees and other water-bearing objects, and consequences of the thunderclap startling a person into inadvertently throwing a switch are examples.

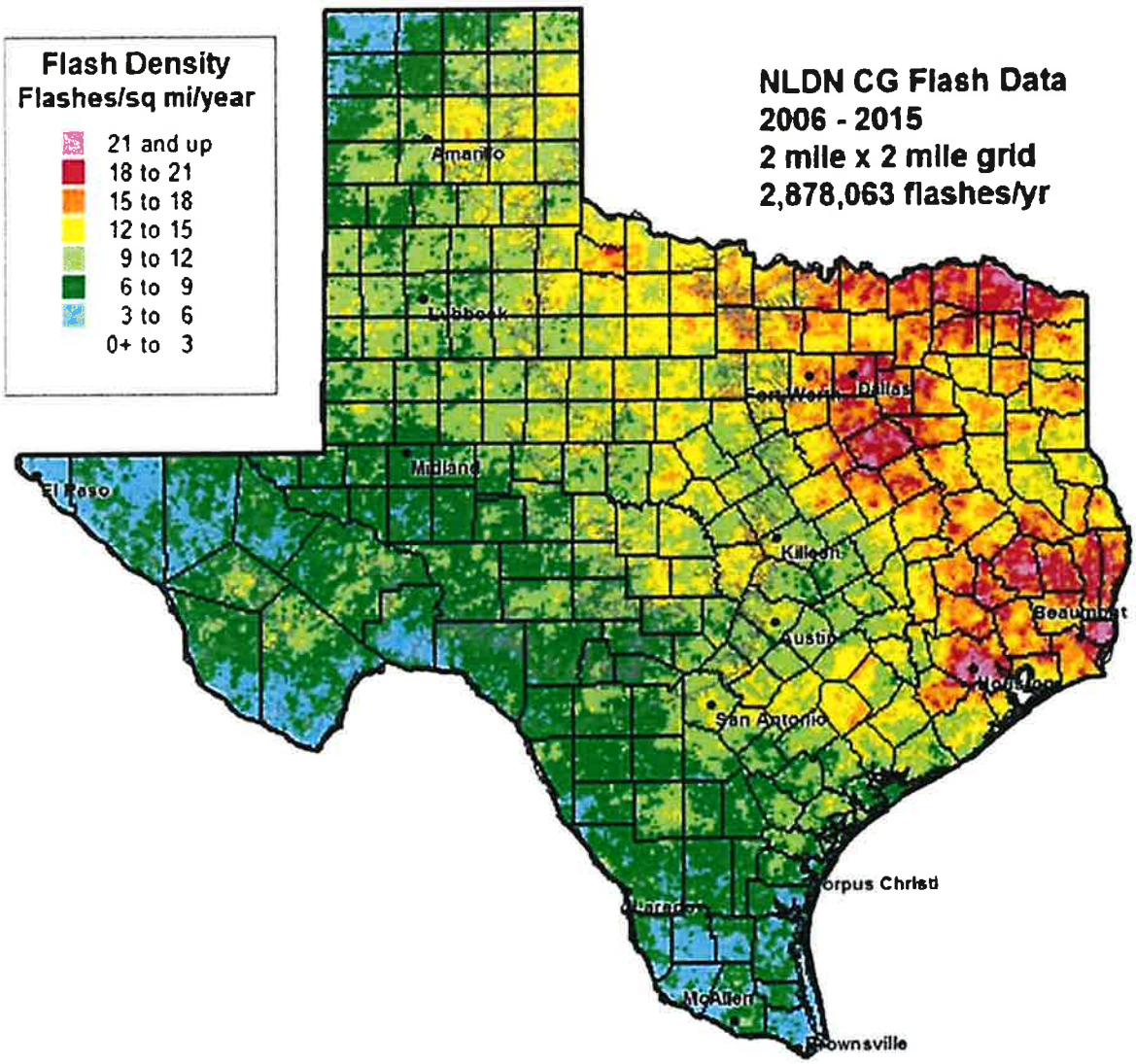
Step Voltage/Touch Voltage: This hazard occurs as a result of a lightning strike dissipating its energy through the ground. The ground current creates a voltage drop across the surface of the Earth. A person standing within several hundred feet from the lightning strike point can have several hundred volts generated between their feet. This hazard is identical to a person being grounded while touching two live wires, one with each hand.

Lightning Activity Level (LAL)

LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a 5-minute period.
LAL 3	Wildly scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5-minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a 5-minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5-minute period.
LAL 6	Dry lightning (same as LAL 3 without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.

Lightning can happen anywhere in the state of Texas. Franklin County can expect a flash density of 12-18 cloud to ground strikes per square mile per year. According to the map the incidence of strikes increases traveling East to West.

Lightning Incidences in Texas (2006-2015)



Franklin County Lightning Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Franklin Unincorporated	Major PRI=3	Unlikely PRI=1	<6 hrs. PRI=4	<6 hrs. PRI=1	Medium 2.35
Mt. Vernon	Major PRI=3	Unlikely PRI=1	<6 hrs. PRI=4	<6 hrs. PRI=1	Medium 2.35
Cypress Springs Special Utility District	Major PRI=3	Unlikely PRI=1	<6 hrs. PRI=4	<6 hrs. PRI=1	Medium 2.35
Franklin County Water District	Major PRI=3	Unlikely PRI=1	<6 hrs. PRI=4	<6 hrs. PRI=1	Medium 2.35

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	3	1		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant		1		
County Seat		1		

All Critical Facilities in Franklin County are vulnerable to the effects of intense lightning.

Estimated Property Loss at 15%		
Franklin County Unincorporated	Residential	$185,483,638
Mt. Vernon	Residential	$18,256,681
Cypress Springs Special Utility District	Residential	N/A
Franklin County Water District	Residential	$203,740,319

Historical Occurrences: In the past ten years there have been 1 recorded lightning event reported in Franklin County based on the NCEI records which includes the NOAA storm events database. It is highly likely multiple lightning occurrences have gone unreported before and

during the recording period. The flash density for the planning area along with input from local team members indicates regular lightning occurrences that simply have not been reported to the weather service.

Major Declarations for Planning Area: There were no major declarations for Lightning.

Location: Lightning can strike in any geographic location and is considered a common occurrence in Texas. The Franklin County planning area, and the jurisdictions of Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District are susceptible to lightning strikes. Therefore, lightning could occur at any location within the entire planning area. It is assumed that the Franklin County planning area is uniformly exposed to the threat of lightning.

Probability: According to FEMA National Risk Index Franklin County risk for lightning is very low. Based on historical records and input from the planning team the probability of occurrence for future lightning events in Franklin County, including the jurisdictions of MT. Vernon, Cypress Springs Special Utility District, and Franklin County Water District are considered unlikely, including damage to a building or a critical facility.

Lightning will strike far more frequently in a world under climate change – but researchers can still not predict exactly where or when those strikes will occur. New research from the University of California, Berkeley, found warming conditions would result in 50% more lightning strikes by the end of the century. (theguardian.com)

Impact: Although there are no recorded deaths or monetary losses due to lightning in Franklin County the probability and potential of death and property loss remain palpable.

Vulnerability: Texas leads the nation in the number of annual lightning strikes. During a thunderstorm lightning may strike anywhere in Franklin County. Because the history of impacts associated with lightning have been negligible, Franklin County Water District has elected to not address this hazard.

Extent: According to the NOAA, the average number of cloud-to-ground flashes for the State of Texas between 2006 and 2015 was 11.3 flashes per square mile. The National Lightning Detection Network lightning flash density map (shows a range of twelve to eighteen cloud-to-ground lightning flashes per square mile per year for the entire Franklin County planning area. The power of lightning can run to the full extent of the Lightning Activity Level (LAL 1-LAL 6). See page 49 for review of the Lightning Activity Level (LAL) table.

Summary: Lightning can strike anywhere in Franklin County. When damage occurs, it is important to report the incident to NOAA to establish credible data. Actions in this plan reflect sensible measures to take to lower the risks of lightning strikes in Franklin County.

WINTER STORMS

Description:

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 Franklin 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."

"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 scientific 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.

For drivers, the consequences of icing can be serious, for stopping distances on ice are ten times greater than on dry pavement, and double that on packed snow.

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 rival's disease and insects as destructive agents.

The Christmas Day storm of 2000 clobbered counties along a 260-mile stretch of the Red River. Franklin 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.

PAST OCCURANCES OF WINTER STORMS IN FRANKLIN COUNTY

(Data from National Climatic Data Center)

Ten Winter Storms in the last ten years. Total property damage loss for the ten-year period was $750,000.

January 9, 2011 (Mt. Vernon) The transition from freezing rain and sleet to all snow was 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. Snowfall total for January 9th was 4 inches in Mount Vernon.

February 2, 2011 (Franklin County) Accumulating snow occurred across much of the area with a mixture of sleet and freezing rain across portions of East Central Texas and Central Louisiana. The system exited the region late in the afternoon of February 4th. Snow reported in Franklin County was 7 inches.

December 25, 2012 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. The snowfall accumulation was 4-5 inches near Mount Vernon.

March 2, 2104 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.

February 23, 2015 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.

February 25, 2015 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.

March 4, 2015 A cold, arctic airmass 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 a sleet/snow mixture during the morning hours of March 5th. Along and north of the Interstate 20 corridor of Northeast Texas...freezing rain amounts were near one tenth of an inch with sleet accumulations mainly near one half to one inch. Snow amounts were near 1 to 3 inches for the event.

January 15, 2018 Ice accumulations of up to a tenth of an inch were common across the western sections of Northeast Texas, with snowfall accumulations of one to two inches, with isolated higher amounts observed. This caused significant travel impacts across much of Northeast Texas, with the rain and melted snow quickly freezing into black ice on many roadways, bridges and overpasses, as temperatures plummeted into the upper teens to lower 20s by daybreak on the morning of the 16th. In Franklin County, 0.1 inches of snow was recorded in Mount Vernon.

February 14, 2021 A very cold, arctic air mass continued to deepen as it shifted south across Northeast Texas on February 14th-15th, ahead of a large upper trough that traversed east across the Southern Plains. Accumulated snow/sleet report for Mount Vernon was 8.0 inches.

February 16, 2021 On the heels of the first winter storm and historically cold temperatures observed earlier in the week, a second significant winter storm developed across much of these areas from February 16th-17th, with areas of snow (some heavy) falling across Northeast Texas. Snowfall was recorded in Franklin County: Mount Vernon: 2.4 inches. These storms crippled the region, making driving nearly impossible, with rolling blackouts further aggravated by the additional power outages the snows were responsible for. In addition, the weight of the snow from these two back-to-back winter storms also resulted in numerous metal carport canopies collapsing across extreme Northeast Texas, with many homes and cars damaged.

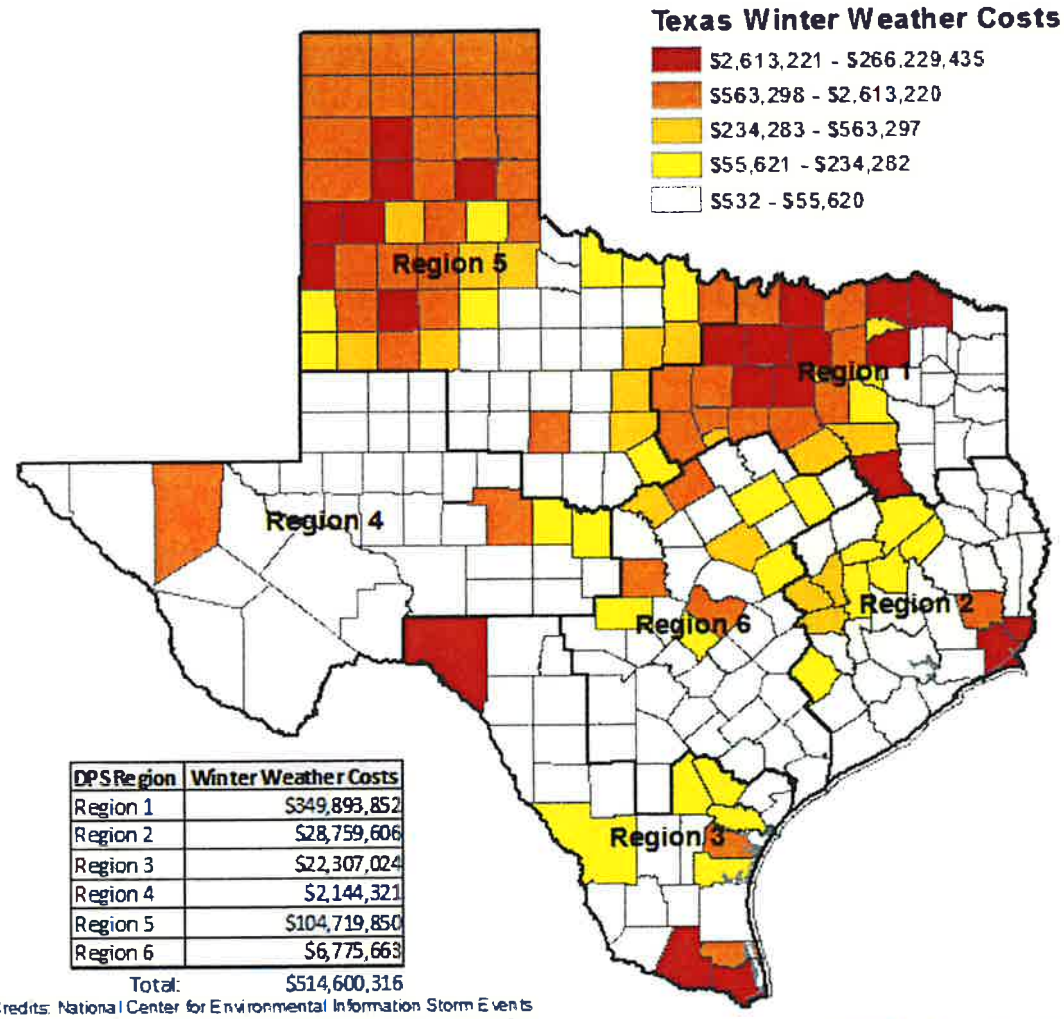
Major Declarations for Planning Area: Franklin County was a designated area for Public Assistance in the FEMA 4255-DR, Texas Disaster Declaration, February 2016, Texas Severe Winter Storms, Tornadoes, Straight Line Winds, and Flooding and in the FEMA 4586-DR, Texas Disaster Declaration, February 2021, Texas Severe Winter Storms.

Franklin County Winter Storms Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Franklin County Unincorporated	Minor PRI = 2	Highly Likely PRI = 4	6-12 hrs. PRI = 3	< a week PRI = 3	Medium 2.85
Mt. Vernon	Minor PRI = 2	Highly Likely PRI = 4	6-12 hrs. PRI = 3	< a week PRI = 3	Medium 2.85
Cypress Springs Special Utility District	Minor PRI = 2	Highly Likely PRI = 4	6-12 hrs. PRI = 3	< a week PRI = 3	Medium 2.85
Franklin County Water District	Minor PRI = 2	Highly Likely PRI = 4	6-12 hrs. PRI = 3	< a week PRI = 3	Medium 2.85

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	3	1		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant		1		
County Seat		1		

All critical facilities are vulnerable to the effects of winter storms.



DPS Region	Winter Weather Costs
Region 1	$349,893,852
Region 2	$28,759,606
Region 3	$22,307,024
Region 4	$2,144,321
Region 5	$104,719,850
Region 6	$6,775,663
Total:	$514,600,316

Data Credits: National Center for Environmental Information Storm Events Database, using a subset of events from 1996 to 2017. Data available from https://www.ncdc.noaa.gov/stormevents.

8/26/2017 Texas Geographic Society

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

Probability: According to FEMA National Risk Index the risk for winter weather in Franklin County is relatively low and the risk for ice storm is relatively moderate. The probability of the occurrence of a freeze is high, given historical weather patterns. Ten winter storms have occurred between 2011 and 2021. It is highly likely that a winter storm will occur in any given year. Franklin County and the participating jurisdictions share the same likelihood of experiencing a winter storm.

The Arctic is warming twice as fast as the rest of the world. As it warms, climate scientists are increasingly concerned that this can have significant implications for the jet stream, and cold arctic air is being pushed into areas that are not prepared for these conditions. (hsph.harvard.edu)

Impact:
Although East 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.

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.

Franklin County and participating jurisdictions could lose power to their sewage and water plant. They could lose power to homes and experience damage to city infrastructure. The elderly could suffer from lack of heat and lighting during a winter storm. The small businesses in the jurisdictions could experience lost revenue due to reduced traffic during winter storm events. Falling trees and tree limbs could damage property and block roadways in both jurisdictions. Auto accidents related to travel on icy roads increase.

Estimated Property Loss at 15%	
Franklin County Unincorporated	$196,054,021
Mt. Vernon	$30,178,892
Cypress Springs Special Utility District	$2,823,090
Franklin County Water District	$226,232,914

The Damage Assessment tables found on Page 26 demonstrate the amount of damage that can be possible. A temperature between 32 degrees f. and 10 degrees f. is the range of temperature

anticipated county wide that would create conditions for winter storms. (See the windchill chart on page 53)

Vulnerability: Franklin County has a significant amount of acreage designated for conservation, public lands, and agricultural land uses. The small towns of Franklin County are vulnerable to power outages, icy roads, and delayed emergency services. Because the history of impacts associated with winter storms have been negligible, Franklin County Water District has elected to not address this hazard.

Extent: Franklin County and its jurisdictions can expect ice accumulations on streets, power lines and trees that will range from ¼ to ¾ of an inch.

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 more urban areas are operating within a few days. Rural Franklin County may have power outages lasting one to two weeks.

HAILSTORM

Description:

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. 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 by 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 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 common in middle latitudes and a heavy shower lasts around 15 minutes. Hailstorms occur during mid to late afternoon. Big hailstones falling with force are known to have caused fatalities to humans and animals.

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

Combined NOAA/TORRO Hailstorm Intensity Scales

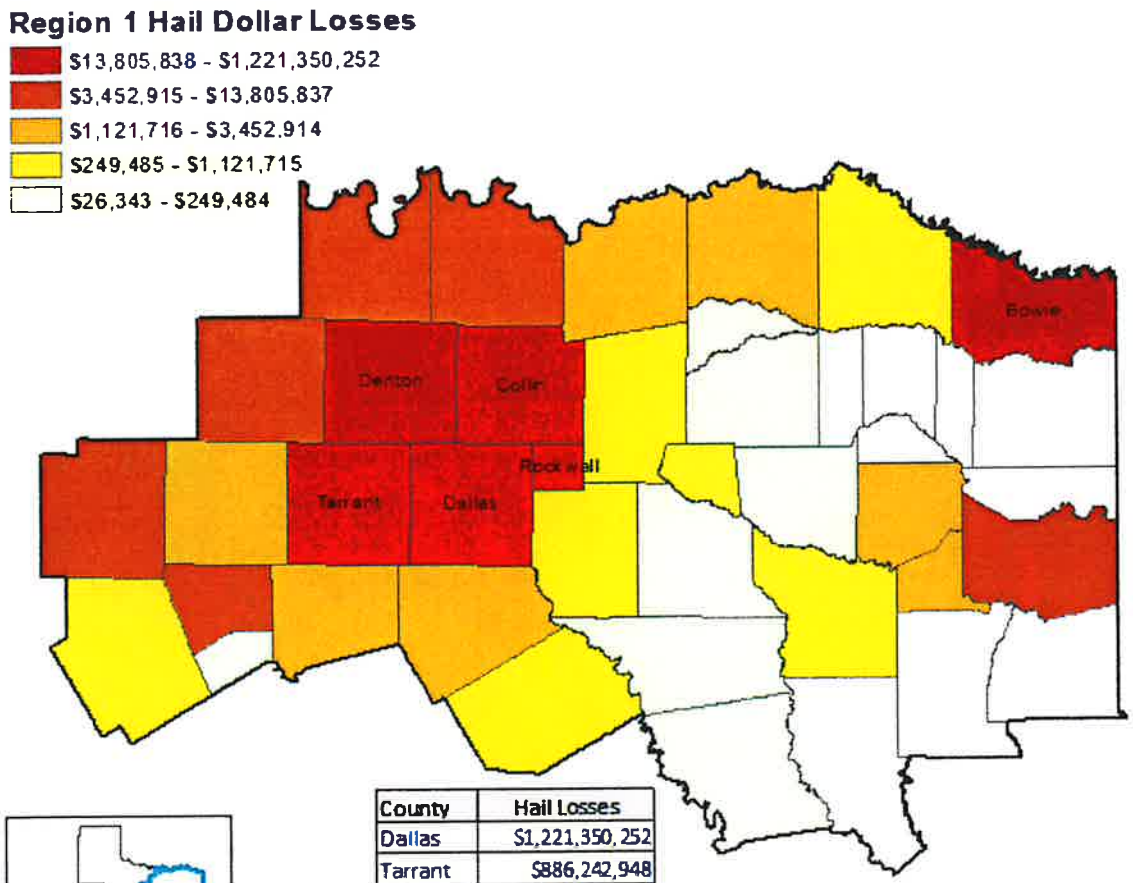
Size Code	Intensity Category	Typical Hail Diameter (inches)	Approximate Size	Typical Damage Impacts
H0	Hard Hail	up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33-0.60	Marble or Mothball	Slight damage to plants, crops
H2	Potentially Damaging	0.60-0.80	Dime or grape	Significant damage to fruit, crops, 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 dollars 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

HISTORY OF HAILSTORMS IN FRANKLIN COUNTY

The NOAA Satellite and Information Service, National Climatic Data Center, reports that there have been Fifteen hail events reported between 2011 and 2021 in all of Franklin County. Sizes ranged from .75 to 2.5 with the largest occurring in Purely, Texas.

Major Declarations for Planning Area: There were no major declarations for hailstorms.



County	Hail Losses
Dallas	$1,221,350,252
Tarrant	$886,242,948
Collin	$880,163,297
Denton	$720,175,558
Bowie	$135,745,992
Rockwall	$79,463,541

Data Credits: National Center for Environmental Information Storm Events Database, using a subset of events from 1996 to 2017. Data available from https://www.ncdc.noaa.gov/stormevents

6/26/2017 Texas Geographic Society

Franklin County Hailstorm Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Franklin Unincorporated	Limited PRI=1	Highly Likely PRI=4	<6 hrs. PRI=4	<6 hrs. PRI=1	Medium2.35
Mt. Vernon	Limited PRI=1	Highly Likely PRI=4	<6 hrs. PRI=4	<6 hrs. PRI=1	Medium2.35
Cypress Springs Special Utility District	Limited PRI=1	Highly Likely PRI=4	<6 hrs. PRI=4	<6 hrs. PRI=1	Medium2.35
Franklin County Water District	Limited PRI=1	Highly Likely PRI=4	<6 hrs. PRI=4	<6 hrs. PRI=1	Medium2.35

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	3	1		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant		1		
County Seat		1		

All critical facilities are vulnerable to the effects of hailstorms.

Location: Hailstorms can strike anywhere in Franklin County including the jurisdictions of Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District Water District.

Probability: The probability of a hailstorm strike in Franklin County is highly likely. According to the FEMA National Risk Index the risk for hail in Franklin County is relatively moderate.

Hailstorms are dangerous and costly phenomena that are expected to change in response to a warming climate. As a result of anthropogenic warming, it is generally anticipated that low-level moisture and convective instability will increase, raising hailstorm likelihood and enabling the formation of larger hailstones; the melting height will rise, enhancing hail melt and

increasing the average size of surviving hailstones; and vertical wind shear will decrease overall, with limited influence on the overall hailstorm activity, owing to a predominance of other factors. (researchgate.net)

Impact: The impact of a hailstorm has historically been limited. Hail damage autos, roofs, siding and crops. See tables on page 26 for a more comprehensive look at possible damage values.

Estimated Property Loss at 25%		
Franklin County Unincorporated	Residential	$326,756,703
Mt. Vernon	Residential	$50,298,153
Cypress Springs Special Utility District	Residential	N/A
Franklin County Water District	Residential	$377,054,856

Vulnerability: Buildings, autos, crops, can be damaged by hail. Hail is often part of thunderstorm activity. In some rare cases hail can cause physical injury. The overall vulnerability level in Franklin County is high. Because the history of impacts associated with winter storms have been negligible, Franklin County Water District has elected to not address this hazard.

Extent: Based on historical data it can be expected that Franklin County will experience a H5 Destructive Hail storm (NOAA/TORRO Hailstorm Intensity Scale).

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

DROUGHT

Description

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 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, but 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.

Climate change has further altered the natural pattern of droughts, making them more frequent, longer, and more severe. Since 2000, the western United States is experiencing some of the driest conditions on record. The southwestern U.S., in particular, is going through an unprecedented period of extreme drought. This will have lasting impacts on the environment and those who rely on it. (ww.usgs.gov)

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.

Types of Drought Impacts

Drought impacts are often grouped as economic, environmental, and social. The economic impact of droughts in East Texas includes:

- Farmers may lose money if a drought destroys their crops or stunts the crops' growth, causing lower yields and poor crop quality. If a farmer's water supply is too low, the farmer may have to spend more money on irrigation or to find new water sources, like wells.
- Ranchers may lose livestock, or they might have to spend more money on feed and water for their animals.
- People who work in the timber industry may be affected when trees, especially young trees, die, or wildfires destroy stands of timber.
- Businesses that manufacture and sell recreational equipment, like boats and fishing equipment, may not be able to sell some of their goods because drought has dried up lakes and other water sources.
- Businesses that depend on agricultural productions, like tractor manufacturers and companies that process food, may lose business when drought damages crops or livestock.
- Power companies that normally rely on hydroelectric power (electricity that is created from the energy of running water) may have to spend more money on other fuel sources if drought dries up too much of the water supply. The power companies' customers would also have to pay more.
- Water companies may have to spend money on new or additional water supplies.
- Barges and ships may have difficulty navigating streams, rivers, and canals because of low water levels, which would also affect businesses that depend on water transportation for receiving or sending goods and materials.
- People may have to pay more for food.

Drought also causes environmental losses because of forest fires; soil erosion; damage to plants, animals, and their habitat; and air and water quality decline. Sometimes the damage is only temporary, and conditions return to normal when the drought is over. But sometimes drought's impact on the environment can last a long time, or may even become permanent if, for example, an endangered species was lost because of low stream flows. Examples of environmental impacts include:

- Losses or destruction of fish and wildlife habitat
- Lack of food and drinking water for wild animals
- Increase in disease in wild animals because of reduced food and water supplies
- Migration of wild animals, leading to loss of wildlife in some (drought-stricken) areas and too much wildlife in areas not affected by drought
- Increased stress on endangered species
- Lower water levels in reservoirs, lakes, and ponds
- Loss of wetlands
- More fires
- Wind and water erosion of soils, reduced soil quality

Social impacts of drought include public safety, health, conflicts that arise between people when there is not enough water to go around, and changes in lifestyle. Many of the impacts that we consider economic and environmental also have social impacts. Examples of social impact include:

- Mental and physical stress on people (for example, people may experience anxiety or depression about economic losses caused by drought)
- Health problems related to low water flows (for example, low water supplies and water pressure make fire-fighting more difficult)
- Loss of human life (from heat stress and suicides for example)
- Threat to public safety from an increased number or forest and range fires
- Reduced incomes
- Population migration (from rural to urban areas)
- Fewer recreational activities

All these impacts were considered in planning for and responding to drought conditions.

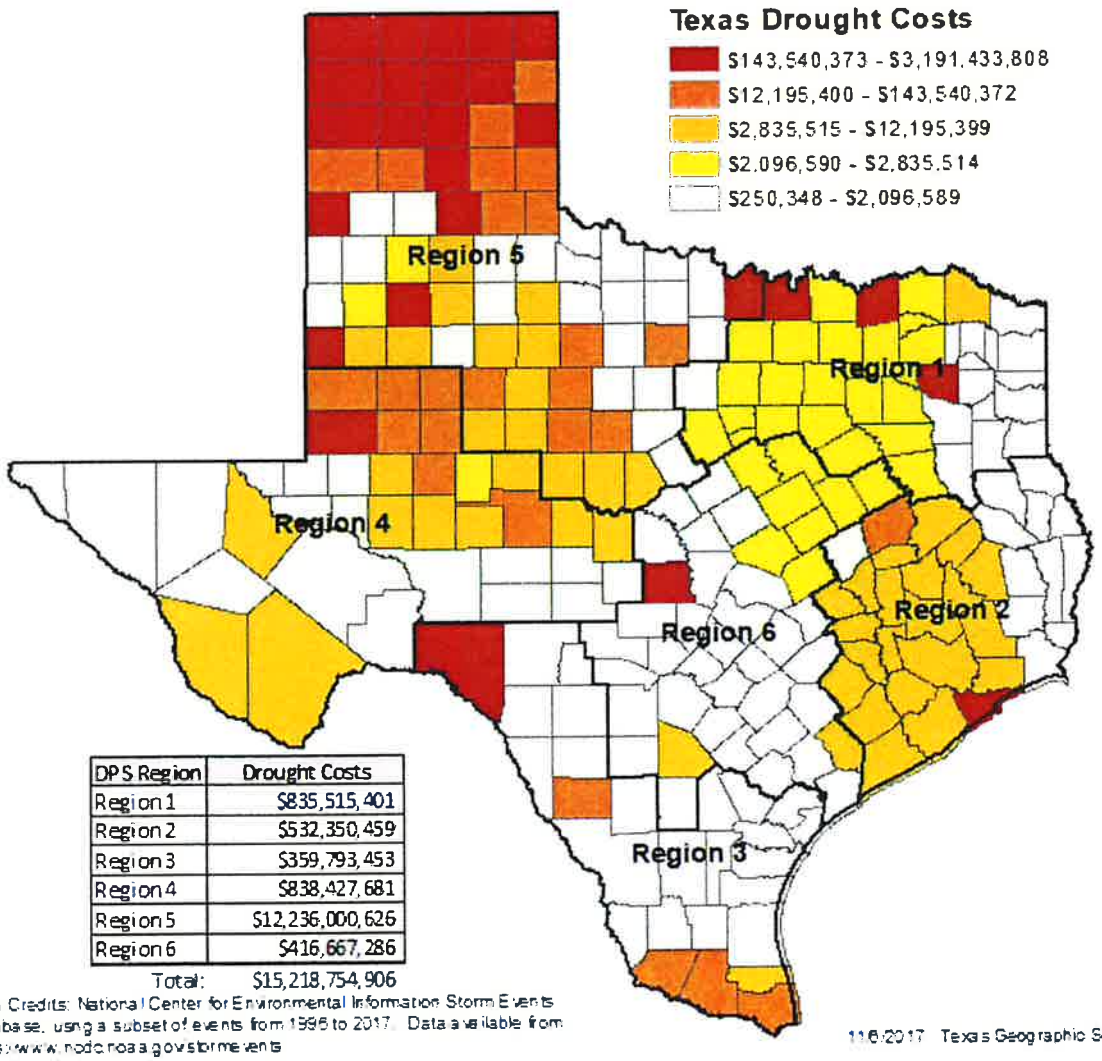
According to the National Climate Data Center

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 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 droughts 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 of 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

Historical Dollar Losses

The following map illustrates the total county losses (property plus crop losses) from drought or abnormal dryness over the period (1996-2016). The different colors on the map represent the relative losses between counties within the state; white signifies zero dollars lost. The inset table reports total dollar losses for each region over the 21-year base period.



DPS Region	Drought Costs
Region 1	$835,515,401
Region 2	$532,350,459
Region 3	$359,793,453
Region 4	$838,427,681
Region 5	$12,236,000,626
Region 6	$416,667,286
Total:	$15,218,754,906

Data Credits: National Center for Environmental Information Storm Events Database, using a subset of events from 1996 to 2017. Data available from https://www.ncdc.noaa.gov/stormevents

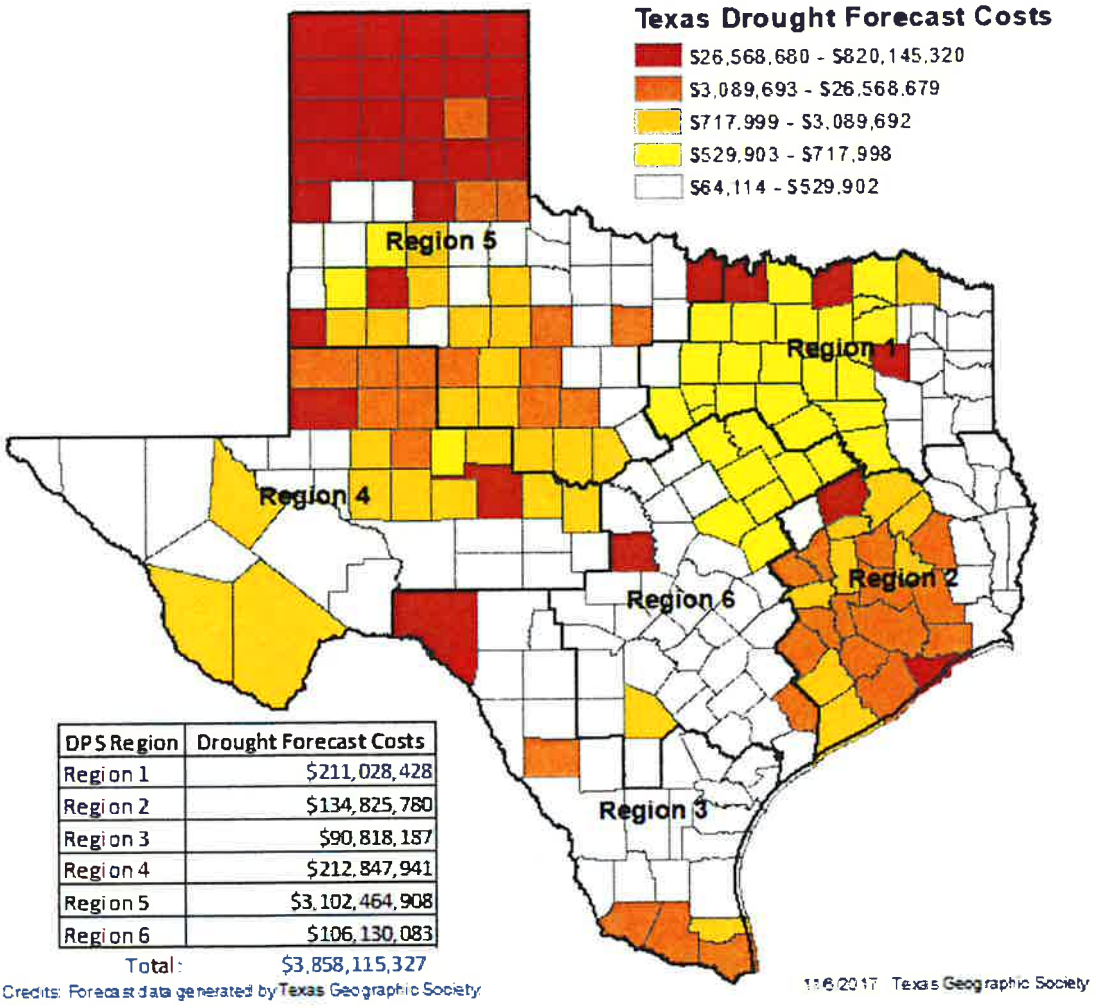
1/6/2017 Texas Geographic Society

County Dollar Loss Forecast

This map shows the results of the forecast model for 2019-2023 for drought and abnormal dryness dollar losses at the county level. These are based on the locations of impacts in the base period and the likely locations of future losses.

Drought/Abnormal Dryness Dollar Loss Forecast

The forecast is an estimate of damages that are likely to occur if similar weather events re-occur in or near previously impacted areas during the base period. Future drought or abnormal dryness dollar losses will not necessarily be in the same places that they were in the past, but a strong correlation is likely.



DPS Region	Drought Forecast Costs
Region 1	$211,028,428
Region 2	$134,825,780
Region 3	$90,818,187
Region 4	$212,847,941
Region 5	$3,102,464,908
Region 6	$106,130,083
Total:	$3,858,115,327

Data Credits: Forecast data generated by Texas Geographic Society

PAST OCCURANCES OF DRIUGHT IN FRANKLIN COUNTY

(Data from National Climatic Data Center)

In the last ten years 18 months of drought were recorded by the NOAA Storm Events Database for Franklin Count and participating jurisdictions.

Major Declarations for Planning Area: There were no major declarations for Drought.

Franklin County Drought Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Franklin County Unincorporated	Substantial PRI=4	Highly Likely PRI=4	> than 24 hours PRI=1	>Week PRI=4	High 3.55
Mt. Vernon	Substantial PRI=4	Highly Likely PRI=4	> than 24 hours PRI=1	>Week PRI=4	High 3.55
Cypress Springs Special Utility District	Substantial PRI=4	Highly Likely PRI=4	> than 24 hours PRI=1	>Week PRI=4	High 3.55
Franklin County Water District	Substantial PRI=4	Highly Likely PRI=4	> than 24 hours PRI=1	>Week PRI=4	High 3.55

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	3	1		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant		1		
County Seat		1		

All critical facilities are vulnerable to the effects of drought.

Location: Historically, drought has affected Franklin County and the participating jurisdictions of Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District. The agricultural areas, including the rural parts of the County, would be affected more than the urban areas.

Probability: Droughts will continue to occur in Franklin County and participating jurisdictions when the conditions are right. It is a normal, recurrent feature of climate. A drought will affect Franklin County and its participating jurisdictions. Historically, a drought can last from a few days to several months. According to FEMA National Risk Index the risk for Drought in Franklin County is relatively moderate.

Climate change has further altered the natural pattern of droughts, making them more frequent, longer, and more severe. Since 2000, the western United States is experiencing some of the driest conditions on record. The southwestern U.S., in particular, is going through an unprecedented period of extreme drought. This will have lasting impacts on the environment and those who rely on it. (usgs.gov)

Impact: 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 an extreme drought. The scale is most accurate when used to determine drought over a period of months. Droughts are regional and statewide. All of Franklin County and the participating jurisdictions of Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District would be affected.
The impact of a drought on the jurisdictions of Franklin County includes 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.

Vulnerability: The region is vulnerable when there is a deficiency of precipitation over an extended period. Many drought records were broken in 2011. Crops may be damaged or destroyed and wildlife (plant and animal) may be threatened.

Extent: Drought conditions for Franklin County have varied over the past 10 years with mostly DO -D2 according to the U.S Drought Monitor on drought.gov.

Summary: Drought is seen as an issue for Franklin County, Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District, however the county has never experienced shortages of potable water. Water rationing has never been necessary in any of the jurisdictions, but this remains a real possibility due to climate change. New precautions should be considered to mitigate changing weather patterns.

EXTREME HEAT

Description

Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. Among the large continental family of natural hazards, only the cold of winter-not lighting, hurricanes, tornadoes, floods, or earthquakes-takes a greater toll. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. 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 caused by heat wave weather-how many diseased or aging hearts surrender that under better conditions would have continued functioning.

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 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.

Franklin County Extreme Heat

All of Franklin County including the jurisdictions of Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District will suffer from the impact of heat. Extreme heat is often categorized in terms of weather events with drought.

In Franklin County those at greatest risk of death due to excessive heat are the urban-dwelling elderly without access to an air-conditioned environment for at least part of the day. Thus, the issues of prevention and mitigation combine issues of aging and of public health.

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 and distort. Refrigerated goods experience a significantly greater rate of spoilage due to extreme heat. Additional impact will be felt as food prices rise due to crop loss.

Extreme Heat Past Occurrences

Date	Highest Temperature	Days Over 90
June 2011	103	30
July 2011	107	31
August 2011	112	30
June 2012	101	20
July 2012	107	25
August 2012	106	26
June 2013	100	18
July 2013	100	22
August 2013	104	27
June 2014	94	10
July 2014	101	17
August 2014	99	22
June 2015	94	12
July 2015	102	29
August 2015	105	27
June 2016	97	23
July 2016	104	31
August 2016	106	19
June 2017	94	8
July 2017	98	24
August 2017	95	14
June 2018	100	27
July 2018	109	30
August 2018	102	29
June 2019	92	9
July 2019	97	22
August 2019	101	27
June 2020	94	18
July 2020	99	27
August 2020	102	26
June 2021	93	17
July 2021	98	22
August 2021	100	24

* National Weather Service

Major Declarations for Planning Area: There were no major declarations for Extreme Heat.

"Extreme heat is **a period of high heat and humidity with temperatures above 90 degrees for at least two to three days**. In extreme heat your body works extra hard to maintain a normal temperature, which can lead to death." (*ready.gov)*

NOAA's National Weather Service Heat Index

Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124		
45	80	82	84	87	89	93	96	100	104	109	114	119	124			
50	81	83	85	88	91	95	99	103	108	113	118	124				
55	81	84	86	89	93	97	101	106	112	117	124					
60	82	84	88	91	95	100	105	110	116	123						
65	82	85	89	93	98	103	108	114	121							
70	83	86	90	95	100	105	112	119								
75	84	88	92	97	103	109	116	124								
80	84	89	94	100	106	113	121									
85	85	90	96	102	110	117										
90	86	91	98	105	113	122										
95	86	93	100	108	117											
100	87	95	103	112	121											

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution Extreme Caution Danger Extreme Danger

To find the Heat Index temperature, look at the Heat Index chart above. For example, if the air temperature is 96 degrees F and the relative humidity is 65%, the heat index – how hot it feels – is 121 degrees F.

FRANKLIN COUNTY EXTREME HEAT RISK					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Franklin County Unincorporated	Limited PRI 1	Highly Likely PRI 4	> 24 hrs. PRI 1	< a week PRI 3	Medium 2.1
Mt. Vernon	Limited PRI 1	Highly Likely PRI 4	> 24 hrs. PRI 1	< a week PRI 3	Medium 2.1
Cypress Springs Special Utility District	Limited PRI 1	Highly Likely PRI 4	> 24 hrs. PRI 1	< a week PRI 3	Medium 2.1
Franklin County Water District	Limited PRI 1	Highly Likely PRI 4	> 24 hrs. PRI 1	< a week PRI 3	Medium 2.1

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	3	1		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant		1		
County Seat		1		

All critical facilities are vulnerable to the effects of extreme heat.

Location: Franklin County would be affected by extreme heat. Citizens of Mt. Vernon will suffer from the impact of extreme heat.

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

Climate change affects human health by making extreme heat more common, more severe, and last longer. That is expected to continue into the future. (toolkit.climate.gov)

Impact:
According to the NOAA weather service in Shreveport, Louisiana, extreme heat exists when 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 Franklin Count and participating jurisdictions. There is no specific history regarding property or crop damage due to excessive heat available. For a better idea of the possible property losses se Damage Assessment tables on page 26 for examples of loss in dollars.

Vulnerability: The region is vulnerable when there is a deficiency of precipitation over an extended period with high temperatures. The extent of damage or injury increases with the temperature and relative humidity levels. All of Franklin County and the participating jurisdictions are vulnerable. The elderly, young and the ill are most vulnerable to extreme heat. Crops and livestock are stressed during extended periods of extreme heat. Extreme heat causes heat stroke, time lost on the job and psychological stress. Because the history of impacts associated with extreme heat have been negligible, Franklin County Water District has elected to not address this hazard.

Extent: The Heat Index will be mitigated to any combination of temperature and humidity that ranges from 100 degrees F to 114 degrees F.

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 Franklin County and the participating jurisdictions of Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District 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. Mitigation actions should take place now to prepare for rising temperatures.

DAM FAILURE

Description

A dam is "any barrier, including one for flood detention, designed to impound liquid volumes and which has a height of dam greater than six feet. This does not include highway, railroad or other roadway embankments, including low water crossing that may temporarily detain floodwater, levees designed to prevent inundation by floodwater, closed dikes designed to temporarily impound liquids in the event of emergencies, or off channel impoundments authorized by the commission in accordance with the Texas Water Code, Chapter 26, or the Texas Solid Waste Disposal Act, Texas Civil Statutes Article 4477-7". (Regulations section 229.1)

There are 91,784 dams in the United States, according to the National Inventory of Dams. Dam failure or levee breeches can occur with little warning. Intense storms may produce a flood in a few hours or even minutes for upstream locations. Flash floods occur within six (6) hours of the beginning of heavy rainfall, and dam failure may occur within hours of the first signs of breaching. Other failures and breeches can take much longer to occur, from days to weeks, as a result of debris jams or the accumulation of melting snow.

Each dam in the *National Inventory of Dams* is assigned a downstream hazard classification based on the potential for loss of life and damage to property should the dam fail. The classification has nothing to do with the condition or structure of the dam or whether the dam is about to collapse. Dams are classified by size and hazard potential:

Size Classification		
Category	**Storage (ac-ft)**	**Height (ft)**
Small	Less than 1000	Less than 40
Intermediate	1000-49,999	40-99
Large	50,000+	100+

Height of dam is "the vertical distance from the effective crest of the dam to the lowest elevation on the centerline or downstream toe of the dam including the natural stream channel. Texas Water Code, Chapter 26, or the Texas Solid Waste Disposal Act, Texas Civil Statutes Article 4477-7. Regulations section 299.1).

Hazard Classification (Severity)		
Category	**Loss of Life**	**Economic Loss**
Low (L)	None Expected	Minimal
Significant (S)	Possible, but none expected	Appreciable
High (H)	Expected	Excessive

Texas has more dams listed in the National Inventory of Dams than any other state. Currently, there are 7,377 dams listed in the National Inventory of Dams, and 14 of those dams are located within Franklin County. The following table lists the dams in Franklin County.

DAMS IN FRANKLIN COUNTY

Source: nid.sec.usace.army.mil

Dam Name	NID ID
Franklin County Dam	TX03288
Zachry Lake Dam	TX03291
Mt. Vernon City Lake Dam	TX03289
Edwards Lake Dam	TX05370
Lake Franklin Dam	TX03292
Paradise Lake Dam	TX03293
Deal Lake Dam	TX05369
White Oak Dam	TX03294
Tx No Name No 34 Dam	TX05364
Bryce Dam	TX03295
Lake Ione Dam	TX03290
Deer Lake Dam	TX07462
Line Branch 1a Dam	TX06067
Carpenter Lake Dam	TX05374

The only dam of concern for Franklin County at this time is the Franklin County Dam.

FRANKLIN COUNTY DAM FAILURE RISK					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Franklin Unincorporated	Limited PRI=1	Unlikely PRI=1	< 6 hrs. PRI=1	< 6 hrs. PRI=1	Low 1.45
Mt. Vernon	Major PRI=3	Unlikely PRI=1	< 6 hrs. PRI=1	< 6 hrs. PRI=1	Medium 2.35
Cypress Springs Special Utility District	Limited PRI=1	Unlikely PRI=1	< 6 hrs. PRI=1	< 6 hrs. PRI=1	Low 1.45
Franklin County Water District	Major PRI=3	Unlikely PRI=1	< 6 hrs. PRI=1	< 6 hrs. PRI=1	Medium 2.35

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	3	1		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant		1		
County Seat		1		

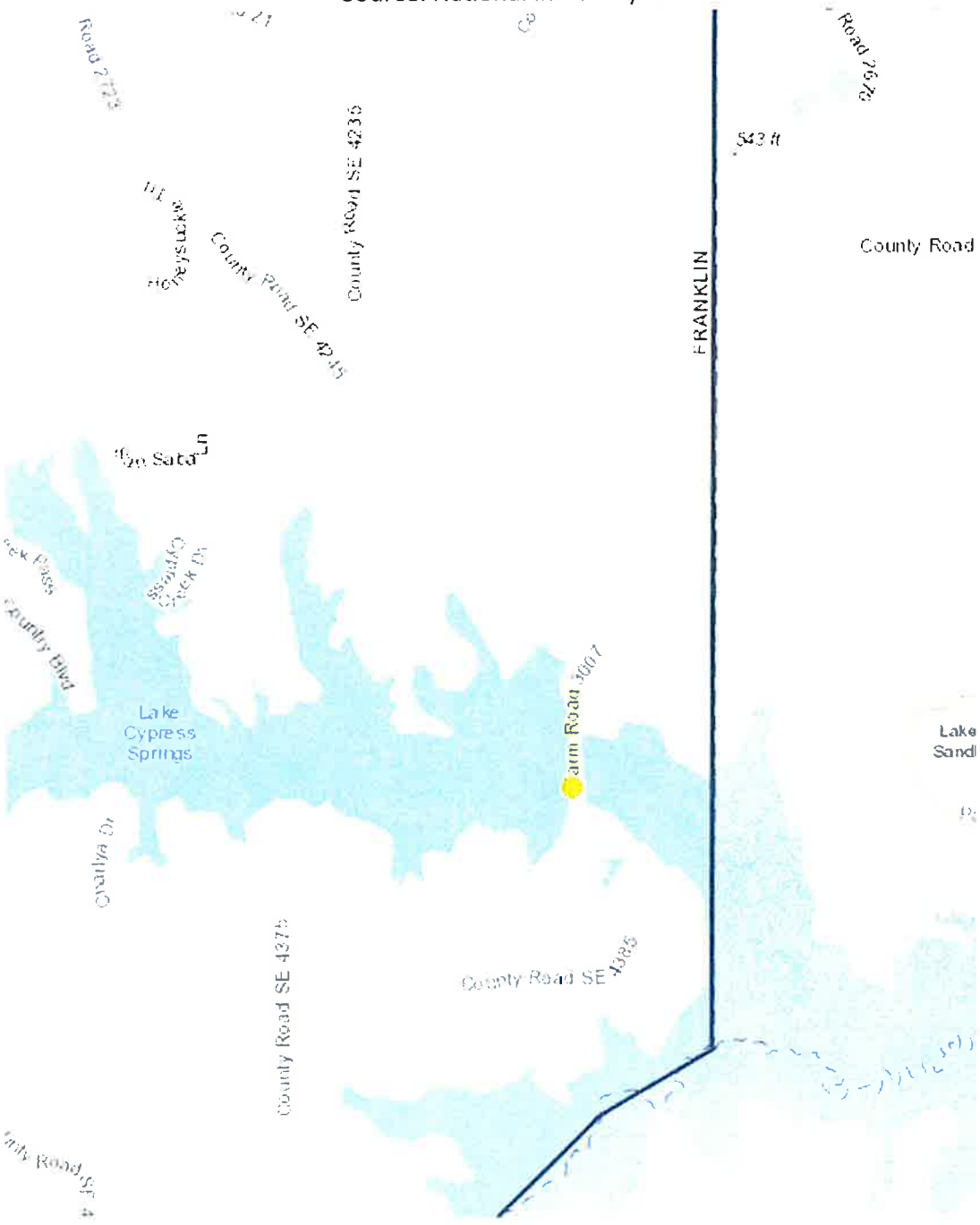
All critical facilities are vulnerable to the effects of dam failure.

Location:

The only dam of concern for Franklin County at this time is the Franklin County Dam. The Franklin County Dam is located on Lake Cypress Springs approximately eight miles south of Mt. Vernon, Texas. The lake is owned and operated by Franklin County Water District (FCWD) for the purposes of municipal and industrial water supply and public recreation. The dam has a Structural Hight of 73 feet high and length of 5,250 feet. It has a maximum NID Storage (Acre-Ft) of 164,000 but the Normal Storage (Acre-Ft) is 72,800. The Latitude of the dam is 33.0566301 North and the Longitude is -95.139978 West.

Location of Franklin County Dam

Source: National Inventory of Dams



Historical Occurrences: There is no local history of a dam breaking in Franklin County.

Major Declarations for Planning Area: There were no major declarations for Dam Failure.

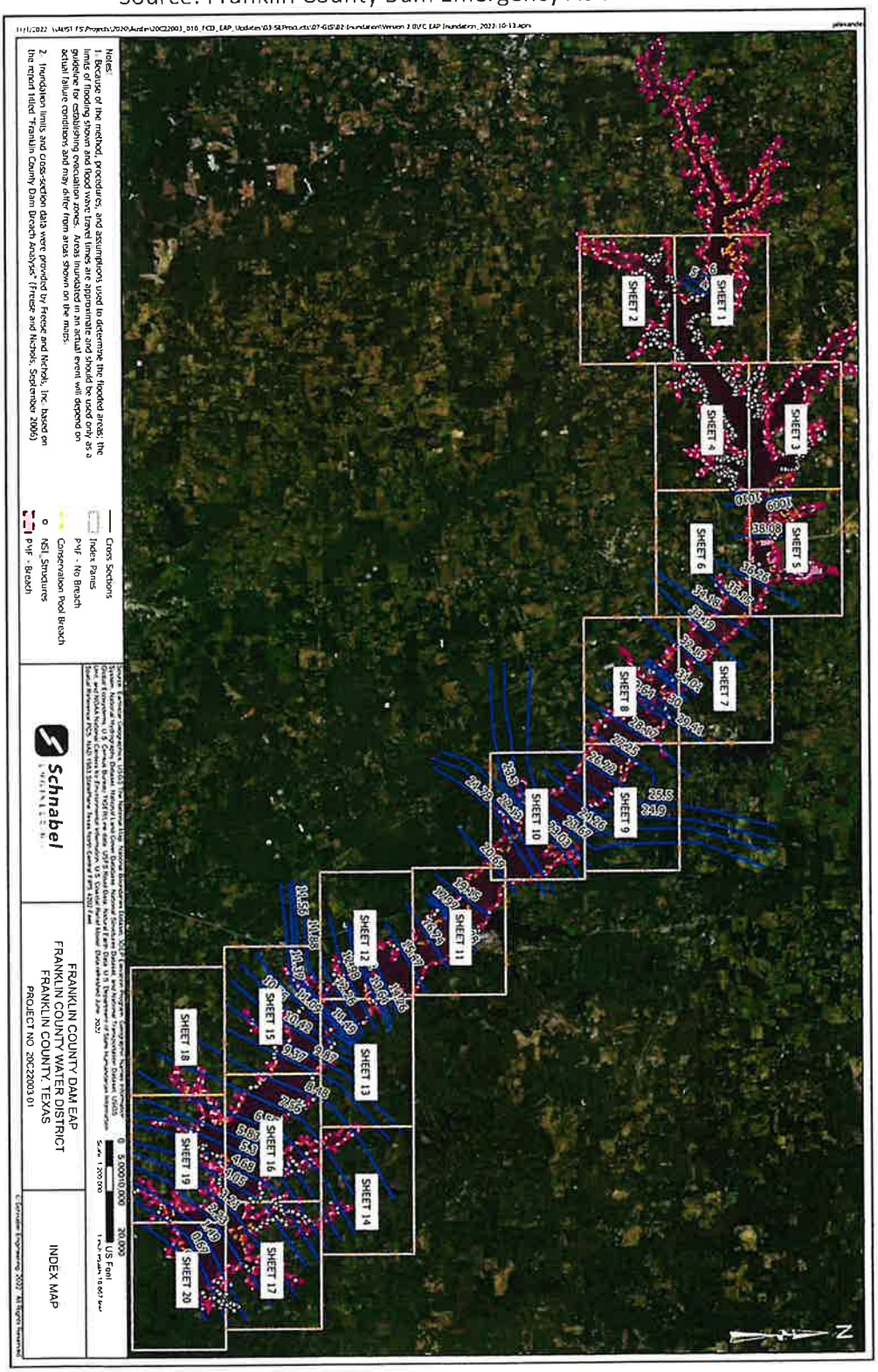
Probability: There has been no occurrence of a dam failure in Franklin County in the past 100 years. Based on historical occurrences of dam failures, the probability of a dam failure somewhere in Franklin County is considered unlikely (event may occur in the next 10 years).

Dam safety is increasingly subjected to the influence of climate change. Its impacts must be assessed through the integration of the various effects acting on each aspect, considering their interdependencies, rather than just a simple accumulation of separate impacts. (doaj.org)

Impact: The classification of "high hazard" reflects only the possible damage if the structure were to fail, and does not take in to account the likelihood that this will occur (i.e. the condition of the dam and the kind of hazard event that may cause it to fail are not factors in the classification). The Franklin County Dam is located immediately upstream of Lake Bob Sandlin. Lake Bob Sandlin is impounded by Fort Sherman Dam which is owned and operated by the Titus County Freshwater Supply District. Though development downstream of Fort Sherman Dam is relatively sparse, several potentially impacted properties and structures exist within the breach inundation zone downstream of the Franklin County Dam as described and presented in the Franklin County Dam Emergency Action Plan (EAP). The 2018 State of Texas Hazard Mitigation Plan Update was also reviewed to determine the dam failure risk. Review of the State Plan indicates that in Texas the high-risk dam area is concentrated along a generally north –south band across the central portion of the State. Sections of this band include densely populated areas combined with a high number of dams. Franklin County and participating jurisdictions are well outside this band.

Estimated Breach Inundation Limits

Source: Franklin County Dam Emergency Action Plan 2023



Estimated Property Loss at 25%		
Franklin County Unincorporated	Residential	$ 309,139,397
Mt. Vernon	Residential	$30,427,801
Cypress Springs Special Utility District	Residential	N/A
Franklin County Water District	Residential	$339,567,199

Vulnerability: According to the Texas Dam Safety Program, heavy rains after a severe drought leave earthen dams vulnerable. If the dam failure is extensive, a large amount of water would enter the downstream waterway and out of bank. There may be extensive environmental effects, resulting in flooding that could disperse debris and hazardous materials downstream that could damage local ecosystems. If the event is severe, debris carried downstream can below traffic flow, cause power outages, disrupt local utilities, such as water and wastewater, which could result in school closures.

A dam breach could result in multiple deaths, with facilities being shut down for 30 days or more, and more than 50 percent of property destroyed or damaged (substantial severity). For these reasons, creating mitigation actions to remove or protect people and structures from the path of destruction is necessary to reduce the impact from dam failure.

The jurisdiction of Cypress Springs Special Utility District is not concerned about dam failure in their area and did not choose to create actions for the hazard of dam failure.

Extent: The severity of a dam failure event depends on several factors, including the size of the dam, the extent of the failure, the velocity of the floodwater released, and the density of built environment and populations downstream. According to the Franklin County Water District Engineer, the Franklin County Dam is a large high hazard structure that could potentially impact human lives and property downstream to Lake O' the Pines reservoir located approximately 32 miles downstream of Franklin County Dam. The specific hydrologic and hydraulic conditions at the time of a breach event will contribute to the extent of flood inundation and damage. During a normal or "sunny day" breach scenario, the inundation extents are based on the reservoir at its normal pool elevation. During the flood event condition, the reservoir level is elevated and downstream channels and reservoirs may also be elevated, thus reducing storage and potentially increasing the limits of flooding.

Summary: It is unlikely that a dam failure will occur (i.e., event may occur in the next 10-years), but a dam failure would have substantial impact on most of the County. The unincorporated areas of Franklin County, Mt. Vernon and Franklin County Water District included this hazard and have created actions.

WILDFIRE

Description

A wildfire is an uncontrolled fire that burns in the wildland vegetation, often in rural areas. Wildfires can burn in forests, grasslands, savannas, and other ecosystems, and have been doing so for hundreds of millions of years. They are not limited to a particular continent or environment. Wildfires can burn in vegetation located both in and above the soil. Ground fires typically ignite in soil thick with organic matter that can feed the flames, like plant roots. Ground fires can smolder for a long time—even an entire season—until conditions are right for them to grow to a surface or crown fire. Surface fires, on the other hand, burn in dead or dry vegetation that is lying or growing just above the ground. Parched grass or fallen leaves often fuel surface fires. Crown fires burn in the leaves and canopies of trees and shrubs. (National Geographic)

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 can protect homes and businesses, 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.

There is not a direct relationship between climate change and fire, but researchers have found strong correlations between warm summer temperatures and large fire years, so there is general consensus that fire occurrence will increase with climate change. (www.usgs.gov)

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 141structures 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 was 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 for Texas to receive help in terms of personnel and equipment from neighboring states.

"The Bastrop County Complex fire was a major wildfire that struck Bastrop County, Texas, between September and October 2011. Three separate fires started on September 4, 2011, during Labor Day weekend, and merged into one large blaze that burned east of the city of Bastrop. 1,691 homes were destroyed by the fire, making it the most destructive single wildfire in Texas history. After being largely contained in late September, the fire was finally declared controlled on October 10, and declared extinguished on October 29, having killed two people and inflicted an estimated $325 million of insured property damage.

On September 20, 2011, fire officials reported that the likely cause of the blaze was sparks from electric power lines. 30-mile-per-hour gusts of wind on September 4 apparently toppled trees which tumbled into electrical lines at two locations, creating sparks that fell onto and ignited the dry grass and leaf litter below." (Wikipedia)

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 Wildfire 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 Keetch-Byram Drought Index (KBDI) is 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.

ISO FIRE PROTECTION CLASSES FOR FRANKLIN COUNTY

Fire Protection Area	Protection Class	Primary Fire Response
Franklin Unincorporated	9	All VFD
Mt. Vernon	4	Mt. Vernon VFD
Cypress Springs Special Utility District	9	All VFD
Franklin County Water District	9	All VFD

*Split class means that all properties within 1,000 feet of a water supply (fire hydrant) and within 5 road miles of a fire station are eligible for the first class (Class 1 through 8). Properties more than 1,000 feet from a water supply from a water supply but within 5 road miles of a fire station are eligible for Class 9. All properties more than 5 road miles from a fire station are Class 10.

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 smoke to carry into and 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 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. A 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.

Potential Wildfire Damages and Losses in Franklin County

The "urban wildfire interface" 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
- Water availability

FRANKLIN COUNTY PAST OCCURANCES OF WILDFIRE 2013-2022

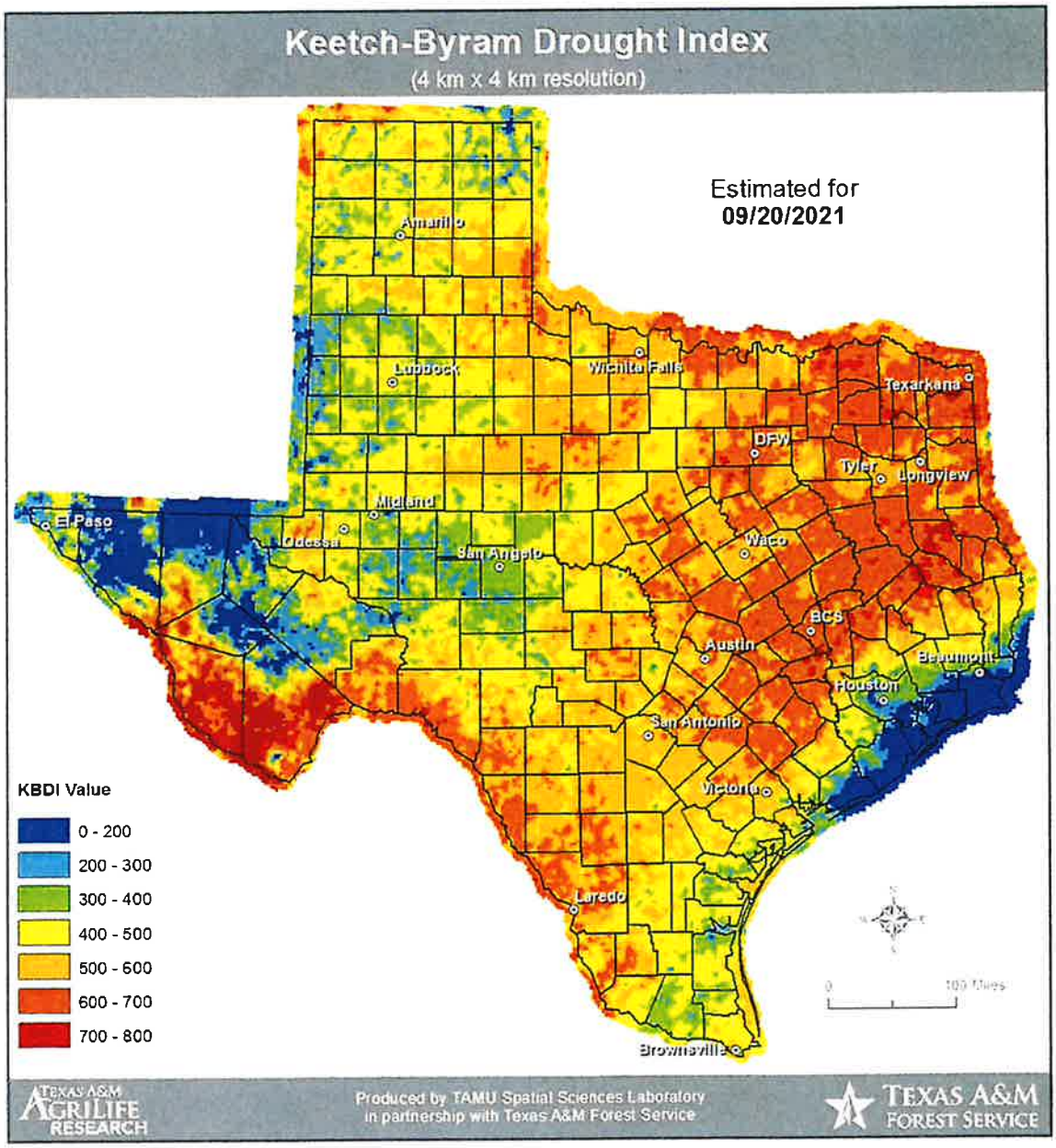
Source: Texas A & M Forest Service

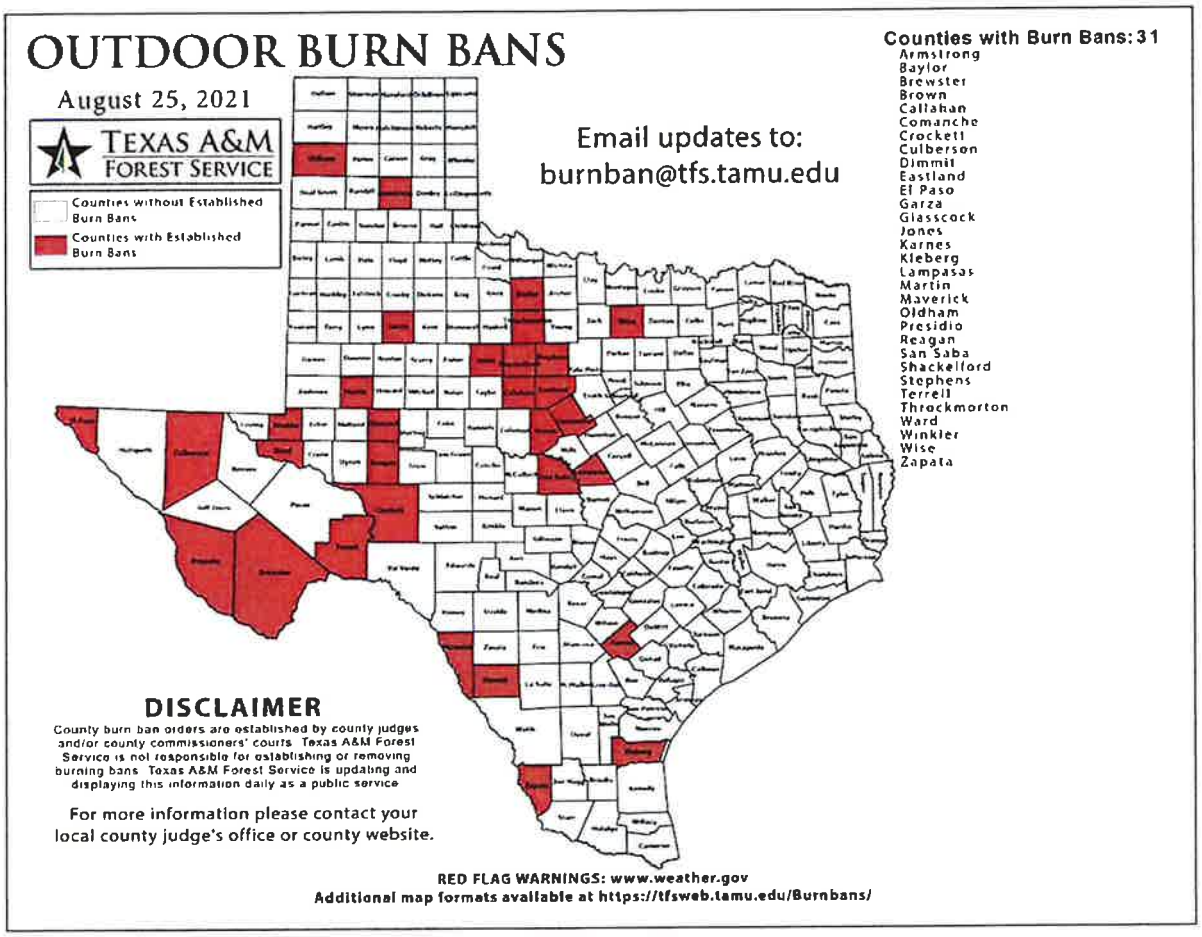
Type of Fire	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Arson										
Campfire										
Children										
Debris burning	3	1	8	4	3		2	4	5	2
Equipment use	1					1			1	
Fireworks				1						
Lightning			1	1		1				1
Miscellaneous										1
Powerlines	1		1							
Railroads			1							
Structure							1			
Unable to Determine			1							
Under Investigation										2
Total										

Keetch-Byram Drought Index (KBDI) is an index used to determining forest fire potential. The drought index is based on a daily water balance, where a drought factor is balanced with precipitation and soil moisture (assumed to have a maximum storage capacity of 8-inches) and is expressed in hundredths of an inch of soil moisture depletion.

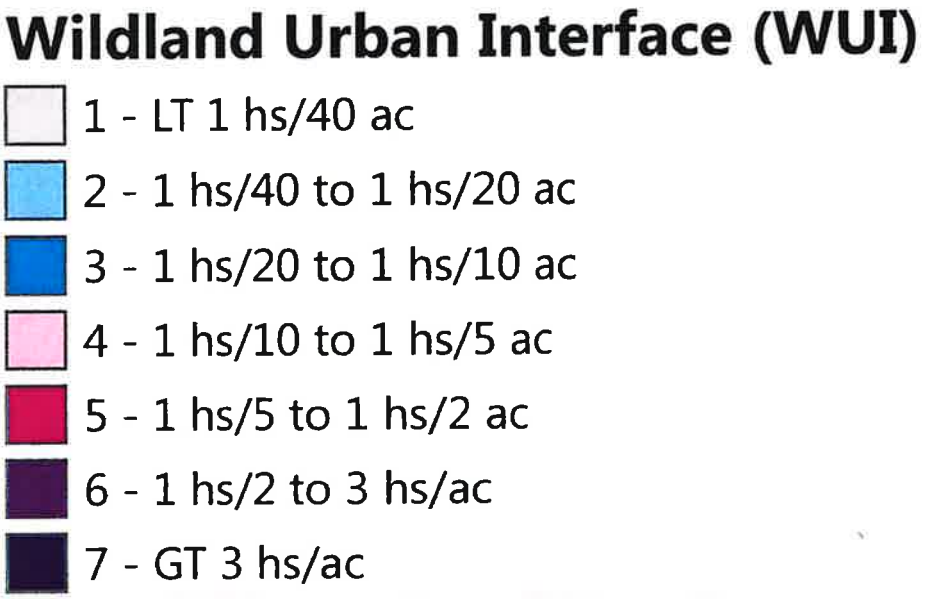
The drought index ranges from 0 to 800, where a drought index of 0 represents no moisture depletion, and an index of 800 represents absolutely dry conditions. Presently, this index is derived from ground-based estimates of temperature and precipitation derived from weather stations and interpolated manually by experts at the Texas Forest Service (TFS) for counties across the state. Researchers at Texas A&M University are working with the TFS to derive this index from AVHRR satellite data and NEXRAD radar rainfall within a GIS.

The map below shows the current (September 20, 2021) KBDI for Franklin County at 600-700.




OUTDOOR BURN BANS
August 25, 2021
TEXAS A&M FOREST SERVICE
Counties without Established Burn Bans
Counties with Established Burn Bans
Email updates to:
burnban@tfs.tamu.edu
Counties with Burn Bans: 31
Armstrong
Baylor
Brewster
Brown
Callahan
Comanche
Crockett
Culberson
Dimmit
Eastland
El Paso
Garza
Glasscock
Jones
Karnes
Kleberg
Lampasas
Martin
Maverick
Oldham
Presidio
Reagan
San Saba
Shackelford
Stephens
Terrell
Throckmorton
Ward
Winkler
Wise
Zapata
DISCLAIMER
County burn ban orders are established by county judges and/or county commissioners' courts. Texas A&M Forest Service is not responsible for establishing or removing burning bans. Texas A&M Forest Service is updating and displaying this information daily as a public service.
For more information please contact your local county judge's office or county website.
RED FLAG WARNINGS: www.weather.gov
Additional map formats available at https://tfsweb.tamu.edu/Burnbans/

Legend for the following Urban Interface maps



Legend:

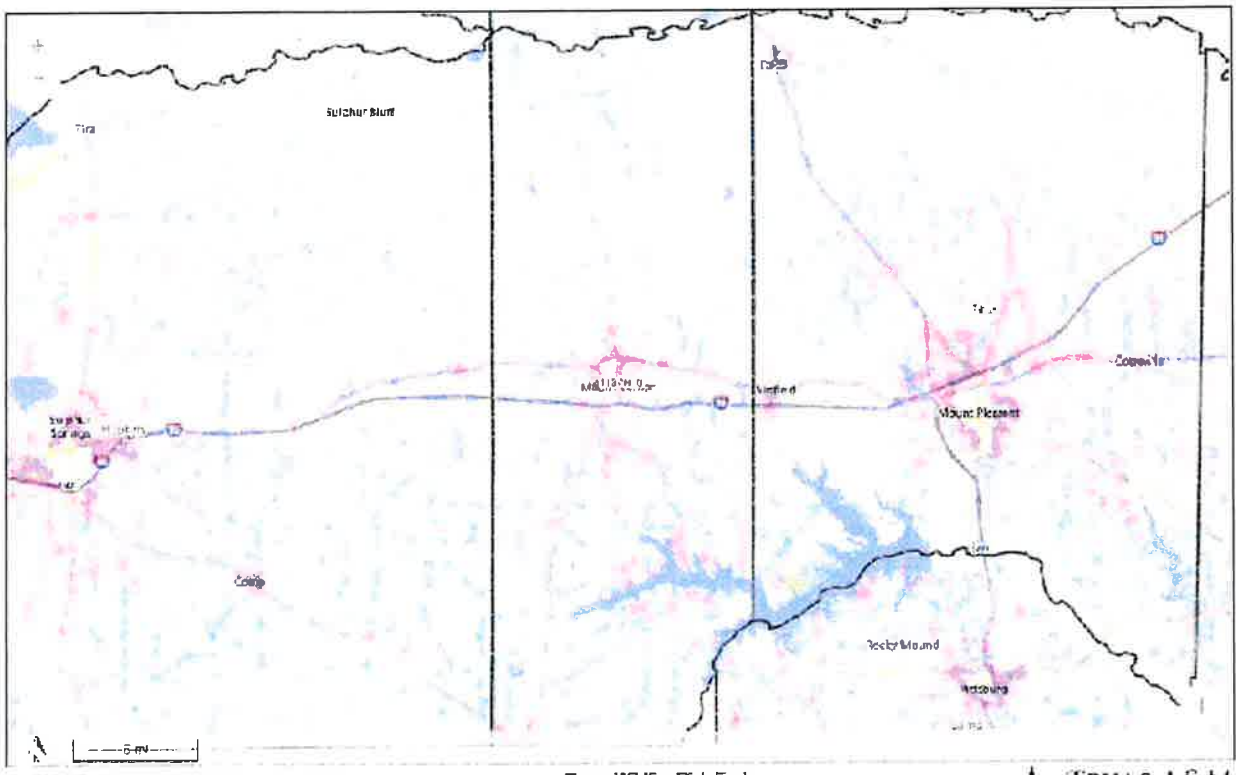
LT=less than

hs=house

ac=acre

GT=greater than

Franklin County, TX WUI

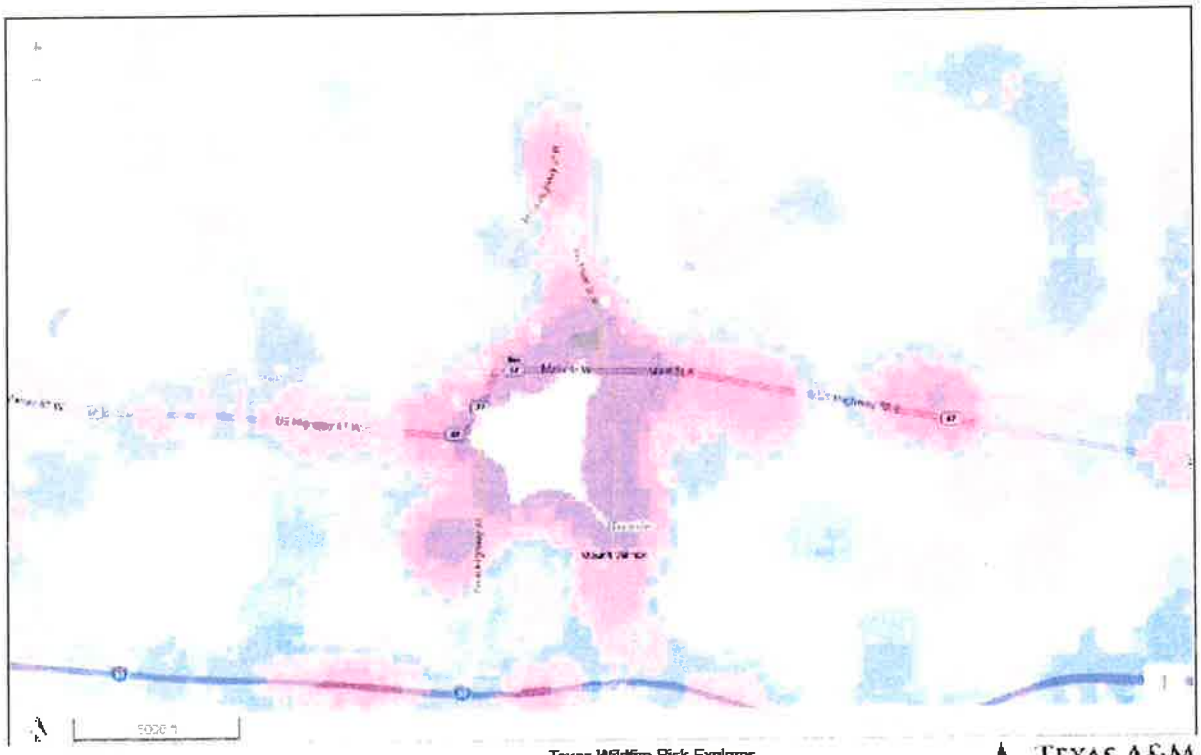


Report Created:
7/27/2022 - 9:36:30 AM

Texas Wildfire Risk Explorer
https://wrap.texaswildfirerisk.com

TEXAS A&M FOREST SERVICE

Mt. Vernon, TX WUI



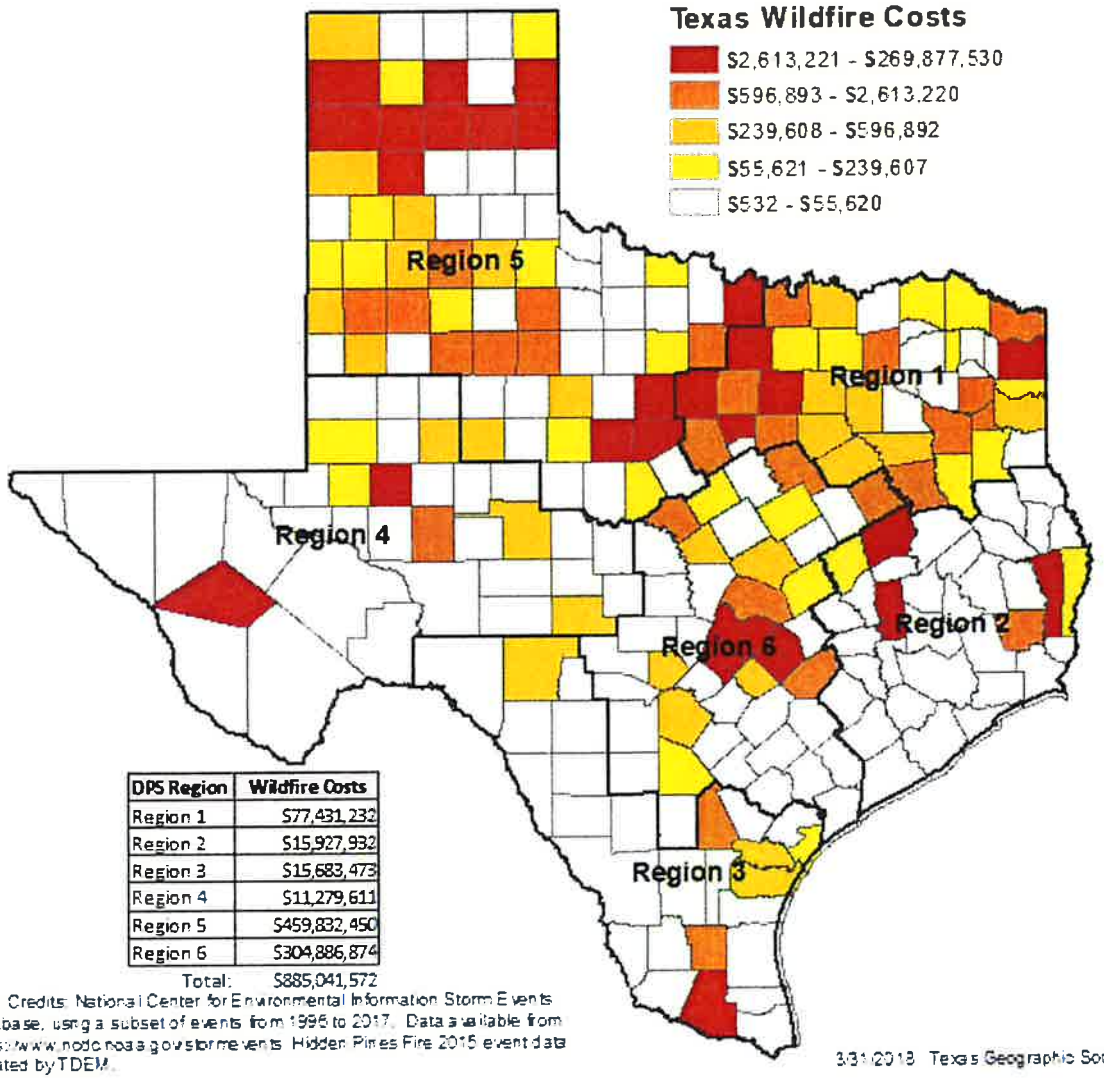
Report Created:
7/27/2022 - 9:34:21 AM

Texas Wildfire Risk Explorer
https://wrap.texaswildfirerisk.com

TEXAS A&M FOREST SERVICE

Historical Dollar Losses

This map illustrates the total county losses (property plus crop losses) from wildfires over the 21-year base period (1996 through 2017). The different colors on the map represent the relative losses between counties within the state; white signifies zero dollars lost. The inset table reports total dollar losses for each region over the 21-year base period.



DPS Region	Wildfire Costs
Region 1	$77,431,232
Region 2	$15,927,932
Region 3	$15,683,473
Region 4	$11,279,611
Region 5	$459,832,450
Region 6	$304,886,874
Total:	$885,041,572

Data Credits: National Center for Environmental Information Storm Events Database, using a subset of events from 1996 to 2017. Data available from https://www.ncdc.noaa.gov/stormevents. Hidden Pines Fire 2015 event data updated by TDEM.

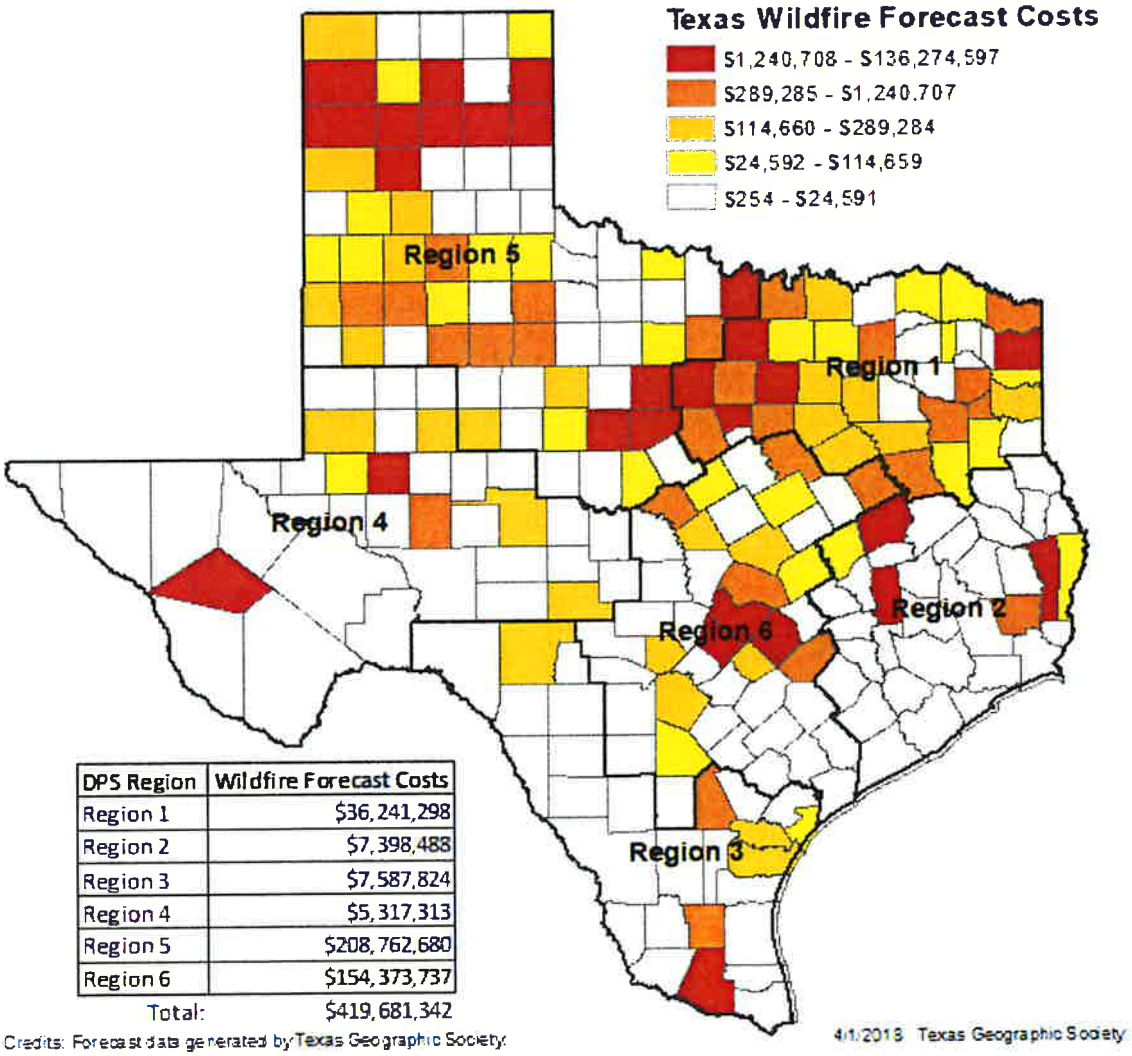
3/31/2018 Texas Geographic Society

Future Risks

Results of the hazard impact forecast for wildfire are presented. Following this is a discussion and summary of risk statewide.

County Dollar Loss Forecast

This map shows the results of the forecast model for 2019-2023 for wildfire dollar losses at the county level. These are based on the locations of impacts in the base period and the likely locations of future losses.



DPS Region	Wildfire Forecast Costs
Region 1	$36,241,298
Region 2	$7,398,488
Region 3	$7,587,824
Region 4	$5,317,313
Region 5	$208,762,680
Region 6	$154,373,737
Total:	$419,681,342

Data Credits: Forecast data generated by Texas Geographic Society

Future Conditions/Land Use

Solar Farms

There will be an increased risk of wildfires in Franklin County within the next five years due to three proposed solar farms being installed in the County. One of the three is planned to be commissioned in NE Franklin County in 2025. The presence of utility-scale, solar generating facilities poses new, and potentially deadly, hazards to the health, safety and property of the residents of Franklin County.

Although solar farm fires are rare, they are extremely destructive. When one of the external electrical cabinets ignites, fires will rapidly spread, with the possibility of causing enormous financial and environmental damage including costly destruction of property and equipment, wildfires, and potential loss of life. This is especially worrying for solar farms located in rural areas with no fire department or emergency response team nearby. (www.firetrace.com)

There are many concerns regarding solar panel safety for first responders when a fire occurs, the main one being the risk of electrical shock. During a fire event, the solar panels and associated wiring will still be active with live electrical current even when the panel has been turned off. This makes suppressing a fire extremely difficult and dangerous. (www.firetrace.com)

Franklin County Fire Departments are un-equipped with the type of PPE and vehicles needed to contain these types of fires. The dangers are such that incorporating these concerns in the 2023 Hazard Mitigation Plan Update is appropriate.

FEMA proposal S76-22 recommended an International Building Code Risk Category IV for all Solar Panel Systems. The International Code Council (ICC) voted to accept the language in S81-22 that specifically listed Photovoltaic (PV) panel systems and elevated PV support structures to be assigned risk categories as follows:

- Ground-mounted PV panel systems serving Group R-3 buildings shall be assigned as Risk Category I.
- Ground-mounted PV panel systems other than those described in Items 1 and 5 shall be assigned as Risk Category II.
- Elevated PV support structures other than those described in Items 4, 5, and 6 shall be assigned as Risk Category II.
- Rooftop-mounted PV panel systems and elevated PV support structures installed on top of buildings shall be assigned a risk category that is the same as the risk category of the building on which they are mounted.

- PV panel systems and elevated PV support structures paired with energy storage systems (ESS) and serving as a dedicated, stand-alone source of backup power for Risk Category IV buildings shall be assigned as Risk Category IV.
- Elevated PV support structures dedicated to the parking of emergency vehicles shall be assigned as Risk Category IV.

Mitigating the effects of wildfires due to solar panels is critical to the safety of Franklin County. Firebreaks within the solar field and switchyards, training for Fire Fighters including appropriate PPE, Zoning Ordinances and Public Awareness Campaigns should be considered to mitigate the effects of possible wildfires.

Franklin County Wildfire Risk					
COMMUNITY	**POTENTIAL IMPACT 45%**	**PROBABLITY 30%**	**Warning 15%**	**Duration 10%**	**RISK**
Franklin Unincorporated	Substantial PRI=4	Highly Likely PRI=4	< 6 hrs. PRI=4	< Week PRI=3	High 3.9
Mt. Vernon	Substantial PRI=4	Unlikely PRI=1	< 6 hrs. PRI=4	< Week PRI=3	Medium 2.85
Cypress Springs Special Utility District	Substantial PRI=4	Unlikely PRI=1	< 6 hrs. PRI=4	< Week PRI=3	Medium 2.85
Franklin County Water District	Substantial PRI=4	Unlikely PRI=1	< 6 hrs. PRI=4	< Week PRI=3	Medium 2.85

FRANKLIN COUNTY CRITICAL FACILITIES

Facility	Franklin County	Mt. Vernon	Cypress Springs Special Utility District	Franklin Co. Water District
City Hall		1		
Fire Station	3	1		
Civic Center				
Govt. Facility		1		
Wastewater plant		1		
Corrections Facility		1		
Hospital		0		
Maintenance Barn		0		
Post Office		1		
Water Tower		1		
Police Station		1		
Sheriff Office		1		
EMS		1		
Public School		1		
Water Treatment Plant		1		
County Seat		1		

All critical facilities are vulnerable to the effects of dam failure.

PAST OCCURANCES OF WILDFIRE IN FRANKLIN COUNTY
(Data from National Climatic Data Center)

August 4, 2011 Ambient afternoon temperatures near 110 degrees, low afternoon relative humidity values near 20 percent and gusty winds of 15 to 20 mph combined with excessive drought conditions resulted in very high fire danger across Franklin County in Northeast Texas. A woodland and grass fire broke out in Franklin County on August 4th near the Midway Cemetery. A total of 1068 acres burned in Franklin County near the Midway Cemetery on CR 2110. All four Franklin County Fire Departments including eight neighboring departments and crews from the Texas Forest Service were called out to battle the blaze. At various times, 46 trucks and equipment were called out including 3 EMS units. Several residents were evacuated. The only structure damaged was a travel trailer.

August 12, 2011 Drought conditions, afternoon temperatures around 105 degrees and relative humidity values around 20 percent resulted in high fire danger across Franklin County on August 12th. A wildfire burned 349 acres of forest 4 miles north of Winnsboro, Texas. Local volunteer fire fighters and the U.S. Forest Service battled the blaze for most of the afternoon and evening. The fire burned a home, a shop and several vehicles.

Major Declarations for Planning Area: Franklin County was a designated area for Public Assistance in the FEMA 4029-DR, Texas Disaster Declaration, September 2011, Texas Wildfires and in the FEMA 4029-DR, Texas Disaster Declaration, July 2011, Texas Wildfires.

FRANKLIN COUNTY WILDFIRE BY ACREAGE 2013-2022

Source: Texas A & M Forest Service

YEAR	ACREAGE
2013	13
2014	1
2015	151
2016	98.5
2017	35
2018	113
2019	29
2020	25
2021	831
2022	19
TOTAL	1,315.5

Location: Due to heavy vegetation and dry conditions wildfire events in Franklin County are possible any time during the year. All of Franklin County and the participating jurisdictions could be affected, depending on where the wildfire started.

Probability: The FEMA National Risk Index lists Franklin Counties risk for wildfire as relatively low. The threat of fires cannot be eliminated but public education and the use of prescribed burns can be used to better manage this hazard in Franklin County and participating jurisdictions. According to the current State Hazard Mitigation Plan, nearly 18 million people (70 percent of the state population) live within the wildland urban interface, the largest at-risk population of any state. By 2050, Texas's average number of days with high wildfire potential is projected to double from 40 to nearly 80 days a year. (reportcard.statesatrisk.org)

Climate conditions continue to grow hotter and drier. If these conditions continue the likelihood of wildfires will worsen. (usgs.gov)

Impact: High winds, high temperatures, dry conditions, and low humidity can increase the potential and severity of a wildfire. Wildfires can spread quickly, affecting large areas rural areas. This type of fire could burn for days destroying structures and lives. Rural areas in Franklin County experience most Wildfires. The table below demonstrates estimated acreage that would be of high risk. See the Loss Estimate Tables on page 27 for further inquiry regarding loss.

Estimated Structure loss at 25%	
Franklin County Unincorporated	$326,756,703
Mt. Vernon	$50,298,153
Cypress Springs SUD	$4,705,150
Franklin County Water District	$377,054,856

Vulnerability: The most vulnerable month for wildfires is January. However, Franklin County experienced wildfire events on August 4th and 12th, 2011. The most significant danger lies in the rural areas of the county where forests and pasture meet. Farm equipment and structures including barns and homes may be destroyed. Because the history of impacts associated with wildfires have been negligible, Cypress Springs Special Utility District and Franklin County Water District have elected to not address this hazard.

Extent: The KDBI Levels of 200 (moderate) to 800 (extreme) are considered when mitigating wildfires. The maps located on pages 91-92 demonstrate the wildfire urban interface. Clearly should a wildfire breakout in the jurisdictions of Franklin County many acres would be in danger.

Summary: Wildfires are more prevalent where counties have seasons of drought and extreme temperatures. Many wildfires ignited in N.E. Texas during the drought of 2011. Rural homes and structures have been threatened by the increased volume and magnitude of these occurrences. The entire planning area of Franklin County and the participating jurisdictions are at risk from wildfire.

SECTION IV

MITIGATION GOALS AND LONG-TERM STRATEGY

Mitigation Plan Goals

The Franklin County Mitigation Action Plan goals describe the direction that Franklin 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.

Plan Update Mitigation Strategy:
The previous goals and actions were never acted on and many of the old actions are no longer valid. 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.

- 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 jurisdictions that would alter vulnerability. Franklin County has experienced less than 1% variation in population since 2010.
- There have been no changes politically or financially that would impact the plan's development.

Franklin County recognizes the importance of dedicated involvement regarding the integration of the plan into existing county and participating jurisdictions plans and budgets and codes. Franklin County has initiated a proactive course of action that includes annual reviews and reports to the Franklin County Commissioners Court, the City Council of Mt. Vernon, and the Board Members of Cypress Springs Special Utility District, and Franklin County Water District.

The presiding Franklin County Judge or his/her appointed representative will maintain a schedule to ensure that the plan is addressed and updated in a timely manner.

The annual meetings will involve the gathering of hazard related data from the previous year and discussion of progress made toward action item implementation.

The HMAP Steering Committee will evaluate the plan to assess if significant changes have occurred in the premises upon which the plan was developed such as the following:

- Changes in data sources and/or methodology used to determine vulnerabilities and loss estimates, in terms of quality and availability.
- Changes in federal or state plans that could affect the continued implementation of any of the mitigation actions.
- The identification of new hazards requiring new mitigation actions.
- Changes in community perception relative to specific hazards.

In addition to these functions, the HMAP Steering Committee will work to educate and involve the public in hazard mitigation activities and to oversee the incorporation of this plan into future planning and public policy documents as these are updated or developed. The incorporation of this plan into other planning instruments will serve as an additional metric for success. This plan will ultimately be evaluated based on implementation of action items, the incorporation of mitigation principles into future public policy, improved public safety, and the overall reduction

of losses for Franklin County and the jurisdictions of Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District.

Method of Prioritization: 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, 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.

Unincorporated Franklin County Mitigation Actions 2017			
HAZARD	**ACTION**	**DISPOSTION**	**EXPLANATION**
FLOOD	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities.	On-going	Continue in Plan Update
FLOOD	Develop and implement the Turn Around, Don't Drown Program	On-going	Continue in Plan Update
TORNADO	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.	On-going	Continue in Plan Update
TORNADO	Develop a program to provide NOAA weather radios to limited-income residents that live-in high-risk areas such as mobile home parks.	On-going	Continue in Plan Update
THUNDERSTORM WIND	Provide a community awareness campaign concerning the risks and consequences of thunderstorm winds.	On-going	Continue in Plan Update
THUNDERSTORM WIND	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities.	On-going	Continue in Plan Update
WINTER STORM	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities.	On-going	Continue in Plan Update
WINTER STORM	Mitigate protecting power lines from the impacts of winter storms by establishing standards for all utilities regarding tree pruning around lines.	On-going	Continue in Plan Update
HAIL	Install hail resistant film on the windows of critical facilities.	On-going	Continue in Plan Update
HAIL	Conduct a workshop for residents about the prevalence of hailstorms and how to protect your home and property form hail damage.	On-going	Continue in Plan Update
DROUGHT	Conduct workshops on conserving water, xeriscaping and managing drought impacts.	On-going	Continue in Plan Update
DROUGHT	Develop and implement a drought contingency plan to include water conservation, building code requirements, and mandatory water rationing.	On-going	Continue in Plan Update
EXTREME HEAT	Provide workshops on how to mitigate infrastructure from the effects of extreme heat.	On-going	Continue in Plan Update
EXTREME HEAT	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.	On-going	Continue in Plan Update
WILDFIRE	Develop Fire Wise Program in rural communities that are at risk.	On-going	Continue in Plan Update
WILDFIRE	Purchase Emergency mobile generators to use with emergency equipment during power outages for critical facilities.	On-going	Continue in Plan Update

Comprehensive Range of Specific Mitigation Actions Tables

The comprehensive range of specific mitigation actions and projects 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 4-7 Years
- Low 8+ Years.

Estimated Cost of Actions	
Low	0-$10,000
Medium	$10,000-$25,000
High	$25,000 +

Unincorporated Franklin County

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

Franklin County Flood 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, public-private partnerships
Estimated Cost	Medium (10-25k)
Responsible Agency	Franklin County EMC
Estimated Completion Time	5 years
Effect on New Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Effect on Existing Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Comments:	Generators keep critical equipment operational during power outages.

Franklin County Flood Action #2	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	Franklin County EMC
Estimated Completion Time	3 years
Effect on New Buildings	N/A
Effect on Existing Buildings	No effects on buildings
Comments:	This program is known to save lives including underserved communities and socially vulnerable populations.

Franklin County Tornado 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)	Franklin County Annual Budget
Estimated Cost	Low (0k-10k)
Responsible Agency	Franklin 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.

Franklin County Tornado Action #2	Develop a program to provide NOAA weather radios to limited-income residents that live-in-high risk areas such as mobile home parks.
Mitigation Goal/Objective	Goal #1: Protect Life and Property/Goal #4: Partnerships and Implementation
Priority	high
Funding Source(s)	County, fund raisers, county business leadership
Estimated Cost	Medium
Responsible Agency	Franklin County Judge
Estimated Completion Time	Three years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Franklin County Thunderstorm Wind Action #1	Provide a community awareness campaign concerning the risks and consequences of thunderstorm winds.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	High
Funding Source(s)	Franklin County Annual Budget
Estimated Cost	Low (0-10k)
Responsible Agency	Franklin County EMC
Estimated Completion Time	3 years
Effect on New Buildings	With the information, when planning a new building, considerations may be given to additional design precautions.
Effect on Existing Buildings	With the information, adding additional reinforcements or materials may help protect existing structures.
Comments:	Educating the Public will help protect life and property of all including socially vulnerable populations.

Franklin County Thunderstorm Wind 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	Franklin County EMC
Estimated Completion Time	5 years
Effect on New Buildings	Building could be protected from sewage contamination and flooding waters.
Effect on Existing Buildings	Buildings could be protected from sewage contamination and flooding waters
Comments:	Generators keep critical equipment operational during power outages.

Franklin County Lightning Action #1	Install lightning arrestors on critical facilities and infrastructure.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA Grant/Franklin County
Estimated Cost	Medium (10K-25K)
Responsible Agency	Franklin County EMC
Estimated Completion Time	5 years
Effect on New Buildings	Protection from lightning damage.
Effect on Existing Buildings	Protection from lightning damage.
Comments:	

Franklin County Lightning Action #2	Educate school children about the dangers of lightning and how to take safety precautions.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	Medium
Funding Source(s)	County
Estimated Cost	Low (0-10K)
Responsible Agency	Fire Chiefs in Franklin County
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	Educating children in school allows for the message to go to a diverse population including underserved communities and the socially vulnerable.

Franklin County Winter Storm 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, In Kind Match
Estimated Cost	Medium (10-25k)
Responsible Agency	Franklin County EMC
Estimated Completion Time	5 years
Effect on New Buildings	During outages, generator power in critical facilities can protect buildings from issues like flooding and raw sewage contamination
Effect on Existing Buildings	During outages, generator power in critical facilities can protect buildings from issues like flooding and raw sewage contamination.
Comments:	Generators keep critical equipment operational during power outages.

Franklin County Winter Storm 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)	Franklin County
Estimated Cost	Medium (10-25k)
Responsible Agency	Franklin County EMC
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Franklin County Hail 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)	Franklin County Annual Budget
Estimated Cost	Low (0-10k)
Responsible Agency	Franklin County Public Works, Public Works Director
Estimated Completion Time	5 years
Effect on New Buildings	Hail resistant film will prevent windows from breaking.
Effect on Existing Buildings	Hail resistant film will prevent windows from breaking.
Comments:	

Franklin County Hail 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)	Franklin County Annual Budget
Estimated Cost	Low (0-10K)
Responsible Agency	Franklin County EMC
Estimated Completion Time	3 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	The whole community could benefit from this workshop.

Franklin County Drought #1	Conduct workshops on conserving water, xeriscaping and managing drought impacts.
Mitigation Goal/Objective	Goal #2: Public Awareness/Goal #3: Natural Systems
Priority	Low
Funding Source(s)	Franklin County Annual Budget
Estimated Cost	Low
Responsible Agency	Franklin County Judge
Estimated Completion Time	2 years and ongoing
Effect on New Buildings	Managing landscape could prevent foundation problems.
Effect on Existing Buildings	Managing landscape could prevent foundation problems.
Comments:	

Franklin County Drought Action #2	Develop and implement a drought contingency plan to include water conservation, building code requirements, and mandatory water rationing.
Mitigation Goal/Objective	Goal #3: Natural Systems/Goal #4: Partnership and Implementation
Priority	Low
Funding Source(s)	Franklin County Annual Budget
Estimated Cost	Low
Responsible Agency	Franklin County Judge
Estimated Completion Time	3 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Franklin County Extreme Heat 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)	Franklin County
Estimated Cost	Low (0-10k)
Responsible Agency	Franklin 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:	All of the community, including underserved and socially vulnerable need information of effects of extreme heat.

Franklin County Extreme Heat 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.
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	Franklin County EMC
Estimated Completion Time	7 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	This action will be more critical as the earth grows warmer.

Franklin County Dam Failure Action #1	Prepare updated high resolution, digitalized maps of dam failure inundation areas
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA/Franklin County Annual Budget
Estimated Cost	Medium (10-25K)
Responsible Agency	Franklin County EMC
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Franklin County Dam Failure Action #2	Adopt ordinances that limit development in area that could be affected by flooding caused by dam failure.
Mitigation Goal/Objective	Goal #4: Partnership and Implementation
Priority	Medium
Funding Source(s)	Franklin County
Estimated Cost	Low (0-10K)
Responsible Agency	Franklin County Judge
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Franklin County Wildfire Action #1	Develop Firewise Program in rural communities that are at risk.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	High
Funding Source(s)	County
Estimated Cost	Low
Responsible Agency	Franklin County VFD/EMC
Estimated Completion Time	3 years
Effect on New Buildings	Implementing Firewise methods could make homes safe from wildfire.
Effect on Existing Buildings	Implementing Firewise methods could make homes safe from wildfire.
Comments:	

Franklin County Wildfire 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	Franklin County EMC
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	Generators keep critical equipment operational during power outages.

Mt. Vernon Actions 2017			
HAZARD	**ACTION**	**DISPOSTION**	**EXPLANATION**
FLOOD	Purchase emergency mobile generators for critical facility use during power outages.	Complete	
FLOOD	Widen ditches to increase volume capacity of flash flood waters	On-going	Continue in Plan Update
TORNADO	Develop and implement the Texas Individual Tornado Safe Room Rebate Program for residential property owners.	On-going	Continue in Plan Update
TORNADO	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.	On-going	Continue in Plan Update
THUNDERSTORM WIND	Purchase emergency mobile generators for critical facility use during power outages.	Complete	
THUNDERSTORM WIND	Provide public workshops and information regarding mitigating homes against thunderstorm winds.	On-going	Continue in Plan Update
WINTER STORM	Purchase back-up generators for water and sewage facilities.	Complete	
WINTER STORM	Conduct workshops regarding how to mitigate your home from damages of winter storms.	On-going	Continue in Plan Update
HAIL	Install hail resistant film on the windows of critical facilities.	On-going	Continue in Plan Update
HAIL	Conduct a workshop for residents about the prevalence of hailstorms and how to protect their home and property from hail damage.	On-going	Continue in Plan Update
DROUGHT	Conduct workshops on conserving water, xeriscaping and managing drought impacts	On-going	Continue in Plan Update
DROUGHT	Develop and implement a drought contingency plan to include water conservation, building code requirements, and mandatory water rationing.	On-going	Continue in Plan Update
EXTREME HEAT	Provide workshops on how to mitigate infrastructure from the effects of extreme heat.	On-going	Continue in Plan Update
EXTREME HEAT	Conduct fan drives for low-income and elderly who cannot afford air conditioning.	On-going	Continue in Plan Update
WILDFIRE	Develop and implement a building vegetation clearance program.	On-going	Continue in Plan Update
WILDFIRE	Conduct a wildfire education program stressing the dangers of trash burning in order to help prevent wildfires.	On-going	Continue in Plan Update

Mt. Vernon

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

Mt. Vernon Flood Action #1	Educate the public on mitigation strategies for flooding.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	Medium
Funding Source(s)	FEMA Grants
Estimated Cost	Low (0-10K)
Responsible Agency	Mt. Vernon City Administrator
Estimated Completion Time	5 years
Effect on New Buildings	Protects structures from flood damage.
Effect on Existing Buildings	Protects structures from flood damage.
Comments:	Educating the public, including the socially vulnerable, about flooding could save lives.

Mt. Vernon Flood 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	Mt. Vernon Public Works Department
Estimated Completion Time	3 years
Effect on New Buildings	This could protect new buildings from flash flooding.
Effect on Existing Buildings	This could protect existing buildings from flash flooding.
Comments:	By widening ditches, especially in poor drainage areas the likelihood of flooding is decreased.

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

Mt. Vernon Tornado 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/family/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	Mt. Vernon 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:	This program will reach all areas including underserved populations.

Mt. Vernon Thunderstorm Winds Action #1	Provide public workshops and information regarding mitigating homes against thunderstorm winds.
Mitigation Goal/Objective	Goal #1: Protect Life and Property/Goal #2: Public Awareness
Priority	Medium
Funding Source(s)	City of Mt. Vernon
Estimated Cost	Low (0-10K)
Responsible Agency	City Fire Department/EMC
Estimated Completion Time	5 years
Effect on New Buildings	Securing property could decrease damage.
Effect on Existing Buildings	Securing property could decrease damage.
Comments:	

Mt. Vernon Thunderstorm Winds Action #2	Prohibit the use of carports and open coverings attached to manufactured homes.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	City of Mt. Vernon
Estimated Cost	Low (0-10K)
Responsible Agency	Mt. Vernon City Administrator
Estimated Completion Time	5 years
Effect on New Buildings	This could prevent the loss of roof in high wind incident.
Effect on Existing Buildings	This could prevent the loss of roof in high wind incident.
Comments:	

Mt. Vernon Lightning Action #1	Educate the public about the dangers of lightning and how to protect homes and property.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	Medium
Funding Source(s)	City of Mt. Vernon
Estimated Cost	Low (0-10K)
Responsible Agency	Mt. Vernon City Administrator
Estimated Completion Time	5 years
Effect on New Buildings	Protection from lightning damage.
Effect on Existing Buildings	Protection from lightning damage.
Comments:	

Mt. Vernon Lightning Action #2	Install surge protection on critical electronic equipment.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	City of Mt. Vernon
Estimated Cost	Low (0-10K)
Responsible Agency	Mt. Vernon City Administrator
Estimated Completion Time	3 years
Effect on New Buildings	Could prevent a voltage spike that could cause a fire.
Effect on Existing Buildings	Could prevent a voltage spike that could cause a fire.
Comments:	

Mt. Vernon Winter Storms Action #1	Adopt the International Building Code (IBC) and International Residential Code (IRC).
Mitigation Goal/Objective	Goal #4: Partnership and Implementation
Priority	Medium
Funding Source(s)	City of Mt. Vernon
Estimated Cost	Low (0-10K)
Responsible Agency	Mt. Vernon City Administrator
Estimated Completion Time	5 years
Effect on New Buildings	Buildings built to code can better withstand natural hazards.
Effect on Existing Buildings	
Comments:	

Mt. Vernon Winter Storms Action #2	Conduct workshops regarding how to mitigate your home from damages of winter storms.
Mitigation Goal/Objective	Goal #2: Public awareness
Priority	High
Funding Source(s)	Mt. Vernon
Estimated Cost	Low (0-10k)
Responsible Agency	Mt. Vernon Fire Dept./ EMC
Estimated Completion Time	3 years
Effect on New Buildings	Making mitigation changes in new buildings, particularly while they are being constructed can protect property from winter storms damage.
Effect on Existing Buildings	Reinforcing and amended existing building construction can protect property from winter storm damage.
Comments:	This workshop will target all areas including the socially vulnerable populations.

Mt. Vernon Hail 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)	Mt. Vernon annual budget
Estimated Cost	Low (0-10k)
Responsible Agency	Mt. Vernon Public Works Director
Estimated Completion Time	5 years
Effect on New Buildings	This action would help protect damage to sensitive equipment from outside elements such as rain, cold and heat.
Effect on Existing Buildings	This action would help protect damage to sensitive equipment from outside elements such as rain, cold and heat.
Comments:	

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

Mt. Vernon Drought Action #1	Conduct workshops on conserving water, xeriscaping and managing drought impacts
Mitigation Goal/Objective	Goal #2: Public Awareness/Goal #3: Natural Systems
Priority	Low
Funding Source(s)	City of Mount Vernon
Estimated Cost	Low
Responsible Agency	Mount Vernon City Administrator
Estimated Completion Time	3 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	Knowledge of conservation ideas could help save water throughout the community.

Mt. Vernon Drought Action #2	Develop and implement a drought contingency plan to include water conservation, building code requirements, and mandatory water rationing.
Mitigation Goal/Objective	Goal #3: Natural Systems/Goal #4: Partnership and Implementation
Priority	Low
Funding Source(s)	City of mt. Vernon
Estimated Cost	Low (0-10k)
Responsible Agency	Mount Vernon City Administrator
Estimated Completion Time	8 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Mt. Vernon Extreme Heat 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)	City of Mt. Vernon
Estimated Cost	Low (0-10k)
Responsible Agency	Mount Vernon 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:	Workshops on how to mitigate infrastructure from the effects of extreme heat could save lives, especially the socially vulnerable.

Mt. Vernon Extreme Heat Action #2	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)	Local business organizations
Estimated Cost	Low (0-10K)
Responsible Agency	Mount Vernon City Administrator
Estimated Completion Time	3 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/a
Comments:	The low-income and elderly could benefit from fans during extreme heat.

Mt. Vernon Dam Failure Action #1	Prepare updated high resolution, digitalized maps of dam failure inundation areas
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA/City of Mt. Vernon
Estimated Cost	Medium (10-25K)
Responsible Agency	Mt. Vernon City Administrator
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Mt. Vernon Dam Failure Action #2	Adopt ordinances that limit development in area that could be affected by flooding caused by dam failure.
Mitigation Goal/Objective	Goal #4: Partnership and Implementation
Priority	Medium
Funding Source(s)	City of Mt. Vernon
Estimated Cost	Low (0-10K)
Responsible Agency	Mt. Vernon City Administrator
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Mt. Vernon Wildfire Action #1	Develop and implement a building vegetation clearance program.
Mitigation Goal/Objective	Goal #1: Protect Life and Property/Goal #4: Partnership and Implementation
Priority	Medium
Funding Source(s)	City of Mt. Vernon
Estimated Cost	Medium (10-25k)
Responsible Agency	Mount Vernon Public Works Director
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:	

Mt. Vernon Wildfire 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 Mt. Vernon
Estimated Cost	Low (0-10k)
Responsible Agency	Mt. Vernon 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 existing building
Comments:	Programs such as this can empower all citizens to take precautionary action.

Franklin County Water District was not a part of the 2017 Hazard Mitigation Plan, therefore, have no actions to review for the update.

Franklin County Water District

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

Franklin County Water District Flood Action #1	Educate public on mitigation strategies for flooding. This includes the district making the Emergency Action Plan (EAP) publicly available and providing access to real-time reservoir level and precipitation data, as well as posting news and information about the lake and dam on the district's website.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	Medium
Funding Source(s)	Franklin County Water District
Estimated Cost	Low (0-10k)
Responsible Agency	General Manager Franklin County Water District
Estimated Completion Time	4 years
Effect on New Buildings	N/A
Effect on Existing Buildings	This could protect existing homes from flooding.
Comments:	

Franklin County Water District Flood Action #2	Enforce existing District building requirements that mitigate the effects of flooding on improvements. All lessees (waterfront homeowners) are subject to the District Rules and Regulations under penalty of breach of contract, i.e., the lease with the district. This allows the district to require and enforce the building requirements.
Mitigation Goal/Objective	Goal #4: Partnership and Implementation
Priority	Medium
Funding Source(s)	Franklin County Water District
Estimated Cost	Low (0-10k)
Responsible Agency	General Manager Franklin County Water District
Estimated Completion Time	4 years
Effect on New Buildings	Enforcing building requirements will protect new buildings from floods.
Effect on Existing Buildings	Enforcing building requirements will protect existing buildings from floods.
Comments:	

Franklin County Water District Drought Action #1	Implement the District Water Conservation and Drought Contingency Plan.
Mitigation Goal/Objective	Goal #3: Natural Systems/Goal #4: Partnership and Implementation
Priority	Medium
Funding Source(s)	Franklin County Water District
Estimated Cost	Low (0-10k)
Responsible Agency	General Manager Franklin County Water District
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Franklin County Water District Drought Action #2	Educate residents on water-saving actions to reduce the demand on supply during a drought event.
Mitigation Goal/Objective	Goal #2: Public Awareness/Goal #4 Partnership and Implementation
Priority	Medium
Funding Source(s)	Franklin County Water District
Estimated Cost	Low (0-10k)
Responsible Agency	General Manager Franklin County Water District
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Franklin County Water District Drought Action #3	Provide public access to real-time reservoir level and precipitation data.
Mitigation Goal/Objective	Goal #2: Public Awareness/Goal #4 Partnership and Implementation
Priority	Medium
Funding Source(s)	Franklin County Water District
Estimated Cost	Low (0-10k)
Responsible Agency	General Manager Franklin County Water District
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

Franklin County Water District Dam Failure Action #1	Implement the District EAP regarding dam failure.
Mitigation Goal/Objective	Goal #1: Protect Life and Property/Goal #4: Partnership and Implementation
Priority	Medium
Funding Source(s)	Franklin County Water District
Estimated Cost	Low (0-10k)
Responsible Agency	Manager Franklin County Water District
Estimated Completion Time	4 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	The district has recently made significant updates to the EAP including revised inundation maps with parcel and structure data for the 6 impacted counties, re-structuring the EAP format based on the TCEQ's most recent EAP template and working with representatives from Emergency Management and TCEQ during an in-person EAP Tabletop Exercise to simulate a hypothetical dam safety incident.

Franklin County Water District Dam Failure Action #2	Modernize and reinforce the dam structure to meet current TCEQ requirements.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	High
Funding Source(s)	Franklin County Water District/FEMA Grant/Other Grants
Estimated Cost	High ($25k +)
Responsible Agency	Manager Franklin County Water District
Estimated Completion Time	2 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	The district has performed a detailed geotechnical and geologic investigation program to collect additional subsurface data about the embankment and its foundation to inform dam safety decisions. The district has maintained close communication with TCEQ during the rehabilitation design regarding exploration data and design concepts proposed to address the current deficiencies.

Franklin County Water Districts only chose to include Flood, Drought and Dam Failure in their plan, therefore only have actions for those hazards.

Franklin County Water District was not a part of the 2017 Hazard Mitigation Plan, therefore, have no actions to review for the update.

Cypress Springs Special Utility District (CSSUD)

NOTE: All *Cypress Springs Special Utility District projects are subject to availability of federal and local funding as well as availability of local staff to administer the project.*

CSSUD Flood 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, District Budget
Estimated Cost	Medium (10-25k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Effect on Existing Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Comments:	Generators keep critical equipment operational during power outages.

CSSUD Flood Action #2	Educate customers on mitigation strategies for flooding.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	Medium
Funding Source(s)	District Budget
Estimated Cost	Low (0-10K)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	Knowledge on mitigating flood will save homes from flood.
Effect on Existing Buildings	Knowledge on mitigating flood will save homes from flood.
Comments:	Educating all customers will reach a diverse population including the underserved and socially vulnerable.

CSSUD Tornado 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, District Budget
Estimated Cost	Medium (10-25k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Effect on Existing Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Comments:	Generators keep critical equipment operational during power outages.

CSSUD Tornado Action #2	Implement a warning siren system.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA Grant, District Budget
Estimated Cost	High (25k+)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

CSSUD Thunderstorm Winds Action #1	Implement a program to identify, inspect and manage hazardous trees.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA Grant, District Budget
Estimated Cost	Medium (10-25k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

CSSUD Thunderstorm Winds 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, District Budget
Estimated Cost	Medium (10-25k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Effect on Existing Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Comments:	Generators keep critical equipment operational during power outages.

CSSUD Lightning Action #1	Install lightning arrestors on critical facilities and infrastructure.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA Grant, District Budget
Estimated Cost	Medium (10K-25K)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	Protection from lightning damage.
Effect on Existing Buildings	Protection from lightning damage.
Comments:	

CSSUD Lightning Action #2	Educate the customers about the dangers of lightning and how to protect homes and property.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	Medium
Funding Source(s)	District Budget
Estimated Cost	Low (0-10K)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	Mitigating lightning could prevent new buildings from damage.
Effect on Existing Buildings	Mitigating lightning could prevent existing buildings from damage.
Comments:	Education to all customers including socially vulnerable and underserved populations.

CSSUD Winter Storms Action #1	Purchase public alert/warning systems (NOAA "All Hazards" radios) for locations throughout the district.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA Grant, District Budget
Estimated Cost	Medium (10K-25K)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

CSSUD Winter Storms 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, District Budget
Estimated Cost	Medium (10-25k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Effect on Existing Buildings	During outages, generator power in critical facilities can protect new buildings from issues like flooding and raw sewage contamination.
Comments:	Generators keep critical equipment operational during power outages.

CSSUD Hail Action #1	Inform customers about the prevalence of hailstorms and how to protect homes and property from hail damage.
Mitigation Goal/Objective	Goal #1: Protect Life and Property/Goal #2: Public Awareness
Priority	Medium
Funding Source(s)	District Budget
Estimated Cost	Low (0-10k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	3 years
Effect on New Buildings	Damage to windows and roofs could be prevented.
Effect on Existing Buildings	Damage to windows and rooks could be prevented.
Comments:	Public awareness and education can minimize loss and protect lives by giving citizens the tools needed to act.

CSSUD Hail Action #2	Install hail resistant film on the windows in CSSUD.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA Grant, District budget
Estimated Cost	Low (0-10k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	Protect windows from breaking.
Effect on Existing Buildings	Protect windows from breaking.
Comments:	

CSSUD Drought Action #1	Develop and Implement policy to restrict the use of public water resources for non-essential usage, such as landscaping, washing cars, filling swimming pools, etc. during a drought.
Mitigation Goal/Objective	Goal #2: Public Awareness/Goal #4 Partnership and Implementation
Priority	Medium
Funding Source(s)	District Budget
Estimated Cost	Low (0-10k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

CSSUD Drought Action #2	Implement a drought emergency plan.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	District Budget
Estimated Cost	Medium (10-25k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	2-5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

CSSUD Extreme Heat Action #1	Provide Shade structures in common public areas.
Mitigation Goal/Objective	Goal #1: Protect Life and Property
Priority	Medium
Funding Source(s)	FEMA Grant, District Budget
Estimated Cost	Medium (10-25k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	5 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	

CSSUD Extreme Heat Action #2	Educate customers regarding the dangers of extreme heat and steps they can take to protect themselves.
Mitigation Goal/Objective	Goal #2: Public Awareness
Priority	Low
Funding Source(s)	District Budget
Estimated Cost	Low (0-10k)
Responsible Agency	Manager Cypress Springs Special Utility District
Estimated Completion Time	8 years
Effect on New Buildings	N/A
Effect on Existing Buildings	N/A
Comments:	Educating all customers including the underserved communities and socially vulnerable populations could prevent heat related illness.

Cypress Springs Special Utility District only chose to include Flood, Tornado, Thunderstorm Winds, Lightning, Winter Storm, Hailstorm, Drought, and Extreme Heat in their plan, therefore only have actions for those hazards.

SECTION V

Monitoring, Implementation, Evaluating, Updating and Integration

Franklin 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. Franklin 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 Franklin 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 Franklin County Commissioners will be responsible for adopting the Franklin 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 Franklin 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, Franklin County, Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District will formally adopt it and gain eligibility for Hazard Mitigation Grant Program funds.

Monitoring

To prevent issues regarding meeting the goals of The Franklin 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.

Annually near the anniversary of the plan's approval, the Hazard Mitigation Committee Members will meet to 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.

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 expiration date.

Evaluation

During the annual meeting to review the Hazard Mitigation Action Plan, committee members will review the progress of each action for each community to assess if the action is being completed in a timely fashion and if additional resources need to be directed to complete the actions. Worksheet 9: Action Monitoring Form, from the FEMA Local Mitigation Planning Handbook May 2023, will be completed to evaluate progress towards the completion of the Mitigation Actions. Evaluating 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.

Implementation

The Franklin 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. While the hazard mitigation team members have not yet incorporated the hazard mitigation strategies into other plans and codes, they plan to do so during this next update period. 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 Franklin County HMAP will be incorporated into a variety of new and existing planning mechanisms for Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District and the 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.

Updating

Preparation for the Five-Year Plan Update will begin no later than 1 year prior to the plan's expiration 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 members 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, city hall, and the administrative offices of Cypress Springs Special Utility District, and Franklin County Water District. 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 department responsible for keeping track of public comments on the Plan.

Franklin County is committed to supporting the cities, communities, and other jurisdictions in the planning area as they implement their mitigation plans. Franklin 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 Franklin 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

Unincorporated Franklin County, population 10,359. Franklin 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. International building codes are in place and enforced. Unincorporated Franklin 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, Franklin County should establish a team to develop public-private initiatives addressing disaster related issues.

Mt. Vernon, population 2,491. Mt. Vernon 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. Mt. Vernon 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 Mt. Vernon 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.

Franklin County Water District: Franklin County Water District has General Manager. International building codes are in place and enforced. Franklin County Water District will integrate actions and recommendations of the mitigation plan into their Policy Documents and the General Manager will propose these actions at the monthly Board of Directors Meeting. The President of the Board will sign this into actions after a majority vote. To improve and expand capabilities, Franklin County Water District 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.

Cypress Springs Special Utility District: Cypress Springs Special Utility District has A General Manager. International building codes are in place and enforced. Cypress Springs Special Utility District will integrate actions and recommendations of the mitigation plan into their Policy Documents and the General Manager will propose these actions at the monthly Board of Directors Meeting. The Board President will sign this into actions after a majority vote. To improve and expand capabilities, Cypress Springs Special Utility District 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.

RESOLUTION

Franklin County

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District recognize their vulnerability and the many potential hazards shared by all residents; and

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District each have recognized the need to prepare a Five-year Updated Mitigation Action Plan; and

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District have decided to jointly prepare one Five-year Updated Mitigation Action Plan.

THEREFORE, BE IT RESOLVED that the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District hereby jointly adopt and approve said Five-year Updated Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District shall mutually appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Updated and Revised Mitigation Action Plan including its review and maintenance, for the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District in accordance with this resolution.

RESOLVED THIS _____ DAY OF _____, 2023

_____

County Judge, Franklin County, Texas

ATTEST _____

County Clerk

RESOLUTION

Mt. Vernon

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District recognize their vulnerability and the many potential hazards shared by all residents; and

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District each have recognized the need to prepare a Five-year Updated Mitigation Action Plan; and

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District have decided to jointly prepare one Five-year Updated Mitigation Action Plan.

THEREFORE, BE IT RESOLVED that the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District hereby jointly adopt and approve said Five-year Updated Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District shall mutually appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Updated and Revised Mitigation Action Plan including its review and maintenance, for the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District in accordance with this resolution.

RESOLVED THIS _____ DAY OF _____, 2023

_____

Mayor, Mt. Vernon, Texas

ATTEST _____

City Secretary

RESOLUTION

Franklin County Water District

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District recognize their vulnerability and the many potential hazards shared by all residents; and

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District each have recognized the need to prepare a Five-year Updated Mitigation Action Plan; and

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District have decided to jointly prepare one Five-year Updated Mitigation Action Plan.

THEREFORE, BE IT RESOLVED that the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District hereby jointly adopt and approve said Five-year Updated Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District shall mutually appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Updated and Revised Mitigation Action Plan including its review and maintenance, for the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District in accordance with this resolution.

RESOLVED THIS _____ DAY OF _____, 2023

_____

Franklin County Water District

ATTEST _____

RESOLUTION

Cypress Springs Special Utility District

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District recognize their vulnerability and the many potential hazards shared by all residents; and

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District each have recognized the need to prepare a Five-year Updated Mitigation Action Plan; and

WHEREAS, the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District have decided to jointly prepare one Five-year Updated Mitigation Action Plan.

THEREFORE, BE IT RESOLVED that the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District hereby jointly adopt and approve said Five-year Updated Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District shall mutually appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Updated and Revised Mitigation Action Plan including its review and maintenance, for the County of Franklin, the City Mt. Vernon, Cypress Springs Special Utility District, and Franklin County Water District in accordance with this resolution.

RESOLVED THIS _____ DAY OF _____, 2023

_____

Cypress Springs Special Utility District

ATTEST _____