

# Ellis County Hazard Mitigation Plan



North Central Texas  
Council of Governments

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# Executive Summary

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We cannot control when or where a tornado or other natural hazard will strike, but we can save lives and reduce property damage by understanding the risks and taking action to address those risks. In the process, we can increase resilience in our community, environment, and economy. Participating jurisdictions in the Ellis County Hazard Mitigation Plan (HMP) are dedicated to the protection of local citizens and their property, and to the improvement of the quality of life for all residents.

Mitigation has been defined as “sustained action to reduce or eliminate long-term risk to human life and property from natural, human-caused, and technological hazards.”<sup>1</sup> It is fundamentally a loss-prevention function characterized by planned, long-term alteration of the built environment to ensure resilience against natural and human-caused hazards. This loss-prevention function has been illustrated by the Multi-Hazard Mitigation Council study of the Federal Emergency Management Agency (FEMA) mitigation projects, which shows that for every dollar invested in mitigation, six dollars of disaster losses were avoided.<sup>2</sup>

Mitigation should form the foundation of all emergency management agency’s plans and procedures. Emergency management agencies should adopt mitigation practices to reduce, minimize, or eliminate hazards in their community. The Ellis County Hazard Mitigation Plan identifies the hazards faced by participating jurisdictions, vulnerabilities to these hazards, and mitigation strategies for the future. The plan fulfills the requirements of the Federal Disaster Mitigation Act as administered by the Texas Division of Emergency Management (TDEM) and the Federal Emergency Management Agency (FEMA).

This plan is not legally binding but instead is a tool for the jurisdiction to use to become more resilient to natural hazards. Mitigation actions will be implemented as capabilities and funding allow.

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<sup>1</sup> State of Texas Mitigation Handbook, page 1-1.

<sup>2</sup> Natural Hazard Mitigation Saves: 2017 Interim Report, page 1.

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# Common Acronyms

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**EMC**- Emergency Management Coordinator

**EOC**- Emergency Operations Center

**FEMA**- Federal Emergency Management Agency

**HMP**- Hazard Mitigation Plan

**HMPT**- Hazard Mitigation Planning Team

**LPT**- Local Planning Team

**N/A**- Not Applicable

**NCEI**- National Centers for Environmental Information

**NCTCOG**- North Central Texas Council of Governments

**NFIP**- National Flood Insurance Program

**NFPA**- National Fire Protection Association

**NWS**- National Weather Service

**OWS**- Outdoor Warning Siren

**RLP**- Repetitive Loss Properties

**SRLP**- Severe Repetitive Loss Properties

**TDEM**- Texas Division of Emergency Management

**TFS**- Texas A&M Forest Service

**TPW**- Texas Parks & Wildlife Department

**TxDOT**- Texas Department of Transportation

**UTA**- University of Texas at Arlington

**WUI**- Wildland-Urban Interface

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# Chapter 1: Introduction

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## 1.1 Overview

The Ellis County Hazard Mitigation Plan (HMP) was previously referred to as the Hazard Mitigation Action Plan and fulfills the requirements of the Disaster Mitigation Act of 2000 (DMA 2000), which is administered by the Federal Emergency Management Agency (FEMA). The Disaster Mitigation Act provides federal assistance to state and local emergency management entities to mitigate the effects of disasters. The HMP also encourages cooperation among various organizations across political subdivisions.

This HMP is an update of the 2015 FEMA-approved HMP. With each update, new challenges are identified, new strategies proposed, and when incorporated, the updated plan grows in complexity, but not necessarily in utility.

This HMP is the result of two years of study, data collection, analysis, and community feedback. Representatives and citizens from participating jurisdictions attended public meetings to discuss the hazards their communities face and the vulnerabilities those hazards present.

All participants involved in this plan understand the benefits of developing and implementing mitigation plans and strategies. Elected officials, public safety organizations, planners, and many others have worked together to develop and implement this HMP, displaying that they have the vision to implement mitigation practices and therefore reduce the loss of life and property in their communities.

There is also understanding that the participating jurisdictions in this HMP are not liable to completing the actions they identified in their mitigation strategy. The actions are suggestions, and the jurisdictions will strive to implement the actions as fundings, staffing, and time allows.

Information was collected up to 2021.

### *Changes Since Last Plan*

Question	Answer
➤ Have priorities changed since the last mitigation plan? If so, how?	No
➤ Are there any changes in development? * If so, please describe.	There has been a major increase in development as the population increases.
➤ How has your level of vulnerability changed since the last mitigation plan, if at all?	Increase in population, businesses, and commuters

*\*Changes in development* means recent development (for example, construction completed since the last plan was approved), potential development (for example, development planned or under consideration by the jurisdiction), or conditions that may affect the risks and vulnerabilities of the jurisdictions (for example, climate variability, declining populations or projected increases in population, or foreclosures). Not all development will affect a jurisdiction’s vulnerability.



## 1.2 Authority

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by the Disaster Mitigation Act of 2000, provides the legal basis for state, tribal, and local governments to undertake risk-based approaches to reducing natural hazard risks through mitigation planning. Specifically, the Stafford Act requires state, tribal, and local governments to develop and adopt FEMA-approved hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance.

The Stafford Act authorizes the following grant programs:

- Hazard Mitigation Grant Program (HMGP), which helps communities implement hazard mitigation measures following a Presidential major disaster declaration. This program also funds development and update of hazard mitigation plans.
- Pre-Disaster Mitigation Grant Program (PDM), which awards planning and project grants to assist states, territories, federally-recognized tribes, and local communities in implementing sustained pre-disaster natural hazard mitigation programs. Such efforts may include development or update of hazard mitigation plans.
- Public Assistance Grant Program (PA), which provides assistance to state, tribal, and local governments, and certain types of private nonprofit organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the President.
- Fire Management Assistance Grant Program (FMAG), which provides assistance to state, tribal, and local governments for the mitigation, management, and control of fires on publicly or privately-owned forests or grasslands that threaten such destruction as would constitute a major disaster.

Title 44, Chapter 1, Part 201 (44 CFR Part 201) of the Code of Federal Regulations (CFR) contains requirements and procedures to implement the hazard mitigation planning provisions of the Stafford Act.

The purpose of the Stafford Act, as amended by the Disaster Mitigation Act of 2000, is “to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters.” Chapter 322 of the act specifically addresses mitigation planning and requires state and local governments to prepare multi-hazard mitigation plans as a precondition for receiving FEMA mitigation grants.

This Ellis County Hazard Mitigation Plan was developed by the Ellis County Hazard Mitigation Planning Team (HMPT) under the direction and guidance of the North Central Texas Council of Governments (NCTCOG) Emergency Preparedness Department. The plan represents collective efforts of citizens, elected and appointed government officials, business leaders, non-profit organizations, and other stakeholders. This plan, and updating the plan, and timely future updates of this plan, will allow Ellis County and participating jurisdictions to comply with the Disaster Mitigation Act of 2000 and its implementation regulations, 44 CFR Part 201.6, thus resulting in eligibility to apply for federal aid for technical assistance and post-disaster hazard mitigation project funding. The update will also prioritize potential risks and vulnerabilities in an effort to minimize the effects of disasters in the participating communities.

### 1.3 Scope

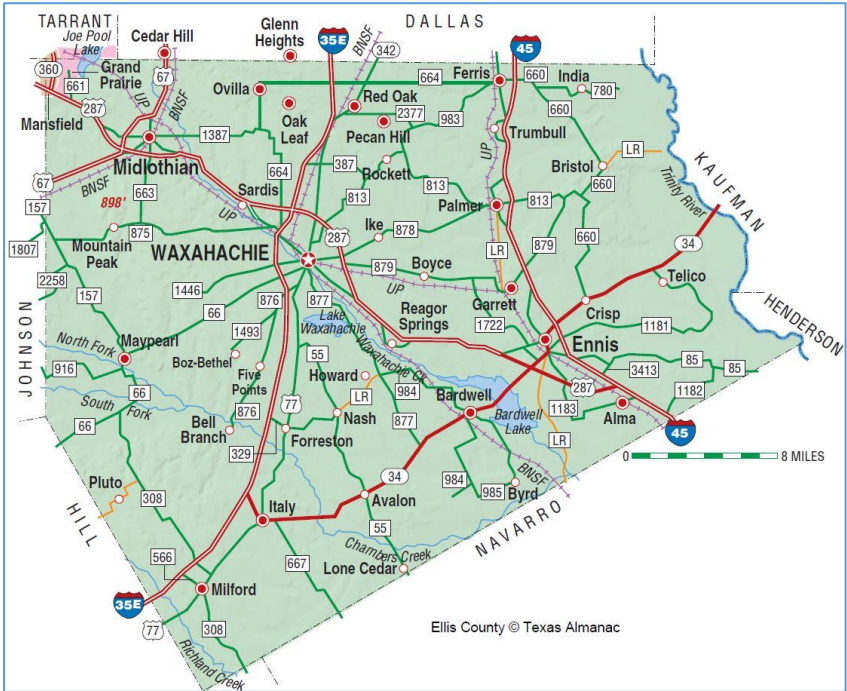
This plan identifies natural hazards that could threaten life and property in the communities. The scope of this plan includes both short and long-term mitigation strategies, implementation, strategies, and possible sources of project funding to mitigate identified hazards.

The planning area for this plan is for Ellis County, Texas (marked in red on the Texas map) and includes the following jurisdictions:

- City of Alma
- City of Bardwell
- City of Ennis
- City of Ferris
- City of Garrett
- City of Italy
- City of Maypearl
- City of Midlothian
- City of Milford
- City of Oak Leaf
- City of Ovilla
- City of Palmer
- City of Red Oak
- City of Waxahachie
- Unincorporated Ellis County



All jurisdictions were participants in the 2015 plan. The following map reflects a more detailed look of the county.



Source: Texas State Historical Association

## 1.4 Purpose

This HMP is intended to enhance and complement federal and state recommendations for the mitigation of natural hazards in the following ways:

- Substantially reduce the risk of loss of life, injuries, and hardship from the destruction of natural and technological disasters.
- Improve public awareness of the need for individual preparedness and building safer, more disaster resilient communities.
- Develop strategies for long-term community sustainability during community disasters.
- Develop governmental and business continuity plans that will continue essential private sector and governmental operations during disasters.

Ellis County is susceptible to a number of different natural hazards that have potential to cause property loss, loss of life, economic hardship, and threats to public health and safety. Occurrence of natural disasters cannot be prevented; however, their impact on people and property can be lessened through hazard mitigation measures.

Mitigation planning is imperative to lessen the impact of disasters in Ellis County. This plan is an excellent method by which to organize Ellis County's mitigation strategies. The implementation of the plan and its components is vital to preparing a community that is resilient to the effects of a disaster. The implementation of this HMP can reduce loss of life and property and allow the participating communities to operate with minimal disruption of vital services to citizens. This HMP provides a risk assessment of the hazards Ellis County is exposed to and puts forth several mitigation goals and objectives that are based on that risk assessment.

## 1.5 Mitigation Goals

The goals of the participants' mitigation strategy are to protect life and reduce bodily harm from natural hazards, and to lessen the impacts of natural hazards on property and the community through hazard mitigation. These goals are the basis of this plan and summarize what the Ellis County Hazard Mitigation Planning Team will accomplish by implementing this plan.

## 1.6 Plan Organization

This Ellis County HMP is organized into five chapters which satisfy the mitigation requirements in 44 CFR Part 201.6, with four appendices providing the required supporting documentation.

### **Chapter 1: Introduction**

Describes the purpose of the Ellis County Hazard Mitigation Plan and introduces the mitigation planning process.

### **Chapter 2: Planning Process**

Describes the planning process and organization for each participating jurisdiction, satisfying requirements 201.6(c)(1), 201.6(b)(2), 201.6(b)(1), 201.6(b)(3), 201.6(c)(4)(i), 201.6(c)(4)(ii), and 201.6(c)(4)(iii).

### **Chapter 3: Hazard Identification and Risk Assessment**

Describes the hazards identified, location of hazards, previous events, and jurisdictional profiles, satisfying requirements 201.6(c)(2)(i) and 201.6(c)(2)(ii).

#### **Chapter 4: Mitigation Strategy**

Reflects on the mitigation actions previously identified and examines the ability of Ellis County and participating jurisdictions to implement and manage a comprehensive mitigation strategy, satisfying requirements 201.6(c)(1), 201.6(c)(3)(i), 201.6(c)(3)(ii), 201.6(c)(3)(iii), 201.6(c)(3)(iv), 201.6(c)(4)(ii), and 201.6(b)(3).

#### **Chapter 5: Conclusion**

#### **Appendix A: Maps & Tables**

#### **Appendix B: Capabilities Assessment**

#### **Appendix C: NCTCOG Programs**

#### **Appendix D: Public Documents**

#### **Appendix E: Local Planning Teams**

## 1.7 Ellis County Hazard Mitigation Strategy Maintenance Process

The Ellis County Hazard Mitigation Planning Team, consisting of a representative from each participating jurisdiction, will continue to collaborate as a planning group in coordination with Ellis County Office of Emergency Management. Primary contact will be through emails and conference calls, with strategy meetings to occur at least annually. The points of contact for the county and jurisdictions will jointly lead the plan maintenance and update process by:

- Assisting jurisdictional Local Planning Teams in updating their individual contributions to the county Hazard Mitigation Plan.
- Assisting interested Local Planning Teams that would like to begin their mitigation planning process.
- Facilitating Ellis County HMP meetings and disseminating information.
- Collaborating on data collections and record keeping.
- Requesting updates and status reports on planning mechanisms.
- Requesting updates and status reports on mitigation action projects.
- Assisting jurisdictions with mitigation grants.
- Assisting jurisdictions with implementing mitigation goals and action projects.
- Providing mitigation training opportunities.
- Maintaining documentation of local adoption resolutions for the Ellis County Hazard Mitigation Plan.

## 1.8 Ellis County Hazard Mitigation Plan Adoption

Once the Ellis County Hazard Mitigation Plan has received FEMA “Approved Pending Local Adoption” each participating jurisdiction will take the Ellis County HMP to their Commissioners Court or city councils for final public comment and local adoption. A copy of the resolution will be inserted into the Ellis County HMP and held on file at the North Central Texas Council of Governments.

It is important to ensure that all jurisdictions within the county have adopted the Hazard Mitigation Plan, to provide transparency and accountability, the jurisdictions will provide the proper documentation demonstrating that the plan has been officially adopted by the county. This documentation will include minutes from meetings where the plan was discussed and adopted, as well as any resolutions or ordinances passed by the governing body. Having this documentation in place will help to ensure that the plan is being implemented and followed effectively.

# Chapter 2: Planning Process

Requirement	
§201.6(b)	An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:
§201.6(b)(1)	An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
§201.6(b)(2)	An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
§201.6(b)(3)	Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
§201.6(c)(1)	[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.
§201.6(c)(4)(i)	[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle
§201.6(c)(4)(iii)	[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

## 2.1 Collaborative Process

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. The meetings were advertised with notices in public places and city websites and social media pages.

Each participating jurisdiction gathered their information using a Local Planning Team (LTP), comprised of local staff that could contribute to development of this mitigation plan. The leaders of each of these LPT's comprised the Ellis County Hazard Mitigation Planning Team (HMPT) and other relevant agencies. The HMPT met regularly with the North Central Texas Council of Governments in order to submit individual assessments and data into one multi-jurisdictional mitigation plan.

Stakeholders were invited to participate, via email, by participating jurisdictions.

The North Central Texas Council of Governments was responsible for plan facilitation and coordination with Ellis County HMPT members and stakeholders throughout the process.

### 2.1.1 Points of Contacts

The following are members of the Ellis County Hazard Mitigation Planning Team (HMPT). These HMPT members were also the point(s) of contact for their respective jurisdiction during this plan update.

## Ellis County HMPT Members

Jurisdiction	Job Title	Role in the HMPT
Alma	City Secretary	Jurisdictional information and LPT Lead
Bardwell	Emergency Management Coordinator	Jurisdictional information and LPT Lead
Ennis	City Secretary	Jurisdictional information and LPT Lead
Ferris	City Secretary	Jurisdictional information and LPT Lead
Garrett	City Secretary	Jurisdictional information and LPT Lead
Italy	City Secretary	Jurisdictional information and LPT Lead
Maypearl	City Secretary	Jurisdictional information and HMPT Lead
Midlothian	Emergency Management Coordinator	Jurisdictional information and LPT Lead
Milford	Emergency Management Coordinator	Jurisdictional information and LPT Lead
Oak Leaf	City Secretary	Jurisdictional information and LPT Lead
Ovilla	Emergency Management Coordinator	Jurisdictional information and LPT Lead
Palmer	City Secretary	Jurisdictional information and LPT Lead
Red Oak	Fire Marshall	Jurisdictional information and LPT Lead
Waxahachie	Emergency Management Coordinator	Jurisdictional information and LPT Lead
Ellis County Unincorporated	Emergency Management Specialist	Jurisdictional information and LPT Lead

Each HMPT member led a Local Planning Team (LPT) in their respective jurisdictions. The LPT members are listed in Appendix E.

### 2.1.2 Stakeholders

Stakeholders were invited to participate in the planning process, via email, and included local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, and neighboring communities.

#### Stakeholders

Organization Represented	Position
Kaufman County	Emergency Management Coordinator

Organization Represented	Position
Navarro County	Emergency Management Coordinator
Dallas County	Emergency Management Coordinator
Tarrant County	Emergency Management Coordinator
U.S. Army Corps of Engineers	Director – Civil Works
Texas A&M Forest Service	WUI Specialist
Independent School Districts of Participating Jurisdictions	Superintendents
Texas Department of Transportation	Emergency Operations
Utility Providers	Emergency Operations
Local Emergency Planning Committee	Emergency Management Coordinator
Texas Division of Emergency Management	District Coordinator, Field Response
Texas Division of Emergency Management	Hazard Mitigation Planner
State Fire Marshal’s Office	District 6, Inspector
National Weather Service – Fort Worth	Warning & Coordination Meteorologist
NCTCOG’s Emergency Preparedness Planning Council	Chair
NCTCOG’s Regional Emergency Preparedness Advisory Council	Chair
Local City Councils	Local elected officials
Brazos River Authority	Project Manager

### 2.1.3 Public Involvement

During the development of this hazard mitigation plan, COVID-19 safety protocols were in affect and public meetings were discouraged. Therefore, the team decided to distribute a mitigation survey to collect feedback from the public. The link to the survey was share via social media platforms and jurisdiction’s official websites.

The supporting documentation, advertisements, and details of this survey, along with a summary of the responses, are documented within Appendix D of this HMP. The responses from the survey were used by the Local Planning Teams to influence decision making on their mitigation actions.

Public participation will remain an active component of this plan, even after adoption, to ensure citizens understand what the community is doing on their behalf, and to provide a chance for input on community vulnerabilities and mitigation activities that will inform the plan’s content. Public involvement is also an opportunity to educate the public about hazards and risks in the community, types of activities to mitigate those risks, and how these activities impact them. Involvement will be sought in a multitude of ways, including but not limited to, periodic presentations on the plan’s progress to elected officials, schools, or other community groups; annual questionnaires or surveys; public meetings; and postings on social media and interactive websites.

## 2.2 Existing Data and Plans

Existing hazard mitigation information and other relevant hazard mitigation plans were reviewed during the development of this plan. Data was gathered through numerous sources, including Geographic Information Systems (GIS). The intent of reviewing existing material was to identify existing data and information, shared objectives, and past and ongoing activities that can help inform the mitigation plan.



It also helps identify the existing capabilities and planning mechanisms to implement the mitigation strategy. The table below outlines the sources used to collect data for the plan:

Data Source	Data Incorporation	Purpose
County appraisal data, census data, city land use data	Population and demographics	Population counts, parcel data, and land use data
National Centers for Environmental Information (NCEI)	Hazard occurrences	Previous event occurrences and mapping for hazards
Texas A&M Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire threat and urban interface	Mapping and wildfire vulnerability
U.S. Army Corps of Engineers National Dam Inventory	Dam information	Dam list
Federal Emergency Management Agency (FEMA) Digital Flood Insurance Rate Map (DFIRM) Flood Zones, National Flood Insurance Program (NFIP) studies	Flood zone maps and NFIP information	GIS mapping of flood zones and NFIP data
October 2017 NFIP Flood Insurance Manual Change Package	NFIP Information	Repetitive Loss Properties and Community Rating System (CRS) ratings
State of Texas Hazard Mitigation Plan, 2013 and 2018 editions	Hazards and mitigation strategy	Support the goals of the state
Previous Ellis County HMP	All Chapters	This is an update of that plan
Hazard Mitigation: Integrating Best Practices into Planning	Planning process	Use proven techniques in developing the HMP
Environmental Protection Agency (EPA) Superfund National Priority List	Protected sites	Risk assessment- identify critical areas
National Register of Historic Places	Historic districts	Risk assessment
Texas Parks & Wildlife List of Rare Species	Endangered or protected species	Risk assessment
Texas Water Development Board	Lake information	Vulnerabilities
U.S. Department of Agriculture	Soil type	Expansive Soils description

### 2.3 Timeframe & Planning Meetings

The planning process for the update of the Ellis County Hazard Mitigation Plan was approximately two years. The table below is the timeline followed. During the planning process, the Hazard Mitigation Planning Team met to discuss relevant information from the jurisdiction and to review objectives and progress of the plan. The goals of these meetings were to gather information and to provide guidance for the jurisdictions throughout the planning stages. The meetings were hosted by the North Central Texas Council of Governments for the Hazard Mitigation Planning Team or individually within the Local Planning Teams.

Activity	Time Period
Kickoff meeting	July 2021

Activity	Time Period
Created planning teams	July 2021
Capabilities assessment	September 2021
Hazard identification & risk assessment	September 2021
Public outreach	February 2022
Mitigation strategy (goals & action items)	February 2022
Review HMP draft	March 2022
Update plan as needed	April 2022
Final draft review	May 2022
Send HMP to TDEM/make revisions as needed	May 2022
Send to FEMA/ make revisions as needed	To be determined
Adoption & signatures	Once “Approved Pending Adoption” designated received.

Activities were either led or monitored by the North Central Texas Council of Governments (NCTCOG) and public outreach strategies were conducted by the participating jurisdictions.

## 2.4 Plan Implementation

The Ellis County Hazard Mitigation Planning process was overseen by the North Central Texas Council of Governments (NCTCOG). The plan was submitted to the Texas Division of Emergency Management (TDEM) and the Federal Emergency Management Agency (FEMA) for approval. It is expected that all participating jurisdictions will formally adopt the plan by resolution once the “Approved Pending Adoption” designation by FEMA is received, in accordance with the Disaster Mitigation Act of 2000.

Each jurisdiction participating in this plan is responsible for implementing specific mitigation actions as prescribed in the mitigation strategies. In each mitigation strategy, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the county-wide plan. The separate adoption of locally-specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process.

The Ellis County Emergency Management Coordinator or their designee is the lead position for plan implementation and will work with the Ellis County Hazard Mitigation Planning Team (HMPT) to ensure mitigation actions are implemented into jurisdictional planning procedures. Each participating jurisdiction will implement the plan and their individual mitigation actions in the timeframe appropriate for their planning processes. As necessary, the HMPT will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified for proposed actions listed in the mitigation strategies.

## 2.5 Multijurisdictional Strategy and Considerations

The Ellis County Office of Emergency Management will lead activities for mitigation planning county-wide. Although The Ellis County Office of Emergency Management will be responsible for maintaining

this plan, including the documentation of in-progress and completed action items, each participating jurisdiction is responsible for reporting hazards, their costs, and a status report on mitigation actions to the North Central Texas Council of Governments (NCTCOG) for recording in the plan.

Each jurisdiction is responsible for completing mitigation activities by providing the capabilities and authorities needed to carry out activities. Participating jurisdictions completed an analysis of their current legal, staffing, and fiscal capabilities as they relate to hazard mitigation planning. Jurisdictional capabilities and authorities identified to ensure successful mitigation planning are located within the jurisdictional annexes.

## 2.6 Plan Evaluation

All members of the Ellis County Hazard Mitigation Planning Team (HMPT) will be responsible for ensuring that the Ellis County Hazard Mitigation Plan (HMP) is evaluated as required. Specifically, the Ellis County Emergency Management Coordinator, or their designee, will convene the HMPT and ensure an evaluation is conducted in a thorough manner. This evaluation will include analysis of current mitigation projects, evaluation of success, reevaluation of future mitigation needs, and prioritization based upon changes in needs and/or capabilities of Ellis County.

The HMPT will reconvene annually to ensure that projects are on track and to reevaluate the mitigation goals, objectives, and action items. The mitigation plan shall be viewed as an evolving, dynamic document.

## 2.7 Plan Update

The Disaster Mitigation Act of 2000 requires that the Ellis County Hazard Mitigation Plan be updated at least once every five years. During this process, all chapters of the plan will be updated with current information, and analyses and new and/or modified mitigation actions will be developed. The revised plan will be submitted for state and federal review and approval and presented for approval to the Ellis County Commissioners Court and the respective councils of incorporated cities included in this HMP. Likewise, each participating jurisdiction will undergo the same process for reviewing, revising, and updating their respective plans and submitting them for approval by state, federal, and the local jurisdiction's governing body. The plan will be updated every five years in accordance with federal requirements. Ellis County's Emergency Management Coordinator or their designee will be responsible for ensuring that this requirement is met. Ellis County and the Hazard Mitigation Planning Team will review the HMP annually for needed updates. The HMPT will be involved in this process to ensure all jurisdictions provide input into the planning process. The public will be invited to participate in this process through public hearings.

## 2.8 Plan Maintenance

It is the intention of all documented plan participants to formally adopt the Ellis County Hazard Mitigation Plan after each maintenance revision. Once all participants adopt the changes, the revised HMP and proof of adoption will be submitted by the North Central Texas Council of Governments (NCTCOG) to the Texas Division of Emergency Management and the Federal Emergency Management Agency. The plan will be revised and maintained as required under the guidance of the HMP and formally adopted by Ellis County and jurisdiction elected officials after each revision.

Following formal adoption by the Ellis County’s Commissioners Court and formal adoption of the plan by the governing council of each participating jurisdiction, the actions outlined in the HMP will be implemented by the county and participating jurisdictions as described throughout this document.

The Ellis County Emergency Management Coordinator (EMC), or their designee, is responsible for ensuring the HMP and its components are monitored, evaluated, and reviewed semiannually by the responsible personnel. The EMC will use email to request the monitoring activities noted below be implemented and changes documented. The progress of action items will be tracked electronically as “in progress,” “deferred,” or “completed.”

These and other changes affecting the plan will be documented within the Ellis County HMP file and identified as updates. Updates will be shared between participants by email or in a meeting (if deemed appropriate) twice a year, and included in annual evaluations and reviews, and the five-year update of the plan.

Members of the Hazard Mitigation Planning Team (HMPT) are responsible for ensuring their mitigation strategy is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by the Ellis County EMC calling an annual meeting of the HMPT, whose members will assist in plan review, evaluation, updates, and monitoring. This meeting will be open to the public and public notices will encourage community participation.

During this annual meeting, the members will provide information and updates on the implementation status of each action item included in the plan. As part of the evaluation, the HMPT will assess whether goals address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the HMP, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the following timetable:

Responsible Personnel	Activity	Update Schedule
Local Planning Team Point of Contact	Monitoring Plan: track implementation and action items, changes to risk assessment, changes to Local Planning Team (LPT), changes to capabilities, and plan integrations.	Twice a year
	Evaluate Plan: assess effectiveness by evaluating completed actions, implementation processes, responsible personnel, and lessons learned.	Annually
	Update Plan	Once every five years

At least once every five years, or more frequently if such a need is determined by the participants, the HMP will undergo a major update with NCTCOG. During this process, all chapters of the plan will be updated with current information and analyses and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for review and approval to the Texas Division of Emergency Management and the Federal Emergency Management Agency and presented to the governing council for approval and adoption. The plan will be updated every five years in accordance with regulations.

## 2.9 Incorporation into Existing Planning Mechanisms

The primary means for integrating mitigation strategies into other local planning mechanisms will be through the revision, update, and implementation of each participating jurisdiction's individual plans that require specific planning and administrative tasks (for example, plan amendments, ordinance revisions, and capital improvement projects).

The members of the HMPT will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their jurisdictions are consistent with the goals and actions of the Ellis County HMP and will not contribute to increased hazard vulnerability in Ellis County or its participating jurisdictions.

During the planning process for new and updated local planning documents, such as a comprehensive plan, capital improvement plan, or emergency management plan, Ellis County and its participating jurisdictions will provide a copy of the Ellis County HMP to the appropriate parties and recommend that all goals and strategies of new and updated local planning documents are consistent with and support the goals of the Ellis County HMP and will not contribute to increased hazards in the affected jurisdiction(s).

# Chapter 3: Hazard Identification and Risk Assessment

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Requirement	
§201.6(c)(2)(i)	[The risk assessment shall include a] description of the type, location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
§201.6(c)(2)(ii)	[The risk assessment shall include a] description of the jurisdiction’s vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008 must also address NFIP [National Flood Insurance Program] insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:
§201.6(c)(2)(ii)(A)	The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;
§201.6(c)(2)(ii)(B)	An estimate of the potential dollar losses to vulnerable structures identified in this section and a description of the methodology used to prepare the estimate.
§201.6(c)(2)(ii)(C)	Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.
§201.6(c)(2)(iii)	For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction’s risks where they vary from the risks facing the entire planning area.

## 3.1 Major Disaster Declarations

The following table lists the major disaster declarations that have occurred in Texas since the approval of the previous HMP, beginning with most recent. Rows in **red** signify that the county qualified for Individual Assistance for the disaster, and those in **orange** would signify that the county qualified for Public Assistance for the disaster. **Yellow** would mean that the county qualified for both.

Disaster	Event	Incident Period	Declared
DR-4586	Texas Severe Winter Storms	February 11-21, 2021	February 19, 2021
DR-4572	Texas Hurricane Laura	August 23-27, 2020	December 9, 2020
DR-4485	Texas Covid-19 Pandemic	January 20, 2020 and continuing	March 25, 2020
DR-4466	Texas Tropical Storm Imeda	September 17-23, 2019	October 04, 2019
DR-4454	Texas Severe Storms and Flooding	June 24-25, 2019	July 17, 2019
DR-4416	Texas Severe Storms and Flooding	September 10-November	February 25, 2019

Disaster	Event	Incident Period	Declared
		02, 2018	
DR-4377	Texas Severe Storms and Flooding	June 19- July 13,2018	July 06, 2018
DR-4332	Texas Hurricane Harvey	August 23- September 15, 2017	August 25, 2017
DR-4272	Texas Severe Storms and Flooding	May 22- June 24, 2016	June 11, 2016
DR-4269	Texas Severe Storms and Flooding	April 17-30, 2016	April 25, 2016
DR-4266	Texas Severe Storms, Tornadoes, and Flooding	March 07-29, 2016	March 19, 2016
DR-4255	Texas Severe Winter Storms, Tornadoes, Straight-line Winds, and Flooding	December 26- January 21, 2016	February 09, 2016
DR-4245	Texas Severe Storms, Tornadoes, Straight-line Winds, and Flooding	October 22-31, 2015	November 25, 2015
DR-4223	Texas Severe Storms, Tornadoes, Straight-line Winds, and Flooding	May 04- June 22, 2015	May 29, 2015
DR-4159	Texas Severe Storms and Flooding	October 30-31, 2013	December 20, 2013
DR-4136	Texas Explosion	April 17-20, 2013	August 02, 2013

Source: FEMA

### 3.2 Natural Hazard Profiles

Through an assessment of previous federally declared disasters in Texas, the State of Texas Hazard Mitigation Plan, historical and potential events in Ellis County, and a review of available local mitigation plans, it was determined that this Hazard Mitigation Plan (HMP) will address the risks associated with the following nine natural hazards:

- Drought
- Earthquakes
- Expansive Soils
- Extreme Heat
- Flooding (including dam failure)
- Thunderstorms (including hail, wind, and lightning)
- Tornadoes
- Wildfires
- Winter Storms

Due to the low probability and history of occurrence of coastal erosion, land subsidence, and hurricane/tropical storm, they will not be profiled in this plan.

Since the adoption of the 2015 HMP, the definition of a thunderstorm now includes hail, high winds, and lightning. These individual hazards within a thunderstorm will not be listed nor categorized separately.

Around 2013, areas of North Central Texas began experiencing earthquakes. It is suspected that dormant fault lines have been disturbed. Earthquakes have been added to the list of natural hazards profiled in this update for jurisdictions that feel they could be potentially impacted by them.

For this HMP, dam failure is considered a technological hazard and the effects of dam failure will be addressed in the flooding portion of this plan when applicable. Dam failure is an accidental or unintentional collapse, breach, or other failure of an impoundment structure that results in downstream flooding.

Along with a general description and historical occurrences, each participating jurisdiction described the location, probability of a future event, and the maximum probable extent of each hazard. The following terms were used to describe the categories:

<b>Location:</b> Location is the geographic area within the planning area that is affected by the hazard. The planning area refers to individual jurisdictions. Planning area refers to the size of the participating jurisdiction providing the description.			
<ul style="list-style-type: none"> <li>• <b>Negligible-</b> Less than 10% of planning area would be impacted by a single event.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Limited-</b> 10 to 25% of planning area would be impacted by a single event.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Significant-</b> 26 to 99% of planning area would be impacted by a single event.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Extensive-</b> 100% of planning area would be impacted by a single event, or the event has no boundary and could occur anywhere within the planning area.</li> </ul>			
<b>Probability of Future Events:</b> This information was based on historic events and changing climate.			
<ul style="list-style-type: none"> <li>• <b>Unlikely-</b> Less than 1% annual probability.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Possible-</b> Between 1 and 10% annual probability.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Likely-</b> Between 10 and 100% annual probability.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Highly Likely-</b> 100% annual probability.</li> </ul>			
<b>Level of Possible Damage:</b> Based on historic events and future probability.			
<ul style="list-style-type: none"> <li>• <b>Minor-</b> Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities. Very few injuries, if any.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Limited-</b> More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day. Minor injuries possible.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Critical-</b> More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week. Multiple deaths/injuries.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Catastrophic-</b> More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more. High number of deaths/injuries possible.</li> </ul>			
<b>Maximum Probable Extent:</b> Based on historic events and future probability.			
<ul style="list-style-type: none"> <li>• <b>Minor-</b> Minor classification on the scientific scale.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Medium-</b> Medium classification on the scientific scale.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Major-</b> Major classification on the scientific scale.</li> </ul>			
<b>Scientific Scale</b>			
Hazard	Classification		
	Minor	Medium	Major
<b>Drought</b>	<ul style="list-style-type: none"> <li>• PDSI -1.99 to +1.99</li> <li>• D0</li> </ul>	<ul style="list-style-type: none"> <li>• PDSI -2.00 to -2.99</li> <li>• D1</li> </ul>	<ul style="list-style-type: none"> <li>• PDSI -3.00 to -5.00</li> <li>• D2-D4</li> </ul>
<b>Earthquake</b>	<ul style="list-style-type: none"> <li>• Magnitude &lt; 4.9</li> </ul>	<ul style="list-style-type: none"> <li>• Magnitude 5.0-6.9</li> </ul>	<ul style="list-style-type: none"> <li>• Magnitude &gt; 7.0</li> </ul>
<b>Expansive Soils</b>	<ul style="list-style-type: none"> <li>• EI Expansion Potential: 21-50 (Low)</li> </ul>	<ul style="list-style-type: none"> <li>• EI Expansion Potential: 51-90 (Medium)</li> </ul>	<ul style="list-style-type: none"> <li>• EI Expansion Potential: 91-130 (High)</li> </ul>



	<ul style="list-style-type: none"> <li>• EI Expansion Potential: 0-21 (Very Low)</li> </ul>		<ul style="list-style-type: none"> <li>• EI Expansion Potential: &gt;130 (Very High)</li> </ul>
<b>Extreme Heat</b>	<ul style="list-style-type: none"> <li>• Heat Index 80F°-96F° with 40% humidity</li> </ul>	<ul style="list-style-type: none"> <li>• Heat Index 97F°-104F° with 40% humidity</li> </ul>	<ul style="list-style-type: none"> <li>• Heat Index &gt;105F° with 40% humidity</li> </ul>
<b>Flooding</b>	<ul style="list-style-type: none"> <li>• Inundation depth of &lt; 10 feet of water</li> </ul>	<ul style="list-style-type: none"> <li>• Inundation depth of 10-25 feet of water</li> </ul>	<ul style="list-style-type: none"> <li>• Inundation depth of &gt; 25 feet of water</li> </ul>
<b>Flooding from Dam Failure</b>	<ul style="list-style-type: none"> <li>• Inundation depth of &lt; 10 feet of water</li> </ul>	<ul style="list-style-type: none"> <li>• Inundation depth of 10-25 feet of water</li> </ul>	<ul style="list-style-type: none"> <li>• Inundation depth of &gt; 25 feet of water</li> </ul>
<b>Thunderstorm</b>	<ul style="list-style-type: none"> <li>• Hail 0"-1.6"</li> <li>• Wind Knots &lt;1-10</li> <li>• LAL: 1-2</li> </ul>	<ul style="list-style-type: none"> <li>• Hail 1.6"-2.4"</li> <li>• Wind Knots 11-27</li> <li>• LAL: 3-4</li> </ul>	<ul style="list-style-type: none"> <li>• Hail 2.4"-&gt;4"</li> <li>• Wind Knots 28-64+</li> <li>• LAL: 5-6</li> </ul>
<b>Tornado</b>	<ul style="list-style-type: none"> <li>• EFO</li> </ul>	<ul style="list-style-type: none"> <li>• EF1-EF2</li> </ul>	<ul style="list-style-type: none"> <li>• EF3-EF5</li> </ul>
<b>Wildfire</b>	<ul style="list-style-type: none"> <li>• KBDI 0-300</li> </ul>	<ul style="list-style-type: none"> <li>• KBDI 300-500</li> </ul>	<ul style="list-style-type: none"> <li>• KBDI 500-800</li> </ul>
<b>Winter Storms</b>	<ul style="list-style-type: none"> <li>• Temperatures 40F° to 35F°</li> <li>• Wind Speed &lt;25 MPH</li> <li>• Ice Accumulation &lt;.50 inches</li> </ul>	<ul style="list-style-type: none"> <li>• Temperatures 30F° to 20F°</li> <li>• Wind Speed 25-35 MPH</li> <li>• Ice Accumulation .10-1.00 inches</li> </ul>	<ul style="list-style-type: none"> <li>• Temperatures 15F° to -45F°</li> <li>• Wind Speed &gt;35 MPH</li> <li>• Ice Accumulation &gt;.25 inches</li> </ul>
<b>Abbreviations:</b>			
<ul style="list-style-type: none"> <li>• <b>PDSI:</b> Palmer Drought (Severity) Index</li> <li>• <b>EI:</b> Expansion Index test</li> <li>• <b>LAL:</b> Lightning Activity Level</li> <li>• <b>EF:</b> Enhanced Fujita scale</li> <li>• <b>KBDI:</b> Keetch-Byram Drought Index</li> </ul>			

In this chapter, historical events are analyzed. The National Centers for Environmental Information (NCEI) receives storm data from the National Weather Service (NWS). NWS receives their information from a variety of sources, which include but are not limited to: county, state and federal emergency management officials, local law enforcement officials, SkyWarn spotters, NWS damage surveys, newspaper clipping services, the insurance industry, and the general public, among others. NWS Storm Data are geographically categorized by county or by NWS Forecast Zone. Localized events such as a tornado, thunderstorm winds, flash floods, and hail are categorized using the *Ellis Co.* (County) designation. More widespread events that can impact the entire county equally, such as heat, cold, drought, floods, and winter weather, are categorized using the *Ellis (Zone)*.

Below is an overview of the total historical dollar losses from the severe weather events within the participating jurisdictions collected by NWS since the previous hazard mitigation plan.

<b>Historical Dollar Losses, 2012-2021</b>				
<b>Hazard</b>	<b># of Events</b>	<b>Property Loss</b>	<b>Crop Loss</b>	<b>Total</b>
<b>Drought</b>	31	\$1,000	\$52,500	\$53,500
<b>Extreme Heat</b>	3	\$0	\$0	\$0

<b>Flooding</b>	10	\$6,000	\$0	\$6,000
<b>Thunderstorms (hail, wind, lightning)</b>	98	\$2,218,400	\$0	\$2,218,400
<b>Tornadoes</b>	8	\$20,015,000		\$20,015,000
<b>Winter Storms</b>	7	\$950,000		\$950,000
<b>Total Damage Costs</b>				\$23,242,900

Not all events have been reported to NWS. Based on the information in the chart above, an increase in climate variability, and increasing populations, it is expected that the same level of damage experienced in the past will occur in the future, if not more, for each event.

Below are the hazard summaries, in alphabetical order, for each participating jurisdiction.

### 3.2.1 Drought

Potential impacts from drought include:

- Property damage
- Loss of water supply
- Increases grassfire potential and intensity
- Negative impact on citizens, to include water restrictions and lack of drinkable water supply
- Impact on car washes, parks, and pools
- Impact on crops, livestock, and natural vegetation
- Increase in food prices
- Dust storms, leading to transportation accidents
- Natural environments damage, to include protected species and critical habitats
- Pipeline damage

<b>Drought</b>				
<b>Jurisdiction</b>	<b>Location</b>	<b>Probability of Future Events</b>	<b>Level of Possible Damage</b>	<b>Maximum Probable Extent/Strength</b>
Alma	Extensive	Likely	Limited	Major
Bardwell	Extensive	Likely	Limited	Major
Ennis	Extensive	Likely	Minor	Minor
Ferris	Extensive	Likely	Limited	Major
Garrett	Extensive	Possible	Limited	Major
Italy	Extensive	Likely	Limited	Major
Maypearl	Extensive	Likely	Minor	Major
Midlothian	Extensive	Likely	Limited	Major
Milford	Extensive	Likely	Limited	Major
Oak Leaf	Extensive	Likely	Minor	Major
Ovilla	Extensive	Likely	Limited	Major
Palmer	Extensive	Likely	Limited	Major
Red Oak	Extensive	Possible	Minor	Major

<b>Drought</b>				
<b>Jurisdiction</b>	<b>Location</b>	<b>Probability of Future Events</b>	<b>Level of Possible Damage</b>	<b>Maximum Probable Extent/Strength</b>
Waxahachie	Extensive	Likely	Limited	Major
Ellis County Unincorporated	Extensive	Likely	Limited	Major

The following chart describes the drought monitoring indices along with drought severity, return period, and a description of the possible impacts of the severity of drought.

<b>Drought Severity</b>	<b>Return Period (years)</b>	<b>Description of Possible Impacts</b>	<b>Drought Monitoring Indices</b>		
			<b>Standardized Precipitation Index (SPI)</b>	<b>NDMC* Drought Category</b>	<b>Palmer Drought Index</b>
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	D0	-1.0 to -1.9
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	D1	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-1.3 to -1.5	D2	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions.	-1.6 to -1.9	D3	-4.0 to -4.9
Exceptional Drought	44+	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells creating water emergencies.	less than -2	D4	-5.0 or less

\*NDMC - National Drought Mitigation Center

<b>Source of groundwater or surface-supply:</b>
<b>Alma:</b> Rice Water Supply
<b>Bardwell:</b> Water is provided to the City from Rural Bardwell WSC.
<b>Ennis:</b> Lake Bardwell
<b>Ferris:</b> City of Ferris purchases water from Rockett SUD. Rockett SUD purchases surface water from City of Midlothian.
<b>Garrett:</b> East Garrett Water Supply
<b>Italy:</b> Ground-water wells, 2 Trinity River Aquifer, and 1 Woodbine Aquifer
<b>Maypearl:</b> Wells and purchased

**Midlothian:** Tarrant Regional Water District (TRWD) and Joe Pool Lake  
**Milford:** Files Valley Water  
**Oak Leaf:** Water is provided by the City of Glenn Heights, Rockett S.U.D. and Sardis Lone-Elm Water.  
**Ovilla:** Unknown  
**Palmer:** Water is provided to the city from Rockett SUD.  
**Red Oak:** Dallas Water Utility  
**Waxahachie:** The City of Waxahachie utility. Water is supplied from multiple sources to include: Lake Waxahachie, Bardwell Reservoir, Cedar Creek Reservoir, and Richland Chambers reservoir.  
**Ellis County Unincorporated:** Water is provided to the county from multiple sources: Joe Pool, Richland Chambers Reservoir, Cedar Creek, Lake Waxahachie, Lake Bardwell. Ellis County also partners with the Trinity River Authority.

Describe the type of water restrictions the jurisdiction enforces, either year-round or during a drought:

**Alma:** Water conservation public education on city website.  
**Bardwell:** None  
**Ennis:** None  
**Ferris:** We have 5-phase drought criteria with plans to reduce water usage by 2%, 5%, 10%, 15%, and 30% respectively for each stage.  
**Garrett:** City of Garret & Community Water partner with TCEQ on water restrictions.  
**Italy:** The City of Italy partners with TCEQ on water restrictions.  
**Maypearl:** None  
**Midlothian:** City of Midlothian’s adopted *Drought Contingency and Water Conservation Plan for Retail/Wholesale Customers*: In preparation of the upcoming summer months, the City of Midlothian encourages residents to continue practical water usage in an effort to reduce the likelihood of implementation of mandatory water conservation measures.  
**Milford:** None  
**Oak Leaf:** We enforce no restrictions. The water provider is responsible for enforcement.  
**Ovilla:** None  
**Palmer:** We have a drought contingency plan in place.  
**Red Oak:** Sliding scale, from “reduced non-essential water use” to “no outdoor water use.”  
**Waxahachie:** None  
**Ellis County Unincorporated:** Ellis County partners with TCEQ on water restrictions.

Drought can be defined as a water shortage caused by the natural reduction in the amount of precipitation expected over an extended period of time, usually a season or more in length. It can be aggravated by other factors such as high temperatures, high winds, and low relative humidity. Drought can impact the economy, environment, and society by limiting food and drinking water, destroying habitat, and triggering health and safety problems due to poor water quality and increased wildfires.

In Texas, local governments are empowered to take action on the behalf of those they serve. When drought conditions exist, a burn ban can be put in place by a county judge or county Commissioners Court prohibiting or restricting outdoor burning for public safety.<sup>3</sup>

<b>Historical Events- Drought</b>							
<b>Location</b>	<b>Date</b>	<b>Type</b>	<b>Mag</b>	<b>Dth</b>	<b>Inj</b>	<b>PrD</b>	<b>CrD</b>
ELLIS CO.	1/1/2012	Drought		0	0	0	4000
ELLIS CO.	11/13/2012	Drought		0	0	0	2000
ELLIS CO.	12/1/2012	Drought		0	0	0	2000
ELLIS CO.	1/1/2013	Drought		0	0	0	1000
ELLIS CO.	2/1/2013	Drought		0	0	0	2000
ELLIS CO.	3/19/2013	Drought		0	0	0	1000
ELLIS CO.	4/1/2013	Drought		0	0	0	3000
ELLIS CO.	6/18/2013	Drought		0	0	0	2000
ELLIS CO.	7/1/2013	Drought		0	0	0	2000
ELLIS CO.	8/1/2013	Drought		0	0	0	5000
ELLIS CO.	9/1/2013	Drought		0	0	0	4000
ELLIS CO.	3/11/2014	Drought		0	0	0	3000
ELLIS CO.	4/1/2014	Drought		0	0	0	3000
ELLIS CO.	5/1/2014	Drought		0	0	0	2000
ELLIS CO.	6/1/2014	Drought		0	0	0	500
ELLIS CO.	9/28/2014	Drought		0	0	0	0
ELLIS CO.	10/1/2014	Drought		0	0	0	2000
ELLIS CO.	11/1/2014	Drought		0	0	0	1000
ELLIS CO.	12/1/2014	Drought		0	0	0	6000
ELLIS CO.	1/1/2015	Drought		0	0	0	1000
ELLIS CO.	2/1/2015	Drought		0	0	0	2000
ELLIS CO.	3/1/2015	Drought		0	0	0	1000
ELLIS CO.	4/1/2015	Drought		0	0	0	1000
ELLIS CO.	10/1/2015	Drought		0	0	1000	0
ELLIS CO.	7/24/2018	Drought		0	0	0	0
ELLIS CO.	8/1/2018	Drought		0	0	0	1000
ELLIS CO.	9/24/2019	Drought		0	0	0	1000
ELLIS CO.	10/1/2019	Drought		0	0	0	0
ELLIS CO.	1/21/2020	Drought		0	0	0	0

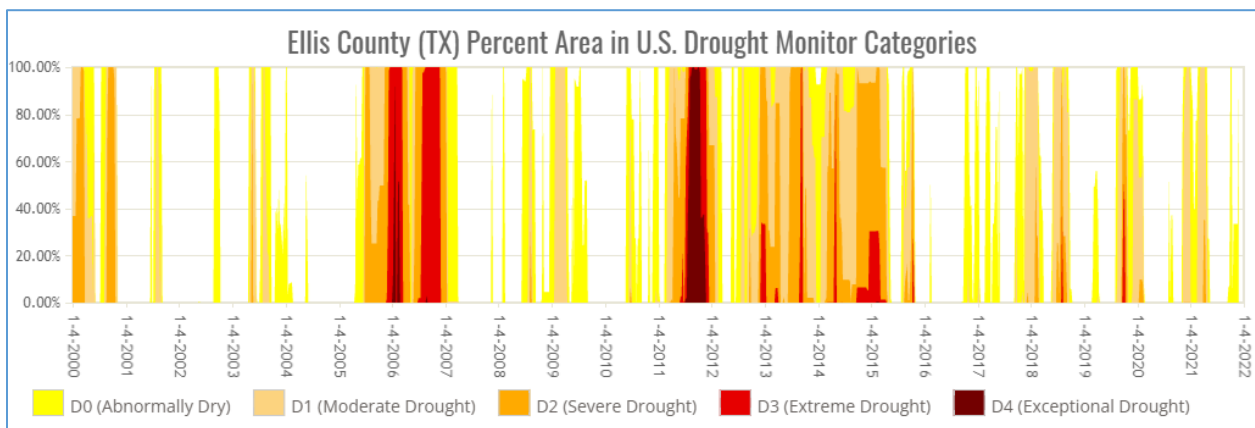
<sup>3</sup> Fire Danger: Texas Burn Bans. Texas A&M Forest Service. 2018.  
<http://texasforests-service.tamu.edu/TexasBurnBans/>

## Historical Events- Drought

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
ELLIS CO.	2/1/2020	Drought		0	0	0	0
ELLIS CO.	4/1/2021	Drought		0	0	0	0
<b>Totals:</b>				0	0	\$1,000	\$52,500

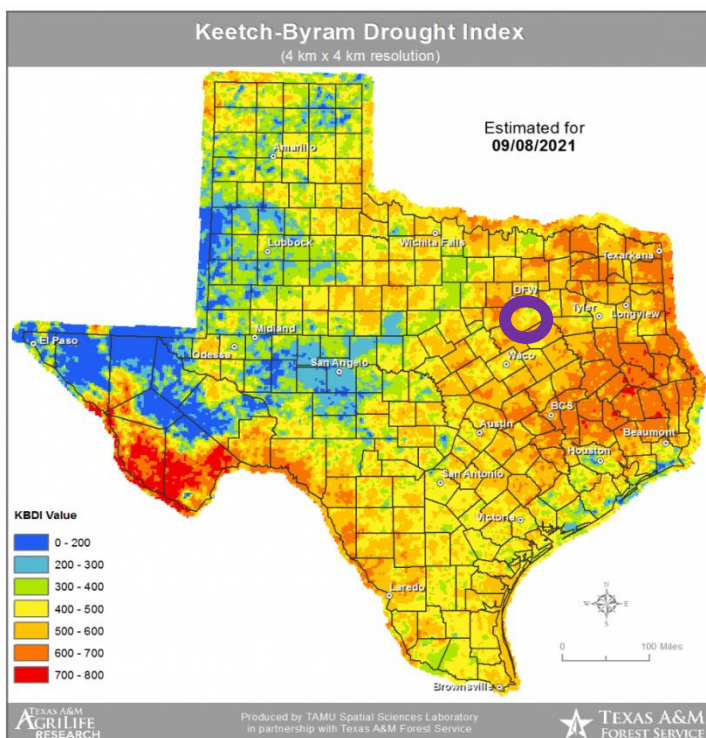
Source: NOAA National Centers for Environmental Information

During these times the value of cattle decreased dramatically due to low cattle weight caused by drought impact on feed lots. Cattle had to be shipped to Oklahoma and farmers had to buy hay to feed cattle instead of growing it themselves. Water levels are a critical concern during this time. The following chart reflects the annual changes in drought conditions within the County.



Source: United States Drought Monitor.

As shown in the Percent Area graph above, the time period from 2011-2012 had the greatest severity and longest time period of D3-D4 drought conditions. Besides major crop damage, these extreme drought conditions have the potential to put Ellis County in extreme fire danger and could cause widespread water shortage and restrictions, creating a water emergency.



Texas A&M Forest Service (TFS) uses Keetch-Byram Drought Index (KBDI) for determination of drought conditions within the State of Texas. The KBDI 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 KBDI attempts to measure the amount of precipitation necessary to return the soil to full field capacity. It is a closed system ranging from 0 to 800,

where 0 represents a saturated soil, and 800 an absolutely dry soil. At any point along the scale, the KBDI value indicates the amount of precipitation it would take to bring the moisture level back to zero, or saturation.

KBDI was developed to correlate the effects of drought on wildfire potential. This relationship is reflected in the following table.

Index Value (inches)	Color Label	Implications
0 – 200	Blue	Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. Typical of early spring following winter precipitation.
200 – 400	Blue -> Green	Fuels are beginning to dry and contribute to wildfire intensity. Heavier fuels will still not readily ignite and burn. This is often seen in late spring or early summer.
400 – 600	Yellow -> Orange	Lower litter and duff layers contribute to fire intensity and will burn actively. Wildfire intensity begins to increase significantly. Larger fuels could burn or smolder for several days. This is often seen in late summer and early fall.
600 – 800	Reds	Often associated with more severe drought with increased wildfire occurrence. Intense, deep-burning fires with extreme intensities can be expected. Live fuels can also be expected to burn actively at these levels.

### 3.2.2 Earthquakes

Potential impacts from earthquakes include:

- Injury or death
- Property and infrastructure damage
- Water contamination or loss via broken pipes
- Transportation and communication disruption or damage
- Increase in traffic accidents
- Building collapse
- Natural gas leak
- Misplaced residents
- Power outages
- Natural environments damage, to include protected species and critical habitats

Earthquakes				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Alma	Extensive	Unlikely	Limited	Minor
Bardwell	Limited	Possible	Minor	Minor
Ennis	Extensive	Unlikely	Limited	Minor
Ferris	Negligible	Unlikely	Minor	Minor

Earthquakes				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Garrett	Extensive	Possible	Minor	Minor
Italy	Limited	Possible	Minor	Minor
Maypearl	Limited	Unlikely	Catastrophic	Major
Midlothian	Limited	Possible	Minor	Minor
Milford	Limited	Possible	Minor	Minor
Oak Leaf	Negligible	Unlikely	Minor	Minor
Ovilla	Extensive	Unlikely	Limited	Minor
Palmer	Limited	Possible	Minor	Minor
Red Oak	Negligible	Unlikely	Minor	Minor
Waxahachie	Extensive	Unlikely	Limited	Minor
Ellis County Unincorporated	Extensive	Possible	Minor	Minor

Does your jurisdiction require a permit for foundation repairs? <i>Reviewing permits can help a jurisdiction determine the amount of damage in the community.</i>
<p><b>Alma:</b> Yes  <b>Bardwell:</b> No  <b>Ennis:</b> Yes  <b>Ferris:</b> No  <b>Garrett:</b> Yes  <b>Italy:</b> No  <b>Maypearl:</b> Yes  <b>Midlothian:</b> Yes, if digging or repairing foundation. <a href="#">Building Permits   Midlothian, TX - Official Website</a>  <b>Milford:</b> No  <b>Oak Leaf:</b> No  <b>Ovilla:</b> No  <b>Palmer:</b> No  <b>Red Oak:</b> Yes  <b>Waxahachie:</b> No  <b>Ellis County Unincorporated:</b> No</p>
Does your jurisdiction allow fracking?
<p><b>Alma:</b> N/A  <b>Bardwell:</b> N/A  <b>Ennis:</b> No  <b>Ferris:</b> Yes  <b>Garrett:</b> Unknown  <b>Italy:</b> Yes  <b>Maypearl:</b> No  <b>Midlothian:</b>  <b>Milford:</b> N/A</p>



**Oak Leaf:** No  
**Ovilla:** Unknown  
**Palmer:** Unknown  
**Red Oak:** Unknown  
**Waxahachie:** Unknown  
**Ellis County Unincorporated:** Yes, per Texas Rail Road Commission permitting procedures.

An earthquake is a sudden motion or trembling of the earth, either caused by an abrupt release of accumulated strain on the tectonic plates that comprise the earth's crust or from human activities. Scientific studies have tied the quakes in North Central Texas to the disposal of wastewater from oil and gas production.

Magnitude and intensity measure different characteristics of earthquakes. Magnitude measures the energy released at the source of the earthquake and is determined from measurements on seismographs. Intensity measures the strength of shaking produced by the earthquake at a certain location and is determined from effects on people, human structures, and the natural environment.

The Modified Mercalli Intensity Scale classifies earthquakes by the amount of damage inflicted. It quantifies a quake's effects on the land's surface, people, and structures involved. The following is an abbreviated description of the levels of Modified Mercalli intensity.

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.

Intensity	Shaking	Description/Damage
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

Source: USGS Earthquake Hazards Program.

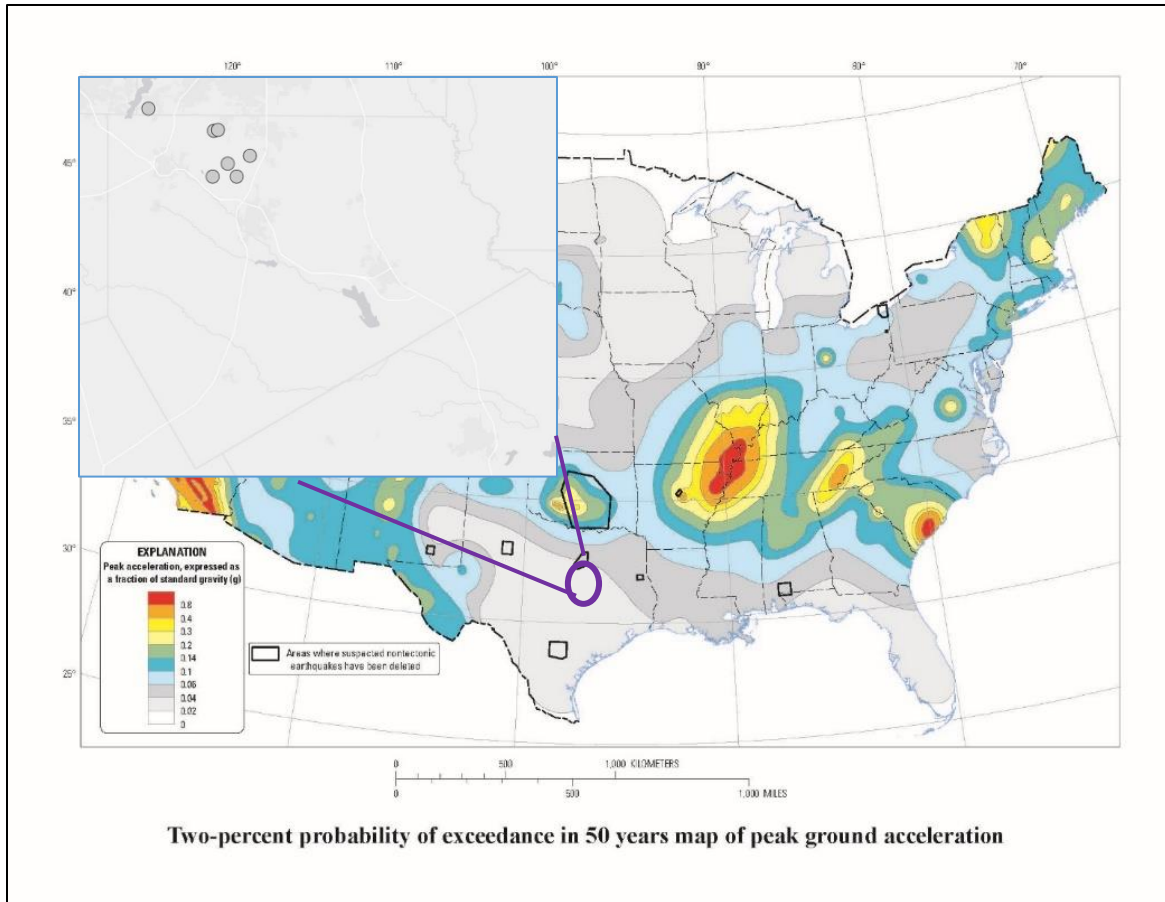
The following table gives intensities that are typically observed at locations near the epicenter of earthquakes of different magnitudes.

Magnitude	Typical Maximum Modified Mercalli Intensity
1.0 - 3.0	I
3.0 - 3.9	II - III
4.0 - 4.9	IV - V
5.0 - 5.9	VI - VII
6.0 - 6.9	VII - IX
7.0 and higher	VIII or higher

Source: USGS Earthquake Hazards Program.

The following data and map from the United States Geological Survey (USGS) reflect the earthquakes recorded in Ellis County from 2012-2021 and shows that the County has a very low risk of future earthquakes.

Historical Events- Earthquakes				
TIME	LATITUDE	LONGITUDE	MAG	PLACE
2013-10-16T13:37:09.350Z	32.5272	-96.9032	2.4	1 km W of Ovilla, Texas
2013-03-17T23:50:20.630Z	32.48	-96.887	2.5	5 km S of Ovilla, Texas
2013-03-17T23:41:23.840Z	32.491	-96.85	2.6	3 km S of Oak Leaf, Texas
2013-02-24T21:07:49.700Z	32.462	-96.872	2.7	6 km SSW of Oak Leaf, Texas
2013-02-24T12:56:02.980Z	32.526	-96.91	2.6	2 km W of Ovilla, Texas
2013-02-24T10:35:52.230Z	32.462	-96.912	2.5	7 km SSW of Ovilla, Texas
2012-10-17T02:57:30.640Z	32.557	-97.019	2.7	6 km WSW of Cedar Hill, Texas
2013-10-16T13:37:09.350Z	32.5272	-96.9032	2.4	1 km W of Ovilla, Texas



Source: USGS

### 3.2.3 Expansive Soils

Potential impacts from expansive soils include:

- Property damage due to foundation damage
- Water contamination or loss via broken pipes
- Building and infrastructure damage
- Road damage
- Transportation delays due to road condition
- Damage to utility lines
- Damage to crops and livestock

Expansive Soils				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Alma	Extensive	Possible	Minor	Medium
Bardwell	Extensive	Possible	Minor	Medium
Ennis	Extensive	Likely	Limited	Minor

<b>Expansive Soils</b>				
<b>Jurisdiction</b>	<b>Location</b>	<b>Probability of Future Events</b>	<b>Level of Possible Damage</b>	<b>Maximum Probable Extent/Strength</b>
Ferris	Extensive	Possible	Minor	Medium
Garrett	Extensive	Likely	Minor	Minor
Italy	Extensive	Possible	Minor	Medium
Maypearl	Extensive	Possible	Minor	Medium
Midlothian	Extensive	Possible	Minor	Medium
Milford	Extensive	Possible	Minor	Minor
Oak Leaf	Extensive	Likely	Minor	Medium
Ovilla	Extensive	Possible	Minor	Medium
Palmer	Extensive	Possible	Minor	Medium
Red Oak	Extensive	Likely	Minor	Major
Waxahachie	Extensive	Possible	Minor	Medium
Ellis County Unincorporated	Extensive	Possible	Minor	Medium

A common procedure for evaluating and rating soil expansion potential is the Expansion Index (EI) test. The Expansion Index, EI, is used to measure a basic index property of soil and therefore, the EI is comparable to other indices such as the liquid limit, plastic limit, and plasticity index of soils.

<b>Expansion Index (EI)</b>	<b>EI Potential Expansion</b>
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

*Source: Expansion Index*

Expansive soils are soils that expand when water is added and shrink when they dry out. It contains large percentages of swelling clays that may experience volume changes of up to 40% in the absence or presence of water. This continuous change in soil volume can cause homes built on this soil to move unevenly and crack.

Expansive soil or clay is considered to be one of the more problematic soils and it causes damage to various civil engineering structures. Expansive soils behave differently from other normal soils due to their tendency to swell and shrink. A list of expansive soils include:

- Smectite
- Bentonite
- Montmorillonite
- Beidellite
- Vermiculite
- Attapulgite
- Nontronite

- Chlorite
- Pedalyte

Because of this swelling and shrinking behavior, expansive soils may cause the following problems in structures or construction projects:

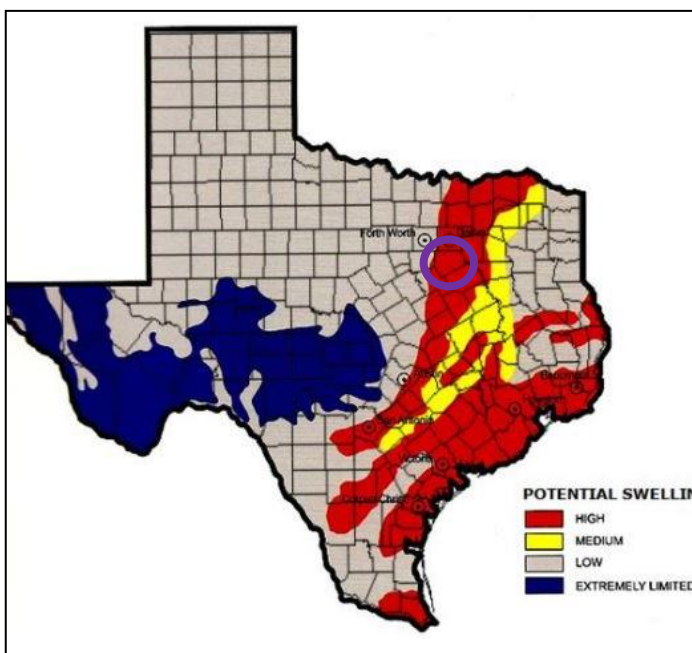
- Structural damage to lightweight structures such as sidewalks and driveways
- Lifting of buildings, damage to basements, and building settlement
- Cracks in walls and ceilings
- Damage to pipelines and other public utilities
- Lateral movement of foundations and retaining walls due to pressure exerted on vertical walls
- Loss of residual shear strength causing instability of slopes, etc.

Therefore, it is essential to check for the presence of expansive soil and a suitable treatment method should be adopted before commencing any construction projects. In some cases, postconstruction treatment of expansive soil may be required if the situation has not been dealt with before construction.

Homes built on expanding smectite clays without due precautions will likely be structurally damaged as the clay takes up water. Damage can be minor, but it also can be severe enough for the home to be structurally unsafe. Expansive soil is considered one of the most common causes of pavement distresses in roadways.

Expansive soils are a condition that is native to Texas soil characteristics, and cannot be documented as a time-specific event, except when it leads to structural and infrastructure damage. The great increase in damages in Texas caused by problems with expansive soils can be traced to the rise in residential slab-on-grade construction which began to accelerate in the 1960s. Prior to that time, most residential construction in Texas was pier and beam, with wood siding or other non-masonry covering. Affected homes will be heavily influenced by their proximity to a large body of water, whereas older pier and beam foundations will behave in an entirely different manner.

Even though structural foundation issues occur throughout the state, there is little documentation of site-specific past events from local, state, or national datasets. This makes it difficult to quantify damage on a county level, and the hazard poses no real threat to the public as there are no known fatalities. As such, there is currently no methodology to provide specific examples of previous occurrences for



expansive soils in Texas. Damages from expansive soils are most prevalent when periods of moderate to high precipitation are followed by drought and then again by periods of heavy rainfall.

Geographically, Ellis County comprises 952 square miles with three geographical areas. The western half is a part of the Grand Prairie, where the predominant soil type is alkaline loam

over limestone. About one-third of the county is in the Eastern Cross Timbers, with acid soils that are both loamy with clay subsoil and sandy with loamy subsoils. The rest of the area to the east is Blackland Prairie, with deep clayey, alkaline soils. The average annual precipitation is thirty-three inches, and temperature averages range between a winter low of 35° F and a summer high of 96°. <sup>4</sup>

**There have been no records of major previous occurrences for expansive soils within the past 10 years.**

### 3.2.4 Extreme Heat

Potential impacts from extreme heat include:

- Heatstroke or death. Elderly people who cannot afford air conditioning are at greatest risk
- Property damage
- Loss of water supply
- Increases grassfire potential and intensity
- Impact on logistics
- Power outages
- Road and train track buckling
- Disruption in critical infrastructure operations
- Vehicle engine failure
- Damage to crops

<b>Extreme Heat</b>				
<b>Jurisdiction</b>	<b>Location</b>	<b>Probability of Future Events</b>	<b>Level of Possible Damage</b>	<b>Maximum Probable Extent/Strength</b>
Alma	Extensive	Likely	Minor	Major
Bardwell	Extensive	Likely	Minor	Major
Ennis	Extensive	Likely	Limited	Minor
Ferris	Extensive	Highly Likely	Limited	Medium
Garrett	Extensive	Likely	Minor	Minor
Italy	Extensive	Likely	Minor	Major
Maypearl	Extensive	Possible	Minor	Minor
Midlothian	Extensive	Likely	Minor	Major
Milford	Extensive	Likely	Minor	Major
Oak Leaf	Extensive	Likely	Minor	Major

<sup>4</sup> Richard Elam, "Ellis County," *Handbook of Texas Online*, accessed September 20, 2021, <<https://www.tshaonline.org/handbook/entries/johnson-county>>

Published by the Texas State Historical Association.

## Extreme Heat

Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Ovilla	Extensive	Likely	Minor	Major
Palmer	Extensive	Likely	Minor	Major
Red Oak	Extensive	Likely	Minor	Major
Waxahachie	Extensive	Likely	Minor	Major
Ellis County Unincorporated	Extensive	Likely	Minor	Major

Describe the special events or sporting events held outside during the summer and any heat-related illnesses reported since 2012.

**Alma:** High School graduations, Ennis ISD and community sports

**Bardwell:** Students from Bardwell attend Ennis ISD schools where various special events occur: High School graduations, Ennis ISD and community Sports. All sporting events occur outdoors during the summer months that poses risks for heat related illnesses in the community.

**Ennis:** Freedom Festival and drag racing events. Ennis has had 10-15 heat exposures reported from their outdoor events since 2021.

**Ferris:** Various youth and intramural sports leagues including baseball, football, and soccer.

**Garrett:** None

**Italy:** July 4<sup>th</sup> Celebrations, Youth Summer Sports (Baseball/Softball), and Guns & Hoses Softball Game.

**Maypearl:** Baseball, Football, Track and Field, 4th of July Events to Antique Alleys, Movies in the Park to Market Days.

**Midlothian:** MISD High School graduations (May), 8<sup>th</sup> Street Dance (May), Movies in the Park (May – August), Independence Day Parade and Fireworks (July 3-4). All sporting events occur outdoors during the summer months that poses risks for heat related illnesses in the community.

**Milford:** High School Football and various sporting events held by the ISD.

**Oak Leaf:** The City of Oak Leaf hosts an annual National Night Out event in October.

**Ovilla:** None

**Palmer:** None

**Red Oak:** “Red, White and Blue” event 7/4 every year; “Founders Day” event held in September every year.

**Waxahachie:** Various youth and intramural sports leagues including baseball, football, and soccer.

**Ellis County Unincorporated:** Ellis County and its local judications host several events throughout the summer. Ranging from 4<sup>th</sup> of July celebrations to summer camps at local retreats.

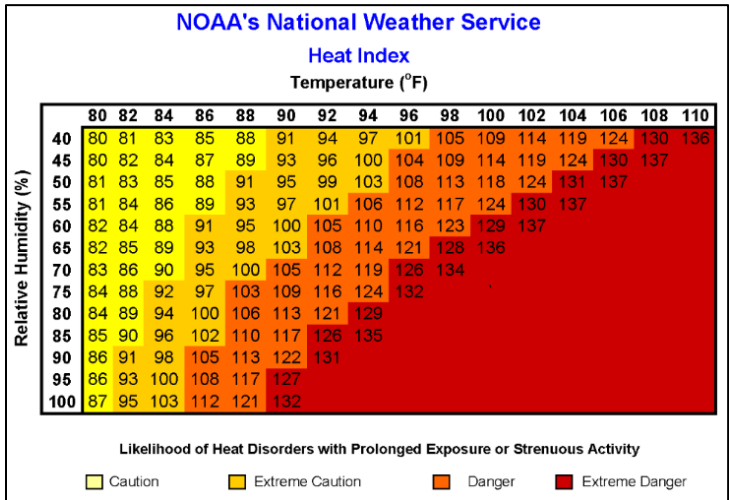
The Northern Ellis Emergency Dispatch has identified numerous heat related illnesses from 2012 – 2021 for the cities of Midlothian, Ovilla, and Red Oak.

## Historical Events- Extreme Heat





Below, NOAA’s Heat Index is a measure of how hot it really feels when relative humidity is factored in with the actual air temperature. As an example, if the air temperature is 96°F and the relative humidity is 65%, the heat index- how hot it feels -is 121°F. The red area without numbers indicates extreme danger. NWS will initiate alert procedures when the Heat Index is expected to exceed 105°-110°F (depending on local climate) for at least 2 consecutive days.



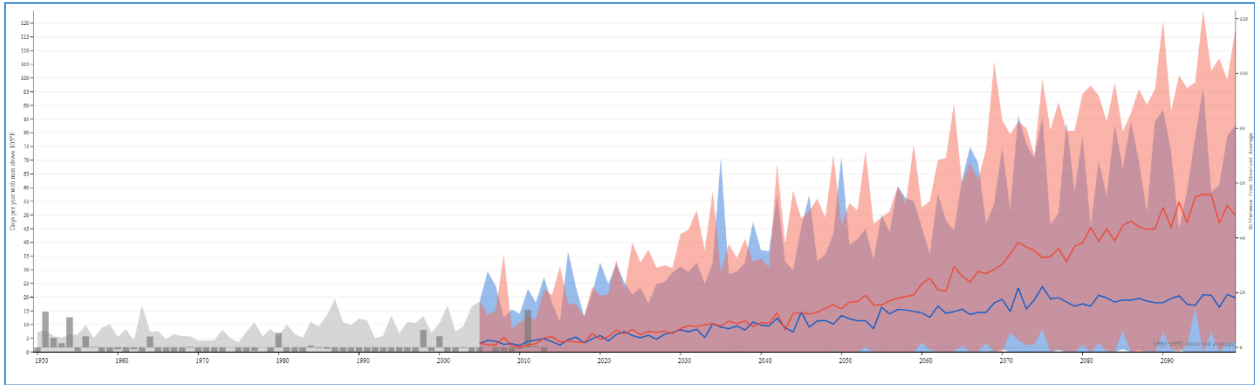
Extreme heat can be a factor that drastically impacts drought conditions, as high temperatures lead to an increased rate of evaporation. The total number of days per year with maximum temperature above various thresholds is an indicator of how often very hot conditions occur. Depending upon humidity, wind, and physical workload, people who work outdoors or don't have access to air conditioning may feel very uncomfortable or experience heat stress or illness on very hot days. Hot days also stress plants, animals, and human

infrastructure such as roads, railroads, and electric lines. Increased demand for electricity to cool homes and buildings can place additional stress on energy infrastructure.

Below is a visual representation of the expected amount of days per year that are over 105°F in Ellis County. The trend shows how global emissions have a major role in climate variance and has an impact on extreme heat.

- The **blue band** shows projections for 2006–2100 based on a future in which humans stop increasing global emissions of heat-trapping gases by 2040 and then dramatically reduce them through 2100. The top edge of the band represents the maximum value modeled at each time step; the bottom edge of the band represents the minimum. The darker blue line shows the weighted mean of projections for lower emissions.
- The **red band** shows projections for 2006–2100 based on a future in which global emissions of heat-trapping gases continue increasing through 2100. The top edge of the band represents the maximum value modeled at each time step; the bottom edge of the band represents the minimum. The red line shows the weighted mean of all projections for higher emissions.

**Predicted Number of Days with a Maximum Temperature Over 105°F in Ellis County**



Source: U.S. Climate Resilience Toolkit

### 3.2.5 Flooding

Potential impacts from flooding include:

- Loss of electricity
- Loss of, or contamination of, water supply
- Loss of property
- Structure and infrastructure damage – flooded structures and eroded roads
- Misplaced residents
- Snakes migrate and number of mosquitoes increase
- Fire – as a result of loss of water supply
- Debris in transportation paths
- Emergency response delays
- Disruption of traffic can lead to impacts to the economy
- Natural environment damage, to include protected species and critical habitats

Flooding				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Alma	Extensive	Likely	Limited	Medium
Bardwell	Limited	Likely	Limited	Minor
Ennis	Limited	Likely	Limited	Medium
Ferris	Negligible	Highly Likely	Minor	Minor
Garrett	Limited	Likely	Limited	Minor
Italy	Limited	Likely	Limited	Minor
Maypearl	Limited	Likely	Critical	Medium
Midlothian	Limited	Likely	Limited	Minor
Milford	Limited	Possible	Limited	Minor
Oak Leaf	Limited	Likely	Limited	Minor

Ovilla	Extensive	Likely	Limited	Medium
Palmer	Limited	Likely	Limited	Minor
Red Oak	Limited	Likely	Limited	Medium
Waxahachie	Extensive	Likely	Limited	Medium
Ellis County Unincorporated	Extensive	Likely	Limited	Minor
<b><i>Flooding from Dam Failure</i></b>				
<b>Jurisdiction</b>	<b>Location</b>	<b>Probability of Future Events</b>	<b>Level of Possible Damage</b>	<b>Maximum Probable Extent/Strength</b>
Alma	Negligible	Unlikely	Limited	Minor
Bardwell	Negligible	Unlikely	Limited	Minor
Ennis	Negligible	Unlikely	Limited	Minor
Ferris	Negligible	Unlikely	Limited	Minor
Garrett	Negligible	Unlikely	Limited	Minor
Italy	Negligible	Unlikely	Limited	Minor
Maypearl	Negligible	Unlikely	Limited	Minor
Midlothian	Negligible	Unlikely	Limited	Minor
Milford	Negligible	Unlikely	Limited	Minor
Oak Leaf	Negligible	Unlikely	Limited	Minor
Ovilla	Negligible	Unlikely	Limited	Minor
Palmer	Negligible	Unlikely	Limited	Minor
Red Oak	Negligible	Unlikely	Limited	Minor
Waxahachie	Negligible	Unlikely	Limited	Minor
Ellis County Unincorporated	Negligible	Unlikely	Limited	Minor

Flooding is defined as *the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands*. Flooding can occur anywhere with low-lying areas, clogged drains, and/or intense rain. Common flooding hazards within the planning area include flood hazards from flash flooding and new development. A flash flood is a rapid flood that inundates low-lying areas in less than six hours. This is caused by intense rainfall from a thunderstorm or several thunderstorms. Flash floods can also occur from the collapse of a man-made structure or ice dam. Construction and development can change the natural drainage and create brand new flood risks as the concrete that comes with new buildings, parking lots, and roads create less land that can absorb excess precipitation from heavy rains. Flash floods are a high-risk hazard since they can tear out trees and destroy buildings and bridges.

Floodwater can disguise many dangerous obstacles, like uncovered manholes or debris that can cause someone to fall over. Standing water, or water that isn't flowing, can also become a breeding ground for insects that can make people very ill. Another risk can be downed power lines which may still be live.

Besides rains and river or lake overflow, dam failure can also cause flooding. A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water.

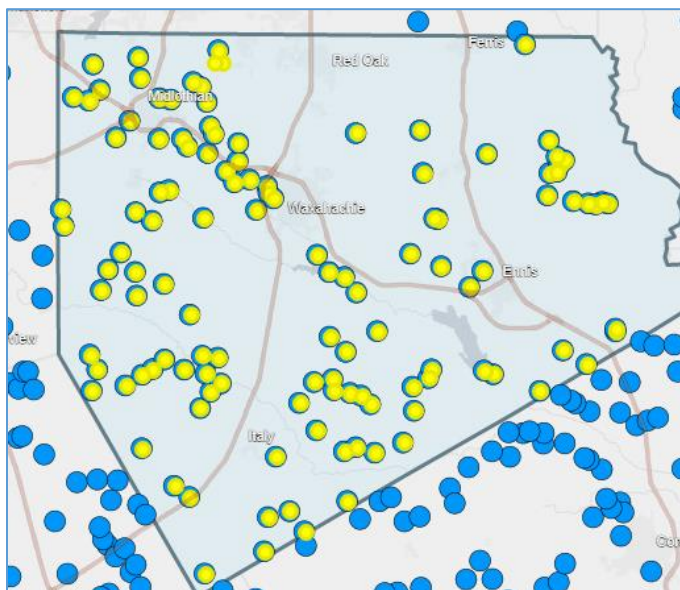
Dams typically are constructed of earth, rock, concrete, or mine tailings. A dam failure is an accidental or unintentional collapse, breach, or other failure of an impoundment structure that results in downstream flooding. Dam failure is a technological/man-made hazard that leads to a natural hazard, flooding.

According to the Association of State Dam Safety Officials, dam failures are most likely to happen for one of five reasons:

- 1. Overtopping** caused by water spilling over the top of a dam. Overtopping of a dam is often a precursor of dam failure. National statistics show that overtopping due to inadequate spillway design, debris blockage of spillways, or settlement of the dam crest account for approximately 34% of all U.S. dam failures.
- 2. Foundation Defects**, including settlement and slope instability, cause about 30% of all dam failures.
- 3. Cracking** caused by movements like the natural settling of a dam.
- 4. Inadequate maintenance and upkeep.**
- 5. Piping** is when seepage through a dam is not properly filtered and soil particles continue to progress and form sink holes in the dam. Another 20% of U.S. dam failures have been caused by piping (internal erosion caused by seepage). Seepage often occurs around hydraulic structures, such as pipes and spillways; through animal burrows; around roots of woody vegetation; and through cracks in dams, dam appurtenances, and dam foundations.

The occasional overtopping of the spillway from major rainfall is the main cause of flooding from dam failure within North Central Texas. Although dam failures have the potential to cause extensive damage, there has been no recorded failures in Ellis County, nor is it predicted to occur in the next 5 years, as a wide array of measures are taken to ensure structural integrity.

The United States Corps of Engineers (USACE) and the Texas Commission on Environmental Quality (TCEQ) have conducted extensive dam failure training for jurisdictional staff, reducing the impact of flooding from a dam failure to the jurisdictions. Jurisdictions have also worked with the private owners to ensure maintenance is enforced and regulated.



The yellow dots in this map represent the dams within Ellis County. It can be said that the inundation area of each dam is a 5-mile radius from the dam in addition to flooding along the banks of the body of water downstream, within the 500-year floodplain.

Potential impacts from dam failure flooding include:

- Property and crop damage

- Transportation delays
- Injury or death

The hazard extent rating scale for dam failure is based on the amount of potential damage that can be caused by a failure. For the purposes of this hazard analysis, damage from dam failure only takes into account areas where developed property is affected.

Extent Scale			
Flooding from Dam Failure	Minor	Medium	Major
		• Inundation depth of < 10 feet of water	• Inundation depth of 10-25 feet of water

**The dams are identified and described in Section 3.4.1 ‘Critical Facilities and Infrastructure’ of this plan, as we view the dams themselves as critical facilities/infrastructure and not natural hazards.**

The floodplain (or flood zone) is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. The statistical meaning of terms like “100-year flood” can be confusing. Simply stated, a floodplain can be located anywhere; it just depends on how large and how often a flood event occurs. Floodplains are those areas that are subject to inundation from flooding. Floods and the floodplains associated with them are often described in terms of the percent chance of a flood event happening in any given year. As a community management or planning term, “floodplain” or “flood zone” most often refers to an area that is subject to inundation by a flood that has a 1% chance of occurring in any given year (commonly referred to as the 100-year floodplain).

Some jurisdictions had information about land parcels withing the 100-year floodplain. The following tables reflect their data.

	Source	Total Parcels Intersecting 100-year Floodplain	Residential Parcels Located in 100-year Floodplain	Percentage of Total Residential Parcels Located in 100-year Floodplain	Commercial and Industrial Parcels in 100-year Floodplain	Percentage of Commercial and Industrial Parcels in 100-year Floodplain
<b>Midlothian</b>		1146	279	24.35%	80	6.98%
<b>Oak Leaf</b>	Ellis Appraisal District Property Map with FEMA FIRM overlay		96	13	0	0

<b>Ellis County</b>	County GIS		2025	11%	71	20%
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<b>Ferris Land Cover Types and Acreage Located Within the 100-year Floodplain</b>			
<b>Land Cover Type</b>	<b>Total Area in Jurisdiction (Acres)</b>	<b>Total Area in the 100-year Floodplain (Acres)</b>	<b>Percentage (%) of Area in the 100-year Floodplain</b>
Single Family Residence	321.6	0	0%
Multifamily Residence	1.4	0	0%
Vacant Lots & Tracts	94.8	0	.4%
Qualified Open Space and Land	708.5	3	0%
Improvements on Qualified Op	95.8	0	0%
Commercial Real Property	318.7	0	0%
Industrial and Manufacturing	3.3	0	0%
Railroad	7	0	0%
Residential Inventory	53.2	0	0%
Totally Exempt Property	328.3	0	0%
<b>Total</b>	<b>1,925.7</b>	<b>3</b>	<b>.4%</b>

<b>Italy Land Cover Types and Acreage Located Within the 100-year Floodplain</b>			
<b>Land Cover Type</b>	<b>Total Area in Jurisdiction (Acres)</b>	<b>Total Area in the 100-year Floodplain (Acres)</b>	<b>Percentage (%) of Area in the 100-year Floodplain</b>
Vacant	262.9	Not known	Not known
Residential	297.10	Not known	Not known
Commercial	74.9	Not known	Not known
Agricultural	520.1	Not known	Not known
Public	90	Not known	Not known
<b>Total</b>	<b>1245</b>		

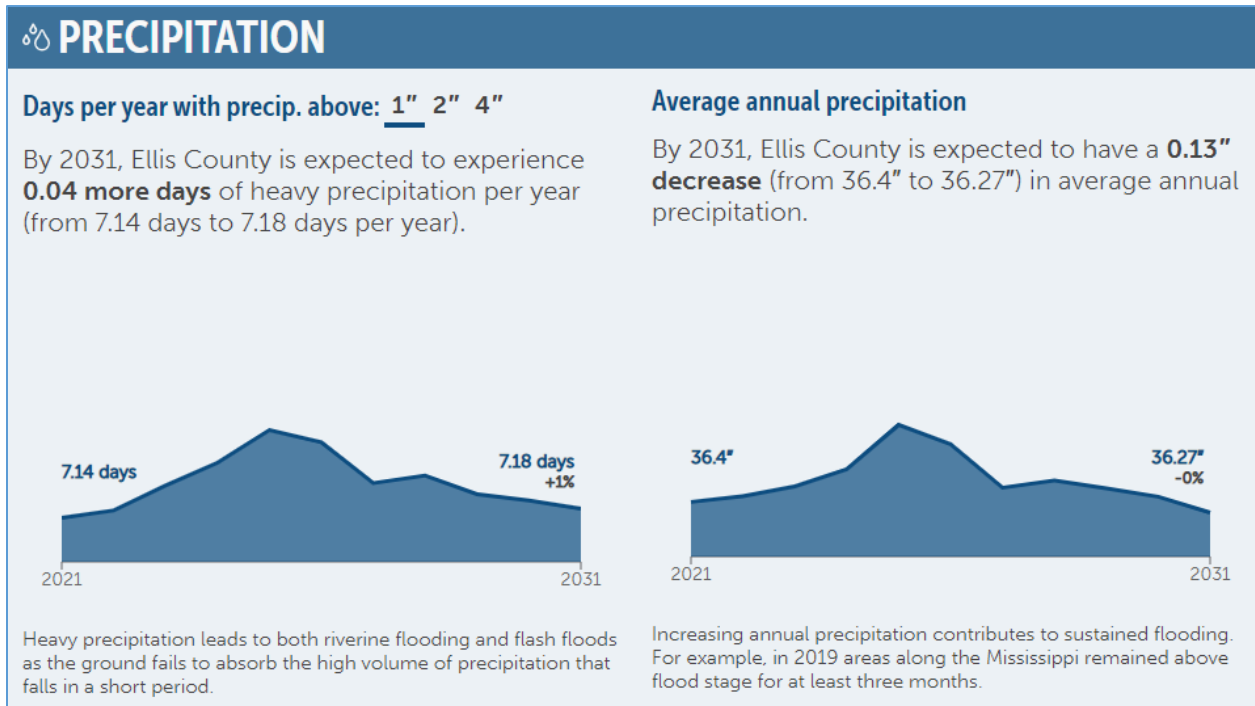
<b>Midlothian Land Cover Types and Acreage Located Within the 100-year Floodplain</b>			
<b>Land Cover Type</b>	<b>Total Area in Jurisdiction (Acres)</b>	<b>Total Area in the 100-year Floodplain (Acres)</b>	<b>Percentage (%) of Area in the 100-year Floodplain</b>
Agriculture	12847.1514	1161.289245	9.04%

Commercial	363.130634	30.609858	8.43%
Central Business District	11.979386	0	0.00%
Community Retail	158.447393	13.220695	8.34%
General Professional	126.722212	4.438379	3.50%
High Industrial	6081.467668	274.979564	4.52%
Light Industrial	1308.097598	133.240995	10.19%
Medium Density 1	49.565714	17.94299	36.20%
Medium Density 2	0.998463	0	0.00%
Multi-Family	34.23947	0	0.00%
Mobile Home	52.641879	1.866386	3.55%
Medium Industrial	490.056682	119.3618	24.36%
N8	7.169242	0	0.00%
Planned Development	12536.56778	1237.291944	9.87%
Residential 2.5	368.786887	48.8412	13.24%
Residential 3	336.918383	25.193806	7.48%
Single Family 1	3287.992037	252.40284	7.68%
Single Family 2	396.912378	21.446251	5.40%
Single Family 3	501.270583	66.802175	13.33%
Single Family 4	597.737948	12.209549	2.04%
Unclassified	24065.91944	2335.82796	9.71%
<b>Total</b>	<b>63623.77317</b>	<b>5756.965637</b>	<b>9.05%</b>

<b>Oak Leaf Land Cover Types and Acreage Located Within the 100-year Floodplain</b>			
<b>Land Cover Type</b>	<b>Total Area in Jurisdiction (Acres)</b>	<b>Total Area in the 100-year Floodplain (Acres)</b>	<b>Percentage (%) of Area in the 100-year Floodplain</b>
Residential	1090.30	244.18	21%
Farmland/Undeveloped	418.64	97.86	23%
Business	7.86	0	0%
<b>Total</b>	<b>1516.80</b>	<b>342.04</b>	<b>44%</b>

<b>Ellis County Land Cover Types and Acreage Located Within the 100-year Floodplain</b>			
<b>Land Cover Type</b>	<b>Total Area in Jurisdiction (Acres)</b>	<b>Total Area in the 100-year Floodplain (Acres)</b>	<b>Percentage (%) of Area in the 100-year Floodplain</b>
Commercial	22,165	12,830	57.88%
Utilities	117	1	0.85%
Residential	49,282	8,838	17.93%
Farmland/Undeveloped	416,561	268,238	64.39%
<b>Total</b>	<b>488,125</b>	<b>289,907</b>	<b>59.39%</b>

Headwater Economics provided the following data for the number of days per year with precipitation above 1" over the next 10 years.



The following questions address the overall flooding issues within the participating jurisdictions of Ellis County.

What rivers, creeks, and/or lakes are in your jurisdiction?
<b>Alma:</b> Nearby water includes Grays Creek, Cummins Creek, Burns Creek, Walker Creek, Lake Bardwell (located west of Alma), and Reservoir 1 (Barker Rd).
<b>Bardwell:</b> None
<b>Ennis:</b> Bardwell Lake, Lake Clark, City Lake
<b>Ferris:</b> Long Branch Creek and Bear Creek are two creeks to the southwest of our jurisdiction.
<b>Garrett:</b> None
<b>Italy:</b> Houston Creek
<b>Maypearl:</b> Chambers Creek, Oak Branch Creek, Bee Creek are in our city or surrounding area that affects us.
<b>Midlothian:</b> <u>Major streams:</u> The major streams in the City of Midlothian, as defined in this Ordinance, are Armstrong Creek, Bedford Branch, Cottonwood Creek, Hollings Branch, Long Branch, Newton Branch, North Prong Creek, Sanders Branch, Soap Creek, South Prong Creek, and Waxahachie Creek.
<b>Milford:</b> Mill Creek and Richland Creek
<b>Oak Leaf:</b> Little Creek and Red Oak Creek
<b>Ovilla:</b> Little Creek and Red Oak Creek
<b>Palmer:</b> There are various ponds and lakes in the area.
<b>Red Oak:</b> Red Oak Creek, Little Creek, Bear Creek, Brushy Creek
<b>Waxahachie:</b> Lake Waxahachie, Katy Lake, and Waxahachie Creek are the main lakes and creeks in the city.



**Ellis County Unincorporated:** There are various rivers, creeks, and lakes in the area. Please see maps in Appendix A.

**Which of these water sources have a history of flooding?**

**Alma:** All

**Bardwell:** N/A

**Ennis:** Bardwell Lake

**Ferris:** All (but there are no structures at risk)

**Garrett:** N/A

**Italy:** None

**Maypearl:** All

**Midlothian:** All streams in the City of Midlothian, as defined in this Ordinance, are Armstrong Creek, Bedford Branch, Cottonwood Creek, Hollings Branch, Long Branch, Newton Branch, North Prong Creek, Sanders Branch, Soap Creek, South Prong Creek, and Waxahachie Creek have the potential for flooding or flash flooding.

**Milford:** None

**Oak Leaf:** All

**Ovilla:** All

**Palmer:** All

**Red Oak:** All

**Waxahachie:** All

**Ellis County Unincorporated:** Multiple water sources have a history of flooding.

**Name any streets or intersections that experience flooding or flash flooding:**

**Alma:** I-45

**Bardwell:** None

**Ennis:** N/A

**Ferris:** 5<sup>th</sup> Street underpass at I-45 and 8<sup>th</sup> Street underpass at I-45.

**Garrett:** None

**Italy:** Venice Street & Milan Street

**Maypearl:** Main Street experiences the worst; drainage systems are challenged.

**Midlothian:** Old Fort Worth Rd West of Ward Rd/ Creek Bend Drive (flood markers installed 2020-2021)/ Nueces Trail (flood markers installed 2020-2021)/ Ponding on various streets in the City of Midlothian after significant rainfall.

**Milford:** None

**Oak Leaf:** Locust Drive at Uhl Road intersection/ S. Hampton Road at Little Creek/ S. Hampton Road at Red Oak Creek/ and Forest Brook Drive at Red Oak Creek.

**Ovilla:** None

**Palmer:** Various roads experience flash flooding.

**Red Oak:**

- 101 Live Oak Watkins Park
- 200 Live Oak, Lindsey Park (Sports Fields)
- 673 E Ovilla Rd Soccer Fields (Eastridge Elm)
- 122 S Hwy 342 ROISD sports / practice fields (ROHS)
- 154 Louise Ritter Blvd ROISD Sports / practice fields (ROJRHS)
- 200 Lake View Parkway, City Lake / Pearson Park
- Red Oak Golf Course (RO Creek)
- N. Pratt Road Bridges (Flood Prone)
- Red Oak Creek Bridges (flood Prone)

- Crest Brook at low water crossing (has flood gauge)
- 600 Blk. Shawnee (Flood Gate)
- Country Ridge @ Summer Hill (Flood Prone)
- 1400 Stainback (Flood Prone)
- 600 & 1100 Blk. Pierce (Flood Prone)
- 400 Blk. S IH-35 Trailer Park behind Taxidermy shop (Flood Prone RO Creek)

**Waxahachie:** Various roads experience flash flooding.

**Ellis County Unincorporated:** Various roads experience flash flooding.

- PRECINCT 1
  - 1700 BLK GIBSON RD
  - 500 BLK EBENEZER RD
  - FARRAR RD
- PRECINCT 2
  - 1521 NASH HOWARD RD
  - OLD BOYCE RD CLOSED
  - PIGG RD CLOSED
  - MOSELEY RD CLOSED
  - DUNKERLEY CLOSED
  - JC SPENCE CLOSED
- PRECINCT 3
  - 600 BLK DRY BRANCH RD CLOSED
  - EDNA @LOWATER CLOSED
  - MORGAN RD @ LOWATER CLOSED
- PRECINCT 4
  - 1920 N MOCKINGBIRD
  - COLE RD/PIERCE RD
  - SHAWNEE RD / LOUISE RITTER
- HWY DEPT
  - 3000-3800 BLK FM 813
  - FM 1387/BRYSON LN
  - SB I45 SVC RD/WESTER RD
  - 260 SB I45 SVC RD CLOSED
  - 260 NB I45 SVC RD CLOSED
  - 257-258 NB I45 SVC RD CLOSED
  - 5700 BLK FM 813
  - 263 SB I45 SVR

What critical facilities or infrastructure (airports, dams, water treatment facilities, wastewater treatment facilities, schools, hospitals, fire stations, and police stations) are located in the 100-year floodplain?

Out of the 122 dams in Ellis County, Bardwell Dam is the only high-hazard dam. The jurisdictions who are at greater risk are Ennis and Bardwell since they fall at a 5-mile radius from the Bardwell dam.

In the event of a wildfire, will flooding and erosion be an issue in restoring destroyed forested slopes?

No

The following map shoes the location of Lake Bardwell, which is where the Bardwell Dam is located. Every jurisdiction within a 10 mile radius from the Bardwell Dam will be considered

The following table reflects the loss statistic of NFIP policy holders.

Loss Statistics as of 01/05/2022			
Community	Claim Status	Sum of Number of Losses	Sum of Total Net Payments
ELLIS COUNTY* (480798)		76	\$1,845,040

Loss Statistics as of 01/05/2022			
Community	Claim Status	Sum of Number of Losses	Sum of Total Net Payments
	Closed with payment	57	\$1,845,040
	Closed without payment	19	\$0
ENNIS, CITY OF (480207)		1	\$0
	Closed without payment	1	\$0
ITALY, CITY OF (480800)		1	\$8,118
	Closed with payment	1	\$8,118
MIDLOTHIAN, CITY OF (480801)		6	\$214,199
	Closed with payment	3	\$214,199
	Closed without payment	2	\$0
	Open	1	\$0
OAK LEAF, CITY OF (481672)		10	\$1,817,768
	Closed with payment	8	\$1,817,768
	Closed without payment	2	\$0
OVILLA, CITY OF (481155)		7	\$562,304
	Closed with payment	5	\$562,304
	Closed without payment	2	\$0
RED OAK, CITY OF (481650)		6	\$236,625
	Closed with payment	6	\$236,625
WAXAHACHIE, CITY OF (480211)		25	\$157,532
	Closed with payment	15	\$157,532
	Closed without payment	10	\$0

Historical Events- Flooding							
Location	County/Zone	Date	Type	Dth	Inj	PrD	CrD
ELLIS CO.	MAYPEARL	5/12/2014	Flash Flood	0	0	0	0
ELLIS CO.	PALMER	6/25/2014	Flash Flood	0	0	0	0
ELLIS CO.	ENNIS	5/10/2015	Flash Flood	0	0	0	0
ELLIS CO.	RED OAK	5/26/2015	Flash Flood	0	0	0	0
ELLIS CO.	MIDLOTHIAN	10/23/2015	Flash Flood	0	0	5000	0
ELLIS CO.	RED OAK	10/31/2015	Flash Flood	0	0	1000	0
ELLIS CO.	MAYPEARL	6/12/2016	Flash Flood	0	0	0	0

## Historical Events- Flooding

Location	County/Zone	Date	Type	Dth	Inj	PrD	CrD
ELLIS CO.	PALMER	8/17/2016	Flash Flood	0	0	0	0
ELLIS CO.	PALMER	5/25/2015	Flood	0	0	0	0
ELLIS CO.	MAYPEARL	4/10/2017	Flood	0	0	0	0
<b>Totals:</b>				0	0	\$6,000	\$0

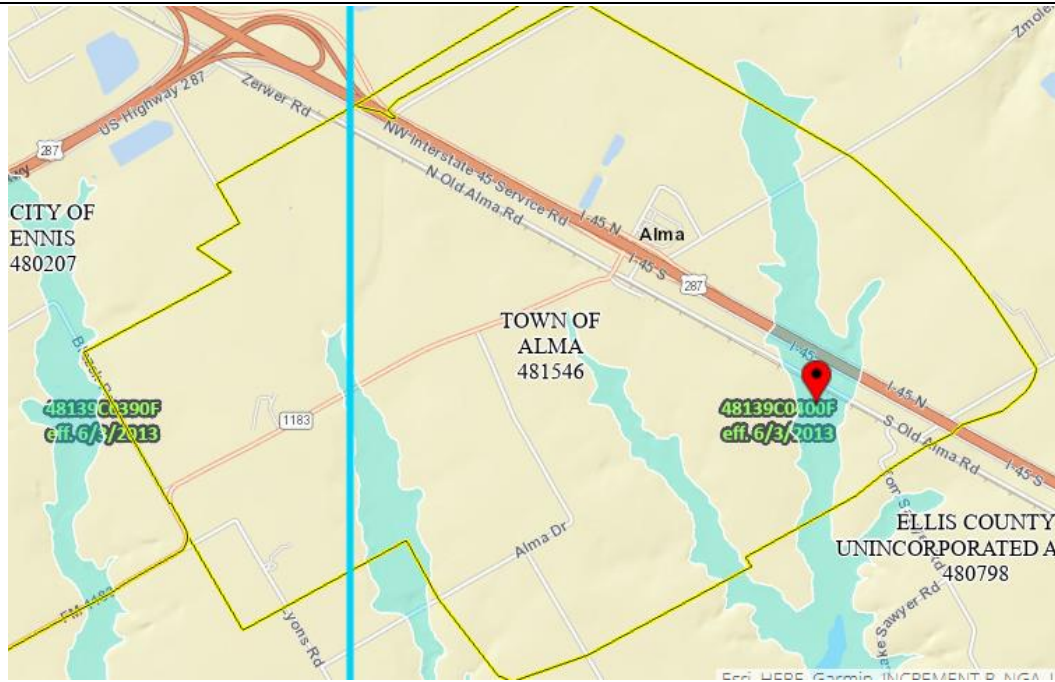
Source: NOAA National Centers for Environmental Information

No previous occurrence in Alma, Bardwell, Garrett, Italy, Milford, and Ovilla.

The following graph shows detailed locations for potential flooding and inundation in Ellis County.

## Flooding and Inundation in Ellis County

Alma

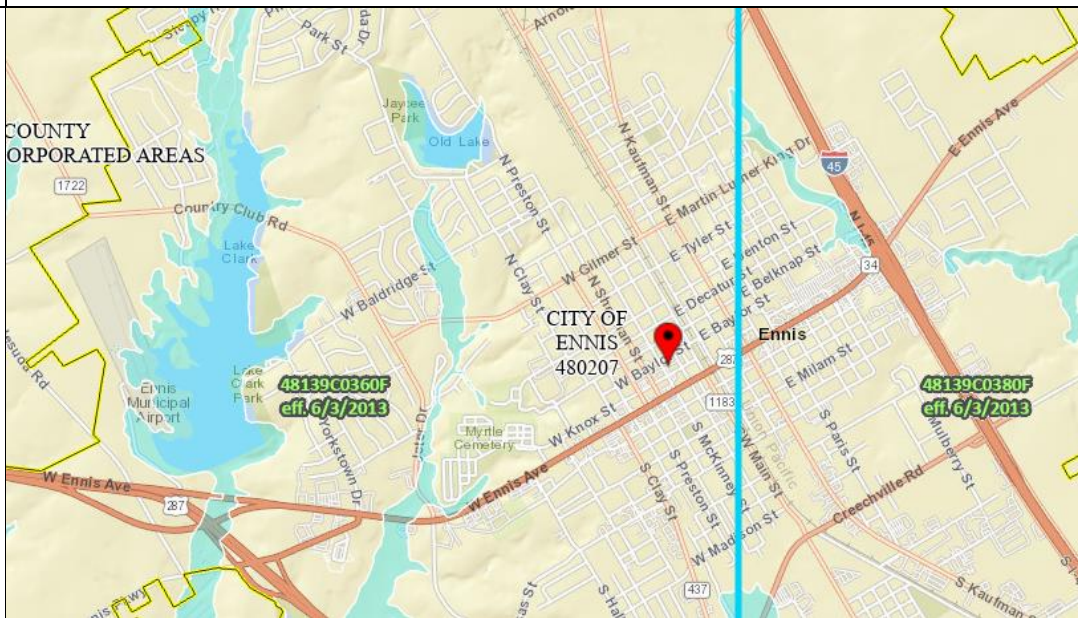


Bardwell



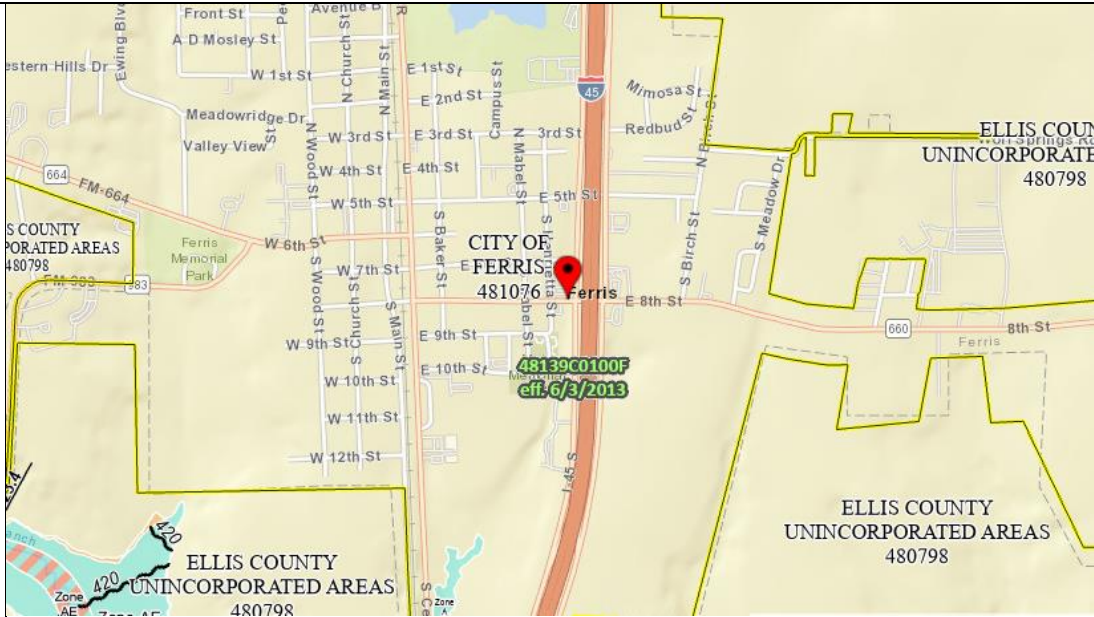
Potential flooding from Bardwell Lake Dam failure

Ennis

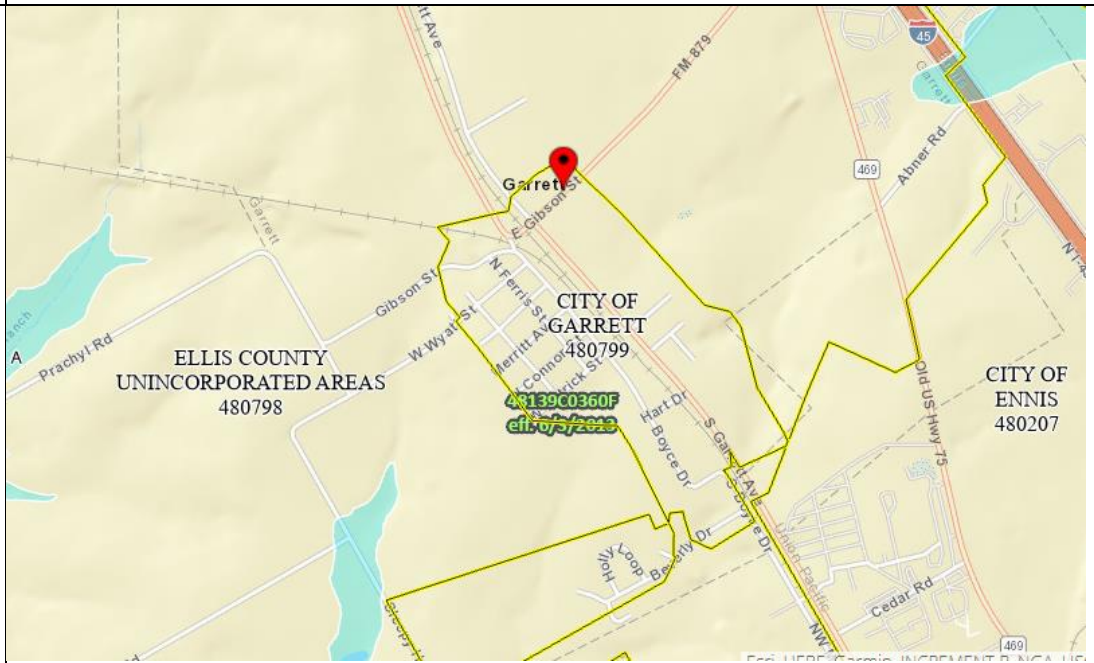


Potential flooding from Bardwell Lake Dam failure

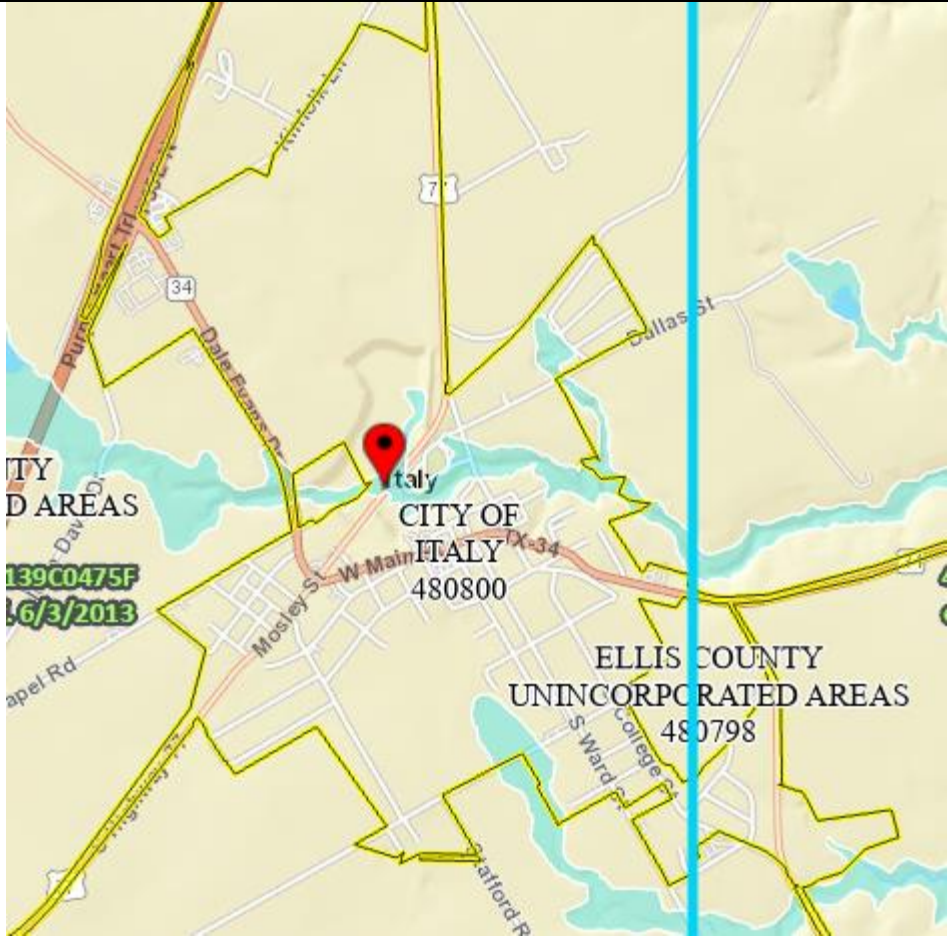
Ferris



Garrett



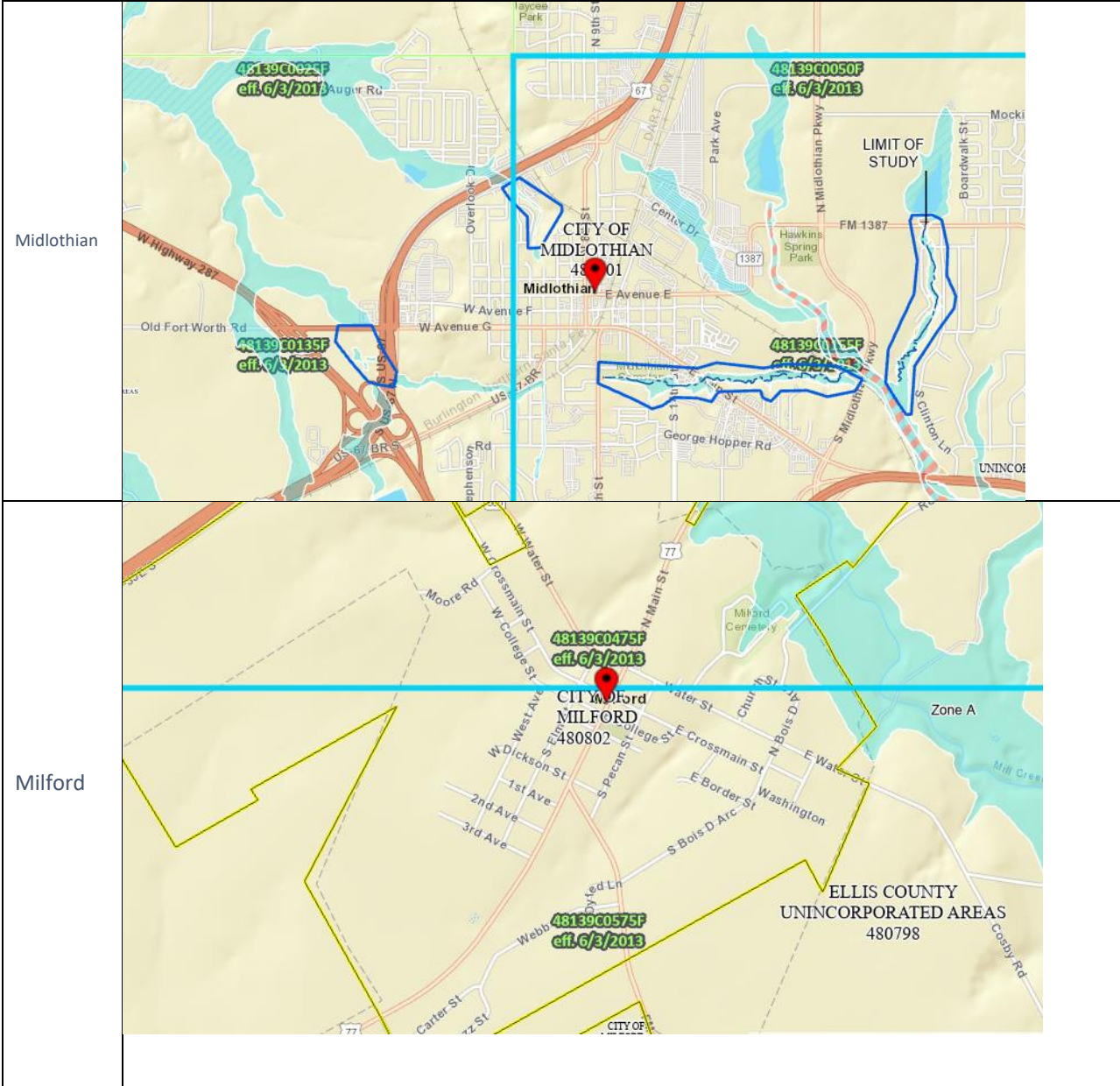
Italy



Maypearl

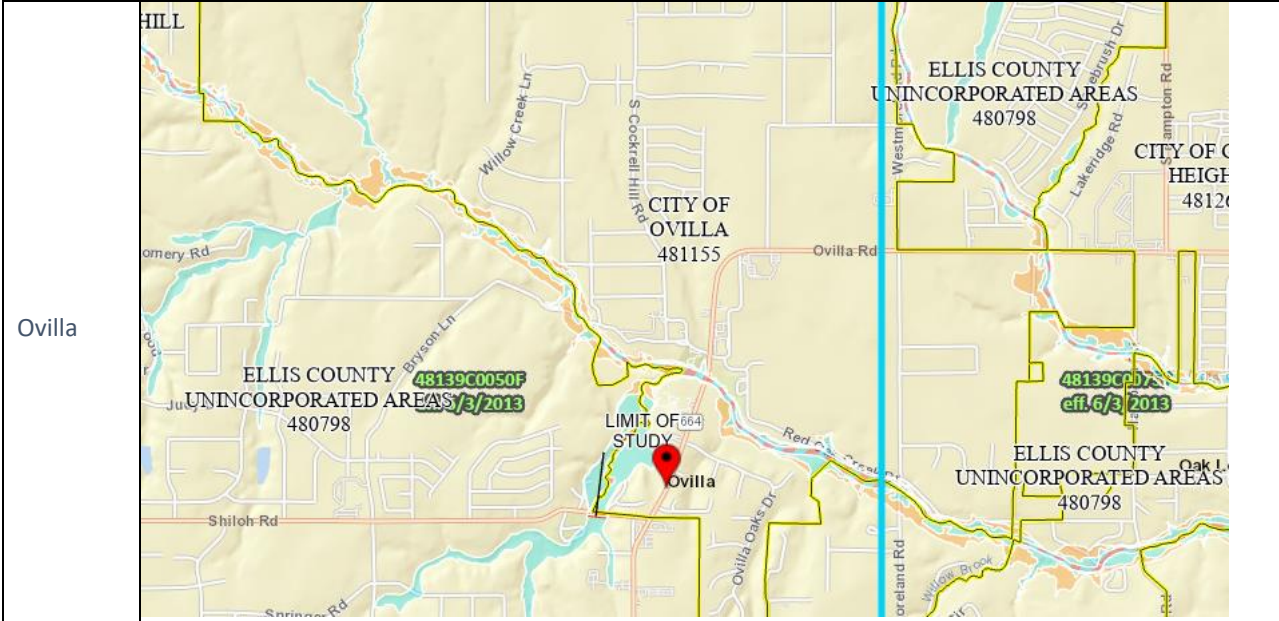






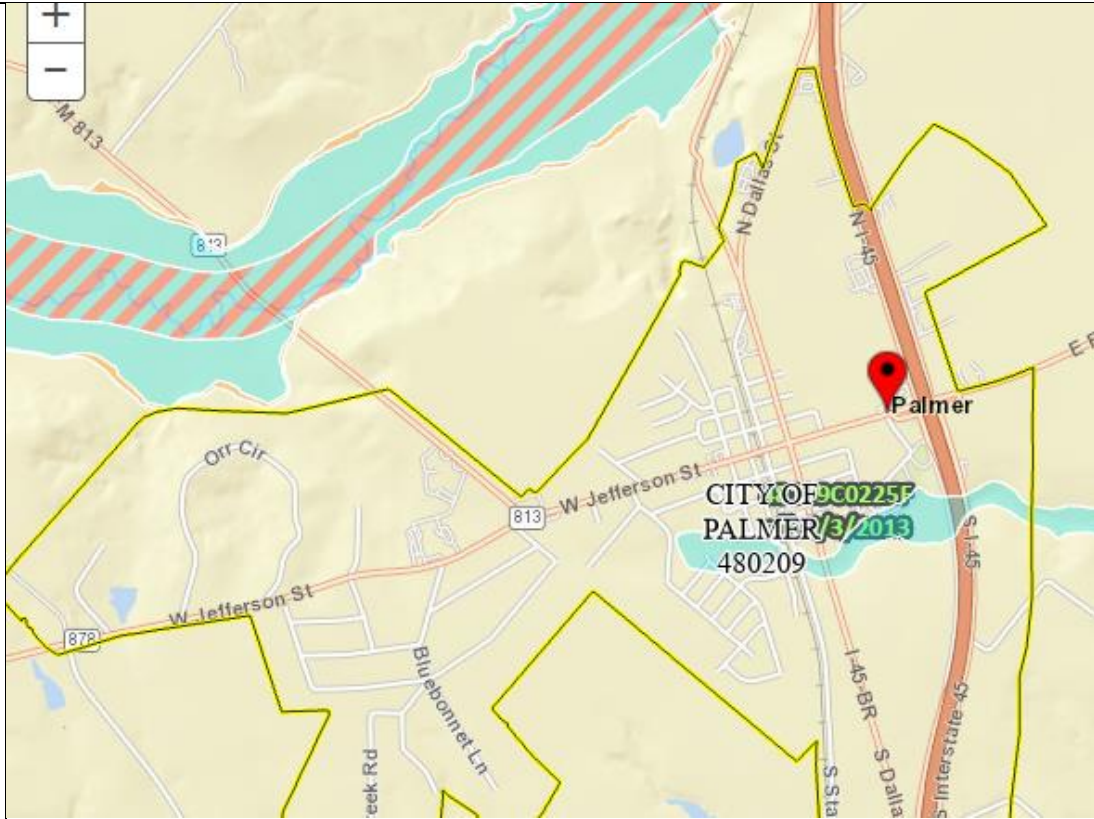


Oak Leaf

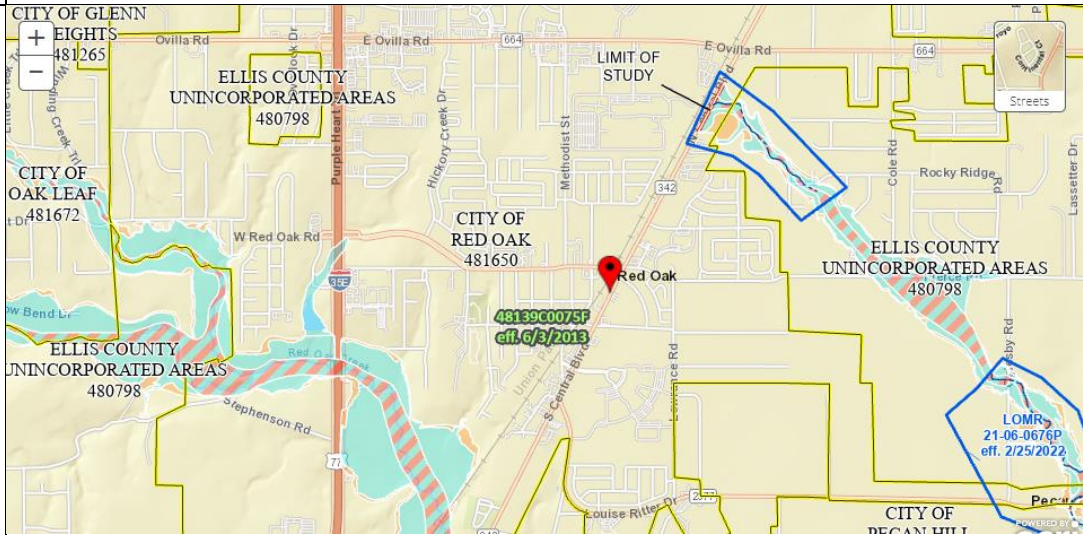


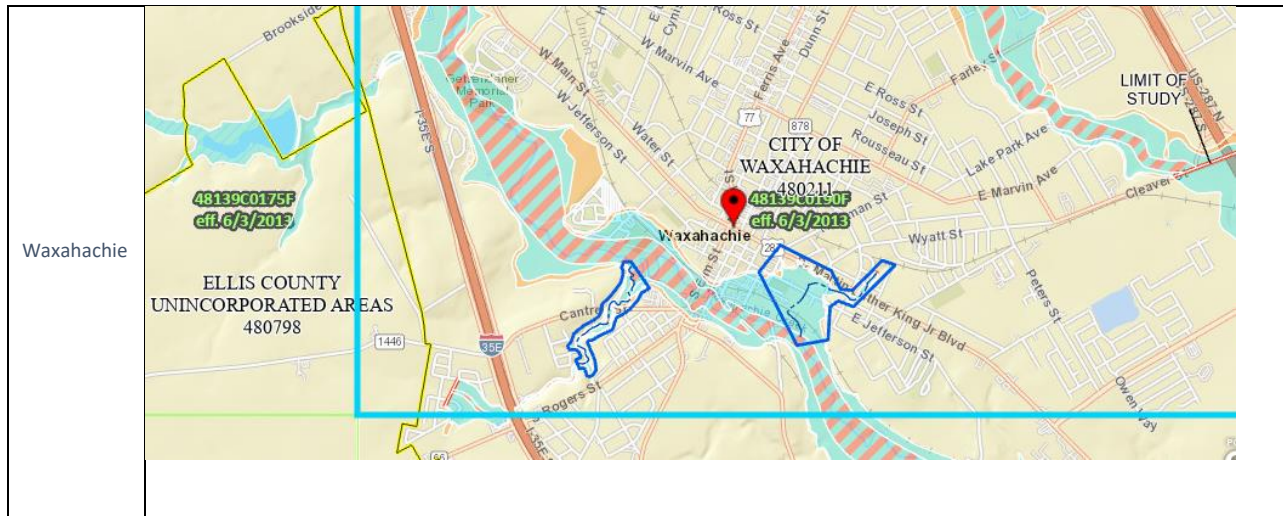
Ovilla

Palmer



Red Oak





### 3.2.6 Thunderstorms

Potential impacts from thunderstorms include:

- Property damage to fences, vehicles, equipment, and roofs
- Transportation delays
- Injury or death
- Electrical grid problems
- Power outage
- Communication problems – phone and internet lines down
- Natural environment damage, to include protected species and critical habitats
- Property damage
- Crop damage
- Fire- caused by lightning
- Blocked roadways from trees and damaged property

Thunderstorms				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Alma	Extensive	Highly Likely	Limited	Medium
Bardwell	Extensive	Highly Likely	Limited	Medium
Ennis	Extensive	Likely	Critical	Major
Ferris	Extensive	Highly Likely	Limited	Medium
Garrett	Extensive	Likely	Minor	Minor
Italy	Extensive	Highly Likely	Limited	Medium
Maypearl	Extensive	Highly Likely	Critical	Medium
Midlothian	Extensive	Highly Likely	Limited	Medium
Milford	Extensive	Highly Likely	Limited	Medium

Thunderstorms				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Oak Leaf	Extensive	Highly Likely	Limited	Medium
Ovilla	Extensive	Highly Likely	Limited	Medium
Palmer	Extensive	Highly Likely	Limited	Medium
Red Oak	Extensive	Highly Likely	Limited	Major
Waxahachie	Extensive	Highly Likely	Limited	Medium
Ellis County Unincorporated	Extensive	Highly Likely	Limited	Medium

Although most new homes and buildings in the participating jurisdictions are built to resist the effects of all but the strongest thunderstorms, several mobile and manufactured home parks and vehicles remain vulnerable. Thousands of homes and vehicles can be damaged by high winds, hail, and lightning in a single storm, causing millions of dollars in damages.<sup>5</sup>

A thunderstorm is a storm that consists of rain-bearing clouds and has the potential to produce hail, high winds, and lightning.









- **Hail:** Hail occurs when, at the outgrowth of a severe thunderstorm, balls or irregularly shaped lumps of ice greater than 19.05 mm (0.75 inches) in diameter fall with rain. Evidence indicates maximum hailstone size is the most important parameter relating to structural damage, especially towards the more severe end of the scale. It must be noted that hailstone shapes are also an important feature, especially as the “effective” diameter of non-spheroidal specimens should ideally be an average of the coordinates. Spiked or jagged hail can also increase some aspects of damage.
- **Wind:** Straight-line winds are often responsible for the wind damage associated with a thunderstorm. Downbursts or micro-bursts are examples of damaging straight-line winds. 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, which is similar to that of a strong tornado. The winds produced from a downburst often occur in one direction and the worst damage is usually on the forward side of the downburst.
- **Lightning:** Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas within thunderstorms. A “bolt” or brilliant flash of light is created when the buildup becomes strong enough. These bolts of lightning can be seen in cloud-to-cloud or cloud-to-ground strikes. Bolts of lightning can reach temperatures approaching 50,000°F. While lightning is mostly affiliated with thunderstorms, lightning often strikes outside of these storms, as far as 10 miles away from any rainfall. Direct strikes have the power to cause significant damage to buildings, critical facilities, infrastructure, and the ignition

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<sup>5</sup> State of Texas Mitigation Plan. 2013, page 72.

of wildfires which can result in widespread damages to property and persons. Lightning is the most significant natural contributor to fires affecting the built environment.

The National Weather Service uses the following Storm Prediction Center (SPC) activity levels to represent severe weather outlooks and used to determine the extent of thunderstorm conditions:

Understanding Severe Thunderstorm Risk Categories					
<b>THUNDERSTORMS</b> (no label)	<b>1 - MARGINAL</b> (MRGL)	<b>2 - SLIGHT</b> (SLGT)	<b>3 - ENHANCED</b> (ENH)	<b>4 - MODERATE</b> (MDT)	<b>5 - HIGH</b> (HIGH)
No severe* thunderstorms expected	Isolated severe thunderstorms possible	Scattered severe storms possible	Numerous severe storms possible	Widespread severe storms likely	Widespread severe storms expected
Lightning/flooding threats exist with <u>all</u> thunderstorms	Limited in duration and/or coverage and/or intensity	Short-lived and/or not widespread, isolated intense storms possible	More persistent and/or widespread, a few intense	Long-lived, widespread and intense	Long-lived, very widespread and particularly intense
					
* NWS defines a severe thunderstorm as measured wind gusts to at least 58 mph, and/or hail to at least one inch in diameter, and/or a tornado. All thunderstorm categories imply lightning and the potential for flooding. Categories are also tied to the probability of a severe weather event within 25 miles of your location.					
		<b>National Weather Service</b> <a href="http://www.spc.noaa.gov">www.spc.noaa.gov</a>			

The Storm Prediction Center uses a five-level risk system to define potential severe weather risks. Level one is the lowest and level five is the highest. Level one and level two are the most commonly issued. Level three through level five become progressively rarer. A higher risk level means a higher probability of severe weather impacting your area. Another way to think about the risks is using a color-risk scale. From the lowest risk to highest the colors transition from green to yellow to orange to red to pink.

- **A Level 1 (Marginal) Risk** of severe weather is issued when strong to borderline severe storms are possible. Thunderstorms are expected to be limited in their organization and/or only last a short amount of time. Severe thunderstorm coverage is anticipated to be very low along with marginal intensity.
- **A Level 2 (Slight/Standard) Risk** indicates the potential for severe thunderstorms. Coverage of severe thunderstorms is anticipated to be isolated to widely scattered. This is issued for most of our 'dryline' days where the number of storms will be limited, but quite intense. Varying levels of intensity are possible and depend on the severe weather setup. This risk is the 'standard' risk level for most of our severe weather days.
- **A Level 3 (Enhanced) Risk** indicates scattered to numerous severe thunderstorms are possible. This risk is issued when a higher concentration of severe weather is possible. Varying levels of

severe weather intensity are expected, but the risk for higher-end severe weather increases. Depending on the setup there could be an increased risk for several tornadoes (some strong), giant hail, and/or widespread damaging wind gusts.

- **A Level 4 (Moderate) Risk** is rare and indicates increased confidence in a significant severe weather event. Numerous severe thunderstorms are expected with widespread severe weather. Several strong, long-lived tornadoes, giant hail, and/or widespread destructive wind gusts are expected. The specific hazards will depend on the setup, but intense severe weather is likely.
- **A Level 5 (High) Risk** is very rare. A High Risk is issued only when confidence is high in a major outbreak of tornadoes and/or a long-lived derecho with hurricane-force wind gusts. Violent, long-lived tornadoes, giant hail, and/or an intense derecho are probable. While any of the above risk levels can and do produce high-end impacts, a high-risk issuance is a precursor to a 'Red Letter' day with devastating impacts.

<b>Historical Events- Thunderstorms (hail, high wind, lightning)</b>							
Location	Date	Type	Mag	Dth	Inj	PrD	CrD
RED OAK	4/3/2012	Hail	1	0	0	0	0
WAXAHACHIE	4/3/2012	Hail	1	0	0	0	0
RED OAK	4/3/2012	Hail	1	0	0	0	0
ALMA	5/7/2012	Hail	1.75	0	0	3000	0
MIDLOTHIAN	6/13/2012	Hail	1.25	0	0	100000	0
MIDLOTHIAN	6/13/2012	Hail	2.75	0	0	300000	0
MIDLOTHIAN	6/13/2012	Hail	1.5	0	0	0	0
MIDLOTHIAN	6/13/2012	Hail	1.75	0	0	160000	0
RED OAK	3/23/2013	Hail	1	0	0	0	0
FERRIS	5/21/2013	Hail	0.88	0	0	0	0
PALMER	5/21/2013	Hail	0.88	0	0	0	0
MIDLOTHIAN	3/28/2014	Hail	1	0	0	0	0
RED OAK	3/28/2014	Hail	0.75	0	0	0	0
RED OAK	3/28/2014	Hail	1	0	0	0	0
FERRIS	3/28/2014	Hail	1	0	0	0	0
FERRIS	3/28/2014	Hail	1.25	0	0	0	0
ENNIS	4/21/2014	Hail	1	0	0	0	0
WAXAHACHIE	4/21/2014	Hail	1.75	0	0	40000	0
WAXAHACHIE	4/21/2014	Hail	1	0	0	0	0
WAXAHACHIE	4/21/2014	Hail	0.75	0	0	0	0
MIDLOTHIAN	4/21/2014	Hail	0.88	0	0	0	0
WAXAHACHIE	4/21/2014	Hail	0.75	0	0	0	0
ENNIS	4/27/2014	Hail	1	0	0	0	0
WAXAHACHIE	10/2/2014	Hail	1.25	0	0	0	0
RED OAK	10/2/2014	Hail	1	0	0	0	0
MIDLOTHIAN	4/18/2015	Hail	1	0	0	0	0
WAXAHACHIE	4/18/2015	Hail	1	0	0	0	0
WAXAHACHIE	4/24/2015	Hail	1.75	0	0	12000	0
WAXAHACHIE	4/24/2015	Hail	1.5	0	0	4000	0
MIDLOTHIAN	4/26/2015	Hail	1	0	0	0	0

## Historical Events- Thunderstorms (hail, high wind, lightning)

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
RED OAK	3/17/2016	Hail	0.75	0	0	0	0
MIDLOTHIAN	3/30/2016	Hail	1	0	0	0	0
RED OAK	5/11/2016	Hail	0.75	0	0	0	0
MIDLOTHIAN	2/27/2017	Hail	0.75	0	0	0	0
WAXAHACHIE	2/27/2017	Hail	1	0	0	0	0
WAXAHACHIE	2/27/2017	Hail	1	0	0	0	0
WAXAHACHIE	2/27/2017	Hail	1	0	0	0	0
WAXAHACHIE	2/27/2017	Hail	0.88	0	0	0	0
MIDLOTHIAN	5/3/2017	Hail	1	0	0	1000	0
OVILLA	5/3/2017	Hail	1	0	0	1000	0
RED OAK	5/3/2017	Hail	1	0	0	1000	0
WAXAHACHIE	5/3/2017	Hail	1	0	0	1000	0
RED OAK	5/3/2017	Hail	1	0	0	1000	0
ENNIS	5/3/2017	Hail	1	0	0	1000	0
MIDLOTHIAN	4/21/2018	Hail	1.5	0	0	0	0
OVILLA	4/21/2018	Hail	1	0	0	0	0
MIDLOTHIAN	4/21/2018	Hail	1	0	0	0	0
MIDLOTHIAN	4/21/2018	Hail	1.25	0	0	0	0
WAXAHACHIE	4/21/2018	Hail	1	0	0	0	0
MIDLOTHIAN	11/30/2018	Hail	0.88	0	0	0	0
PALMER	6/9/2019	Hail	1.5	0	0	0	0
MIDLOTHIAN	4/28/2020	Hail	1	0	0	0	0
WAXAHACHIE	4/28/2020	Hail	0.88	0	0	0	0
WAXAHACHIE	4/28/2020	Hail	1	0	0	0	0
WAXAHACHIE	4/28/2020	Hail	1	0	0	0	0
MIDLOTHIAN	4/28/2020	Hail	0.88	0	0	0	0
RED OAK	5/5/2020	Hail	1	0	0	0	0
OVILLA	8/16/2020	Hail	0.75	0	0	0	0
FERRIS	3/24/2021	Hail	1.5	0	0	0	0
MAYPEARL BEE ARPT	4/9/2021	Hail	0.75	0	0	0	0
MAYPEARL BEE ARPT	4/9/2021	Hail	1	0	0	0	0
MAYPEARL	4/9/2021	Hail	2	0	0	8000	0
MIDLOTHIAN	4/9/2021	Hail	0.75	0	0	0	0
MIDLOTHIAN	4/9/2021	Hail	0.88	0	0	0	0
MIDLOTHIAN	4/9/2021	Hail	1	0	0	0	0
MIDLOTHIAN	4/9/2021	Hail	1	0	0	0	0
MIDLOTHIAN	4/9/2021	Hail	1	0	0	0	0
OVILLA	4/9/2021	Hail	1	0	0	0	0
MILFORD	4/9/2021	Hail	1.75	0	0	3000	0
MAYPEARL	4/9/2021	Hail	1.75	0	0	50000	0
MAYPEARL	4/9/2021	Hail	1.5	0	0	0	0
MAYPEARL BEE ARPT	4/9/2021	Hail	1.75	0	0	5000	0
ITALY	4/9/2021	Hail	3	0	0	20000000	0
WAXAHACHIE	7/9/2012	Lightning		0	0	271000	0



## Historical Events- Thunderstorms *(hail, high wind, lightning)*

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
WAXAHACHIE	8/16/2014	Lightning		0	0	200000	0
RED OAK	8/16/2014	Lightning		0	0	37000	0
MIDLOTHIAN	5/4/2012	Thunderstorm Wind	52	0	0	5000	0
ITALY	5/31/2012	Thunderstorm Wind	56	0	0	15000	0
MILFORD	5/31/2012	Thunderstorm Wind	56	0	0	4000	0
WAXAHACHIE	8/13/2013	Thunderstorm Wind	43	0	0	1000	0
MIDLOTHIAN	4/18/2015	Thunderstorm Wind	58	0	0	8000	0
WAXAHACHIE	4/18/2015	Thunderstorm Wind	52	0	0	3000	0
BARDWELL	5/10/2015	Thunderstorm Wind	50	0	0	5000	0
OVILLA	5/24/2015	Thunderstorm Wind	43	0	0	1000	0
MIDLOTHIAN	5/26/2015	Thunderstorm Wind	59	0	0	0	0
WAXAHACHIE	5/26/2015	Thunderstorm Wind	58	0	0	0	0
MIDLOTHIAN	5/26/2015	Thunderstorm Wind	63	0	0	0	0
WAXAHACHIE	11/17/2015	Thunderstorm Wind	50	0	0	0	0
MIDLOTHIAN	3/29/2017	Thunderstorm Wind	55	0	0	0	0
ENNIS	3/29/2017	Thunderstorm Wind	50	0	0	1000	0
ITALY	3/13/2019	Thunderstorm Wind	61	0	0	20000	0
ITALY	3/13/2019	Thunderstorm Wind	55	0	0	10000	0
ALMA	5/18/2019	Thunderstorm Wind	55	0	0	10000	0
RED OAK	6/23/2019	Thunderstorm Wind	50	0	0	0	0
WAXAHACHIE	6/29/2019	Thunderstorm Wind	48	0	0	500	0
OVILLA	10/20/2019	Thunderstorm Wind	54	0	0	5000	0
ENNIS	10/21/2019	Thunderstorm Wind	60	0	0	10000	0
WAXAHACHIE	7/2/2020	Thunderstorm Wind	50	0	0	0	0
<b>Total Hail:</b>				<b>0</b>	<b>0</b>	<b>\$2,069,100</b>	<b>\$0</b>

<b>Historical Events- Thunderstorms (hail, high wind, lightning)</b>							
<b>Location</b>	<b>Date</b>	<b>Type</b>	<b>Mag</b>	<b>Dth</b>	<b>Inj</b>	<b>PrD</b>	<b>CrD</b>
<b>Total Lightning:</b>				0	0	\$50,800	\$0
<b>Total Thunderstorm Wind:</b>				0	0	\$98,500	\$0

Source: NOAA National Centers for Environmental Information

### 3.2.7 Tornadoes

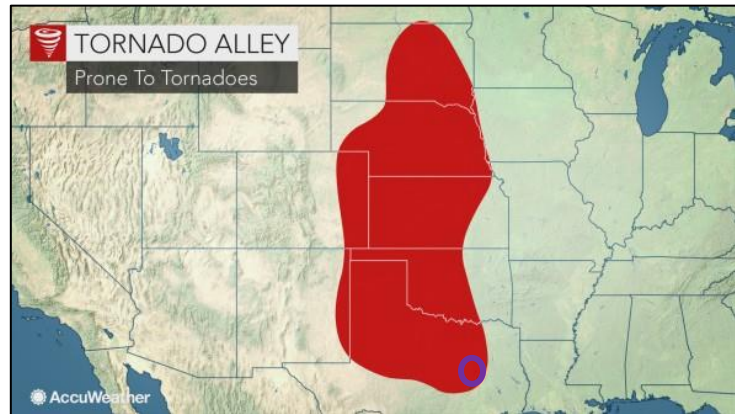
Potential impacts from tornadoes include:

- Injury or death
- Power outage
- Blocked roadways from trees and damaged property
- Natural gas pipeline breaks – fire injuries, possible deaths
- Transportation disruption
- Rerouting traffic
- Loss of property
- Structure and infrastructure damage
- Misplaced residents
- Natural environment damage, to include protected species and critical habitats

<b>Tornadoes</b>				
<b>Jurisdiction</b>	<b>Location</b>	<b>Probability of Future Events</b>	<b>Level of Possible Damage</b>	<b>Maximum Probable Extent/Strength</b>
Alma	Extensive	Possible	Limited	Medium
Bardwell	Significant	Highly Likely	Critical	Medium
Ennis	Significant	Likely	Critical	Major
Ferris	Significant	Possible	Catastrophic	Minor
Garrett	Extensive	Possible	Limited	Medium
Italy	Significant	Highly Likely	Critical	Medium
Maypearl	Extensive	Highly Likely	Catastrophic	Major
Midlothian	Significant	Highly Likely	Critical	Medium
Milford	Significant	Possible	Critical	Medium
Oak Leaf	Negligible	Unlikely	Minor	Minor
Ovilla	Extensive	Possible	Limited	Medium
Palmer	Significant	Highly Likely	Critical	Medium
Red Oak	Negligible	Possible	Limited	Major
Waxahachie	Extensive	Possible	Catastrophic	Medium
Ellis County Unincorporated	Extensive	Highly Likely	Critical	Medium

A tornado is a violently rotating column of air that comes in contact with the ground. A tornado can either be suspended from, or occur underneath, a cumuliform cloud. It is often, but not always, visible as a condensation funnel.

Residents in Ellis County are no strangers to tornadic events, as this area of Texas is a part of “Tornado Alley.” Tornado Alley is an area of the U.S. where there is a high potential for tornado development. This area encompasses much of northern Texas northward through Oklahoma, Kansas, Nebraska and parts of New Mexico, South Dakota, Iowa, and eastern Colorado, as seen in this picture.




**Are there any community safe rooms in your jurisdiction?**

There are various locations within the Ferris Independent School District with safe rooms.

Two schools in Midlothian have designated safe rooms: Dieterich Middle School Gymnasium (2800 Sudith Lane) and Midlothian Heritage High School (4000 FM 1387) has a community safe room that is currently being built in 2021.

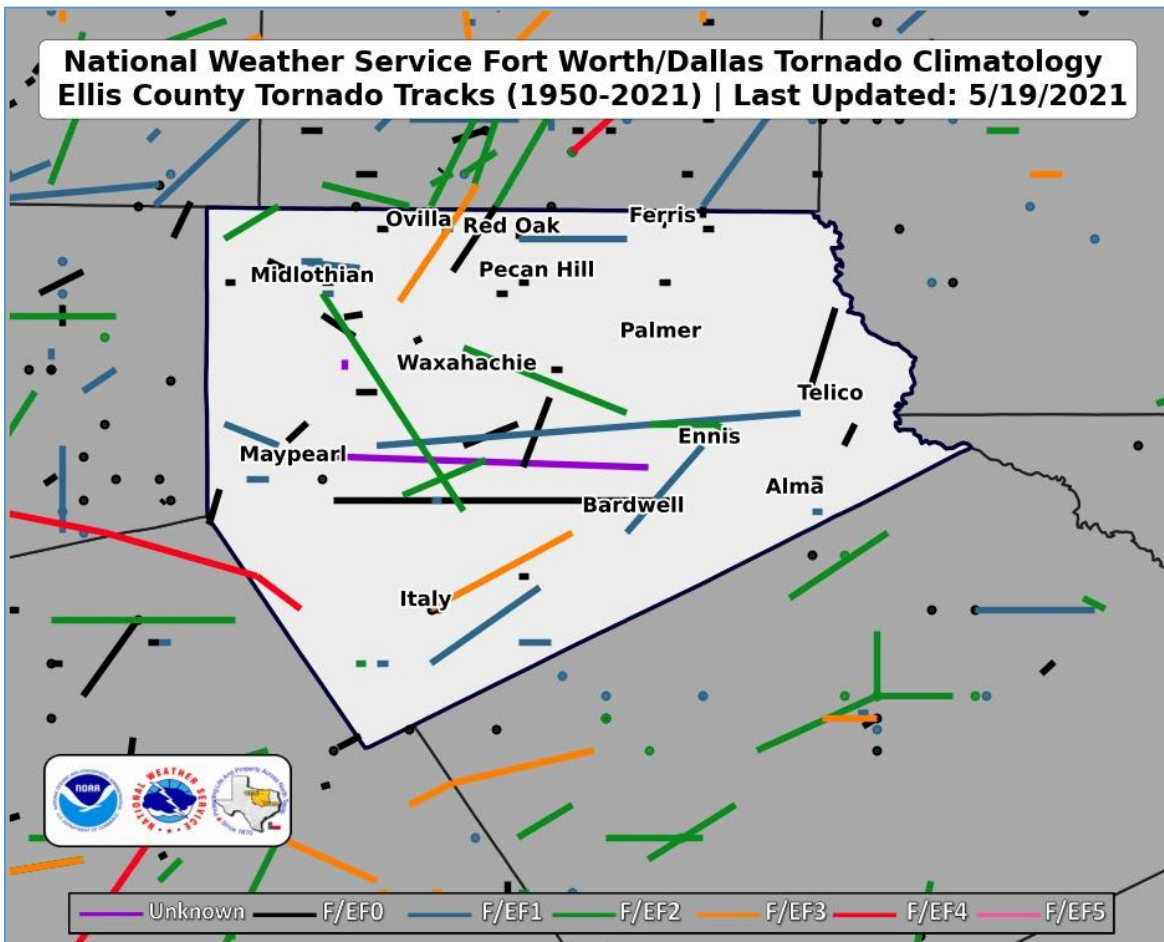
The Enhanced Fujita Scale, or EF Scale, is the scale for rating the strength of tornadoes during the observed time period via the damage they cause. The scale takes into account how most structures are designed and is thought to be an accurate representation of the surface wind speeds in the most violent tornadoes.

EF Rating	Wind Speeds	Expected Damage	
<b>EF-0</b>	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.	
<b>EF-1</b>	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.	
<b>EF-2</b>	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.	
<b>EF-3</b>	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.	
<b>EF-4</b>	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.	
<b>EF-5</b>	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.	

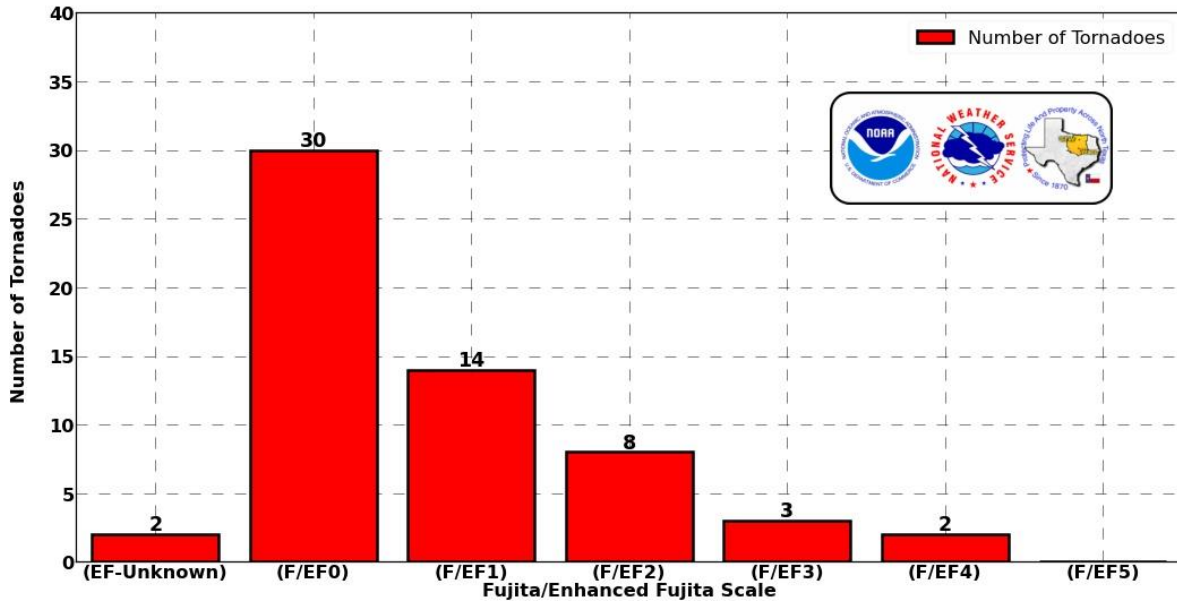
Historical Events- Tornadoes							
Location	Date	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">ENNIS</a>	5/15/2013	Tornado	EF1	0	1	3000	0
<a href="#">MIDLOTHIAN</a>	4/24/2015	Tornado	EF0	0	0	650000	0
<a href="#">MAYPEARL</a>	12/26/2015	Tornado	EF0	0	0	8.360M	0
<a href="#">MIDLOTHIAN</a>	12/26/2015	Tornado	EF3	0	46	120000	0
<a href="#">MIDLOTHIAN</a>	10/20/2019	Tornado	EF1	0	0	25000	0
<a href="#">FERRIS</a>	10/20/2019	Tornado	EF0	0	0	10000000	0
<a href="#">MAYPEARL BEE ARPT</a>	5/16/2021	Tornado	EFU	0	0		
<a href="#">MAYPEARL</a>	5/16/2021	Tornado	EFU	0	0		
<b>Totals:</b>				<b>0</b>	<b>47</b>	<b>\$20,015,000</b>	<b>\$0</b>

Source: NOAA National Centers for Environmental Information

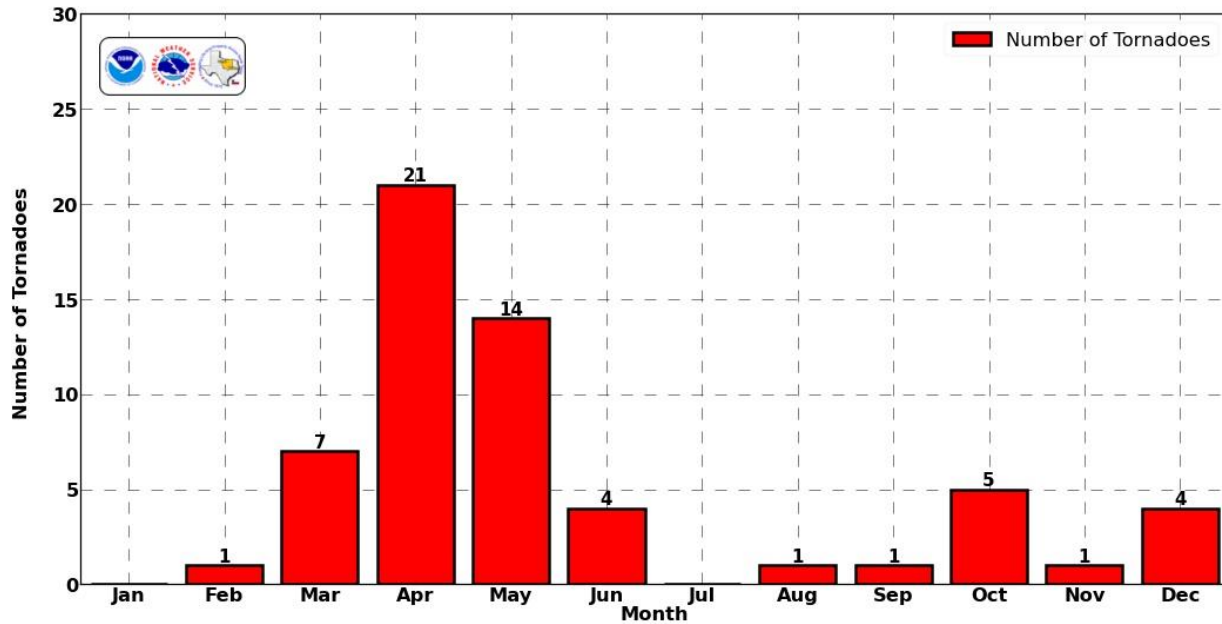
Property damage included damage to trees, power lines, and homes. The following map and charts are from the National Weather Service (NWS) Fort Worth Tornado Climatology page. They reflect historical tornado data in the County.



**Number of Tornadoes by Rating for Ellis County**  
 Data: 1880-2021 || Tornado Total: 59  
 NWS Fort Worth, TX || Last Updated: 5/19/2021



**Number of Tornadoes by Month for Ellis County**  
 Data: 1880-2021 || Tornado Total: 59  
 NWS Fort Worth, TX || Last Updated: 5/19/2021



### 3.2.8 Wildfires

Potential impacts from wildfires include:

- Injury or death
- Property and fence damage
- Road closure
- Loss of power – burning utility poles

- Loss of property
- Loss of crops and livestock
- Structure and infrastructure damage
- Misplaced residents
- Loss of resources
- Natural environments damage, to include protected species and critical habitats

<b>Wildfires</b>				
<b>Jurisdiction</b>	<b>Location</b>	<b>Probability of Future Events</b>	<b>Level of Possible Damage</b>	<b>Maximum Probable Extent/Strength</b>
Alma	Limited	Possible	Limited	Minor
Bardwell	Limited	Likely	Limited	Minor
Ennis	Limited	Unlikely	Limited	Minor
Ferris	Negligible	Likely	Minor	Major
Garrett	Limited	Likely	Limited	Minor
Italy	Limited	Likely	Limited	Minor
Maypearl	Extensive	Unlikely	Catastrophic	Minor
Midlothian	Limited	Likely	Limited	Minor
Milford	Limited	Possible	Limited	Minor
Oak Leaf	Negligible	Unlikely	Minor	Minor
Ovilla	Limited	Possible	Limited	Minor
Palmer	Limited	Likely	Limited	Minor
Red Oak	Negligible	Possible	Minor	Minor
Waxahachie	Limited	Possible	Limited	Minor
Ellis County Unincorporated	Limited	Likely	Limited	Minor

Does your jurisdiction participate in prescribed burns? *A controlled or prescribed burn, also known as hazard reduction burning, backfire, swailing, or a burn-off, is a wildfire set intentionally for purposes of forest management, farming, prairie restoration or greenhouse gas abatement.*

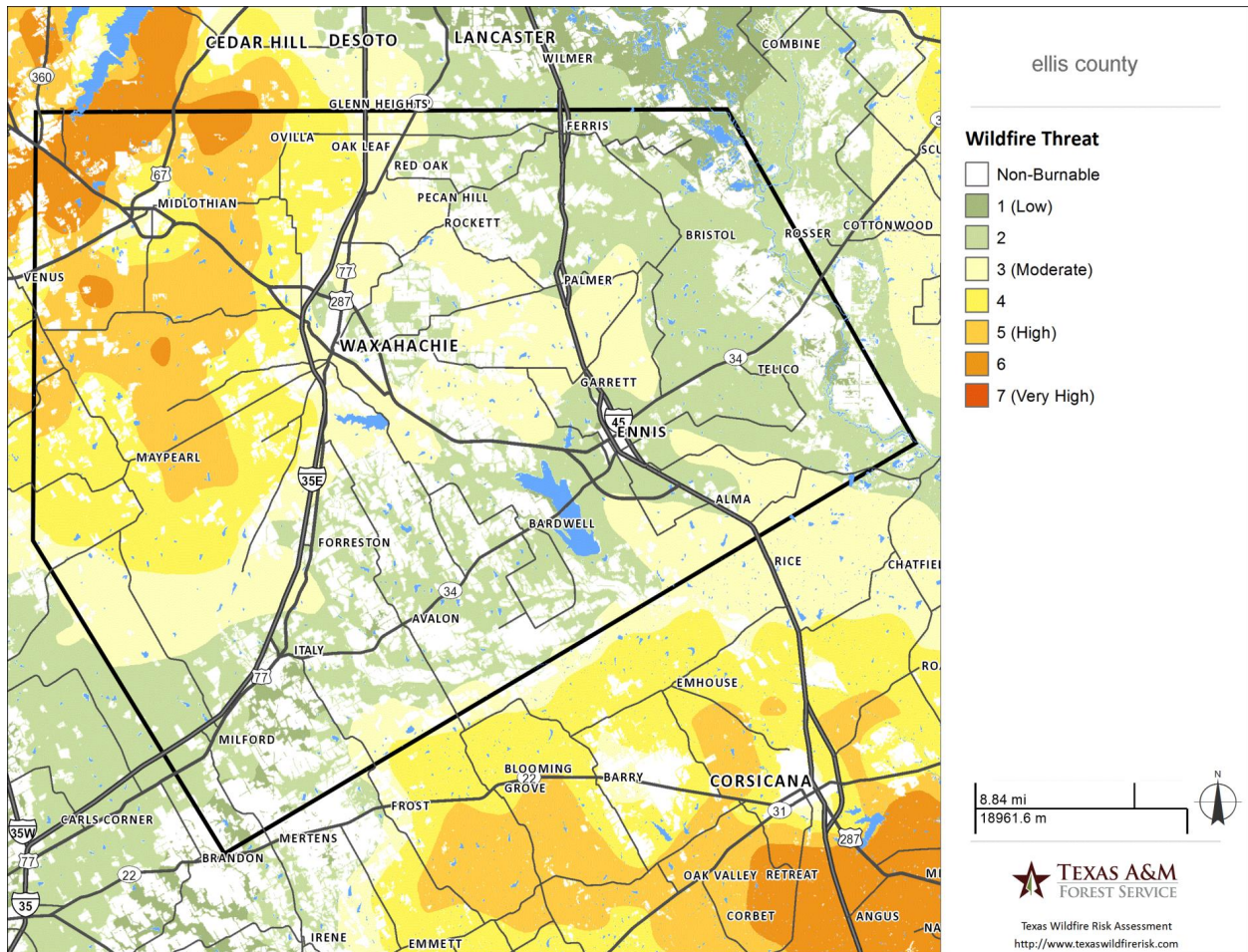
**Alma:** No  
**Bardwell:** N/A  
**Ennis:** No  
**Ferris:** Yes  
**Garrett:** No  
**Italy:** Yes  
**Maypearl:** No  
**Midlothian:** No  
**Milford:** No  
**Oak Leaf:** No  
**Ovilla:** No  
**Palmer:** No  
**Red Oak:** No

**Waxahachie: No**



**Ellis County Unincorporated: Yes, the Fire Marshal's Office issues permits**

### Wildland Threat (per jurisdiction)

Wildfire Threat is the likelihood of a wildfire occurring or burning into an area. The graph below shows the Wildfire threat for every jurisdiction in Ellis County.





Jurisdiction (location)	Map
<p>Alma</p> <p><b>Latitude:</b> 32° 17' 6.00" N</p> <p><b>Longitude:</b> - 96° 32' 25.79" W</p>	 <p>The map shows a geographical area with a yellow highlighted region. A prominent black diagonal line runs from the bottom-left towards the top-right. Labels include 'Alma' in the center, 'Rice' in the lower right, and 'Shreveport' in the upper right. The terrain is depicted with green and light blue patches.</p>
<p>Bardwell</p> <p><b>Latitude:</b> 32° 16' 1.80" N</p> <p><b>Longitude:</b> - 96° 41' 25.19" W</p>	 <p>The map displays a street grid for the town of Bardwell. The town is situated on a light-colored area, possibly a riverbank or a cleared area, surrounded by green terrain. Labels include 'Bardwell' at the bottom center, 'Lafayette St', 'Main St', and 'Rice St'. The map shows a network of roads and surrounding land.</p>

Ennis

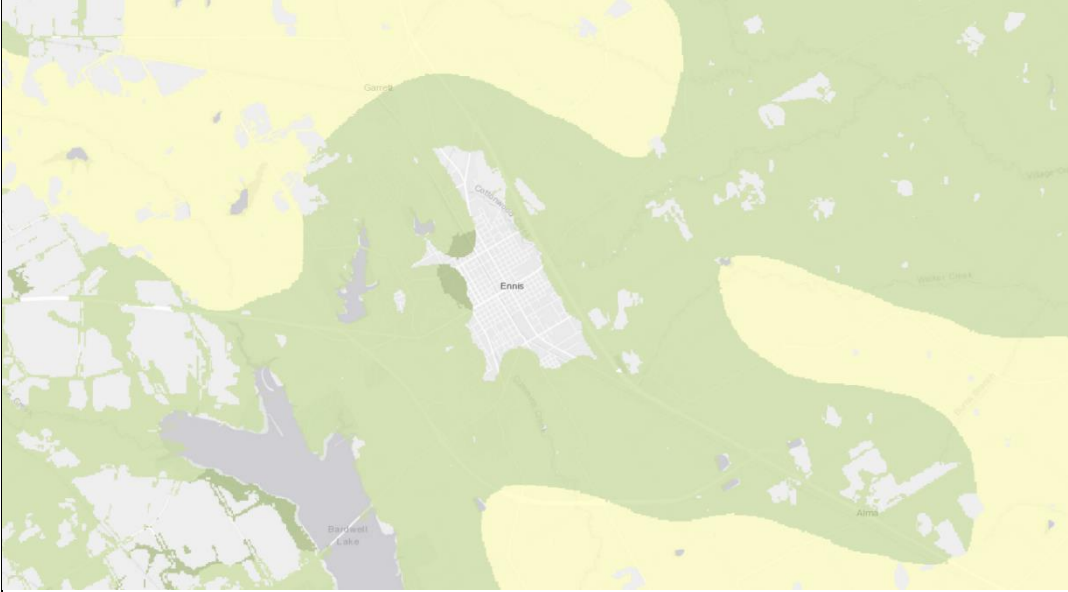
**Latitude:** 32°

19' 56.27" N

**Longitude:** -

96° 37'

26.51" W



Ferris

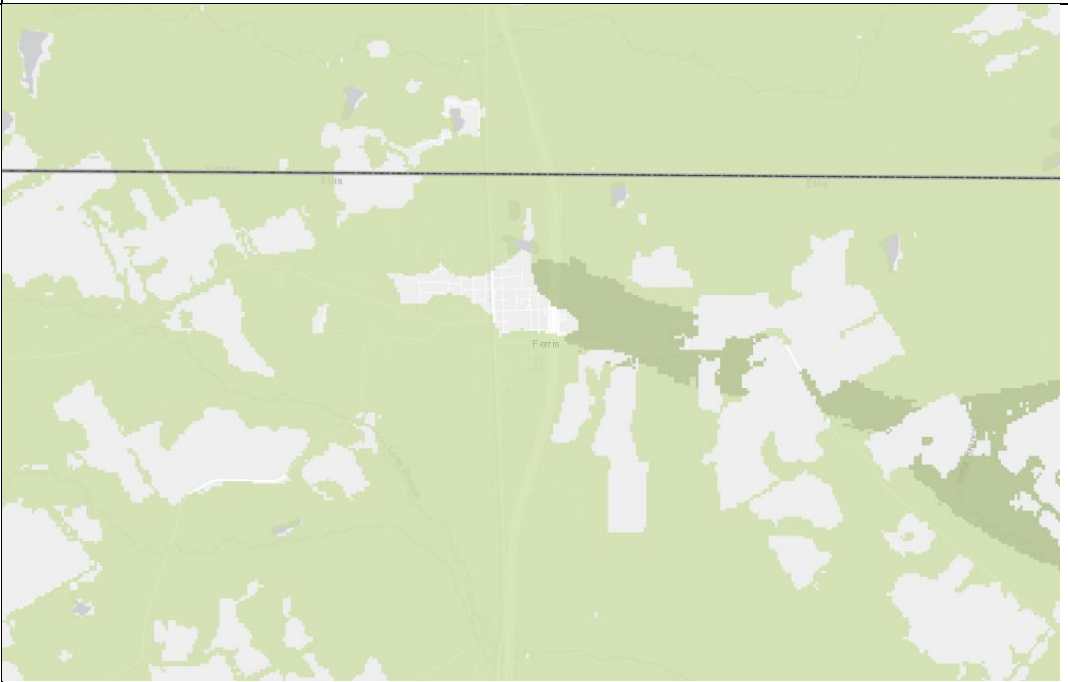
**Latitude:** 32°

32' 4.19" N

**Longitude:** -

96° 40' 0.59"

W



Garrett

**Latitude:** 32°  
21' 25.79" N  
**Longitude:** -  
96° 39' 3.59"  
W



Italy

**Latitude:** 32°  
10' 57.74" N  
**Longitude:** -  
96° 53' 5.88"  
W



Maypearl

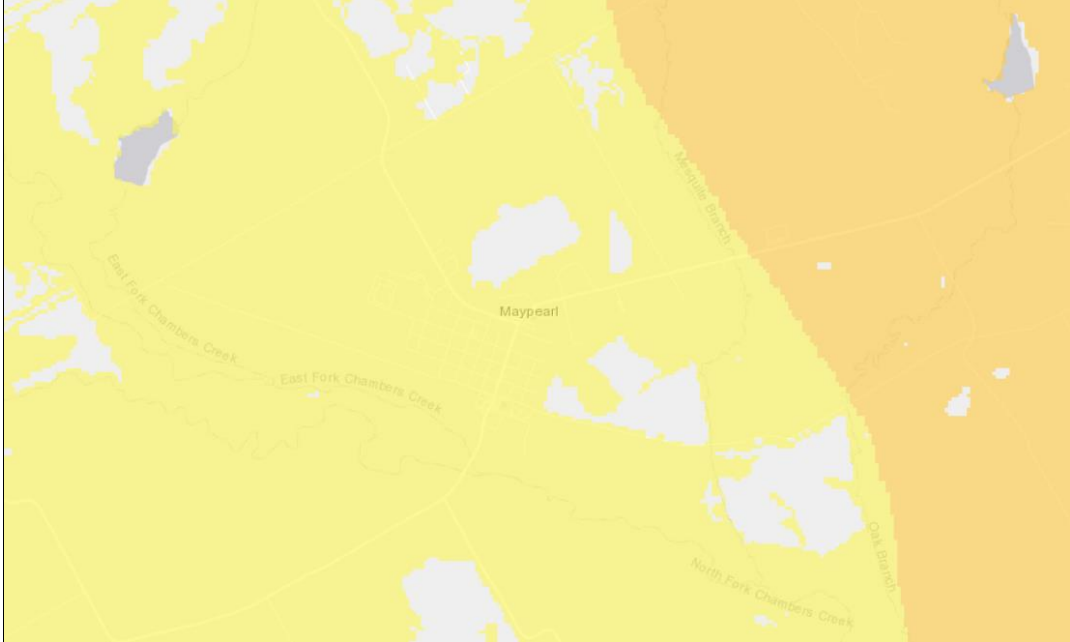
**Latitude:** 32°

18' 34.20" N

**Longitude:** -

97° 00'

15.00" W



Midlothian

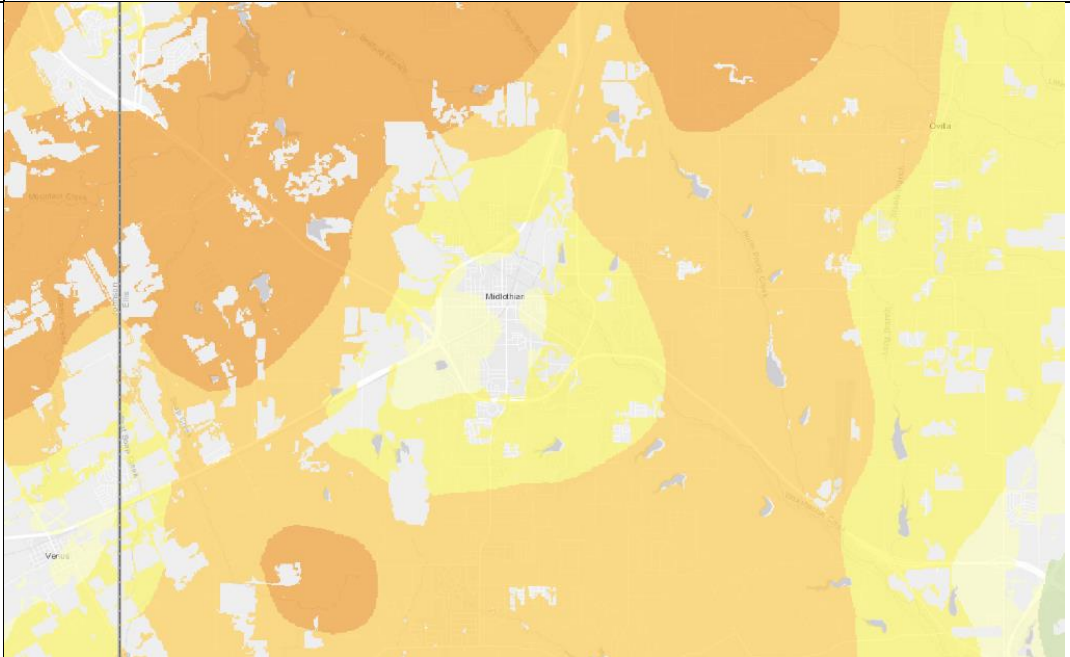
**Latitude:** 32°

28' 56.50" N

**Longitude:** -

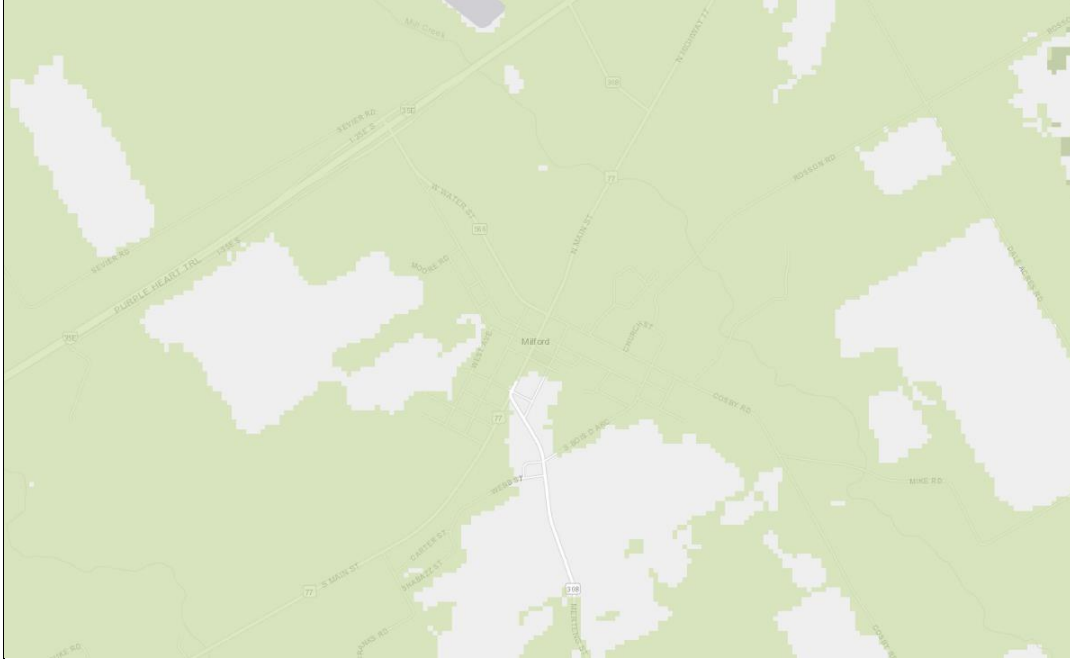
96° 59'

40.02" W



Milford

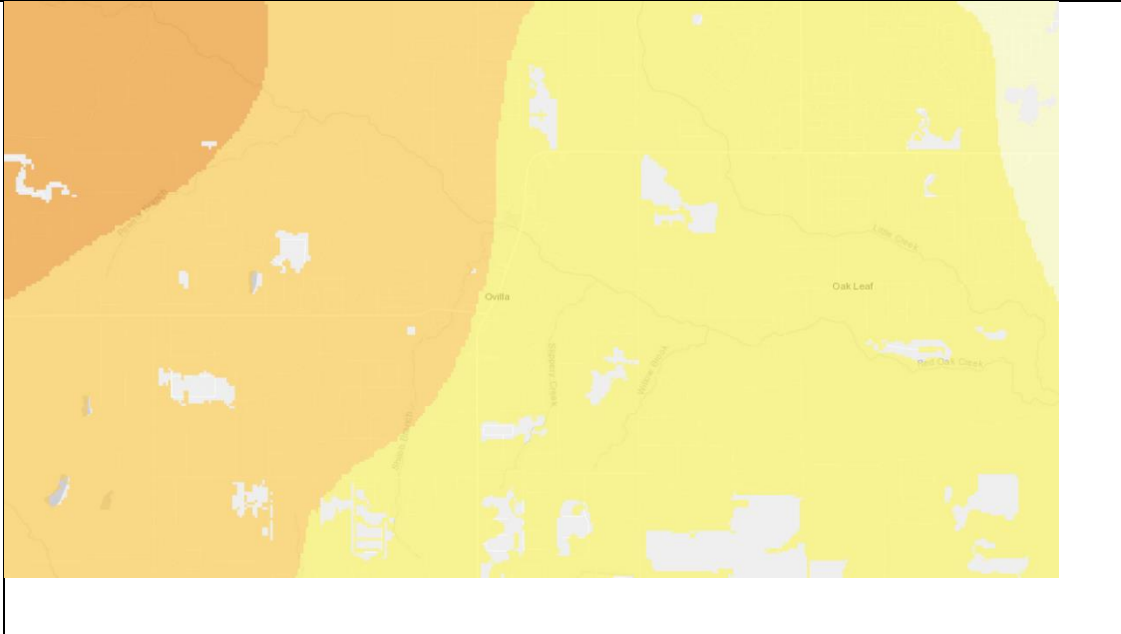
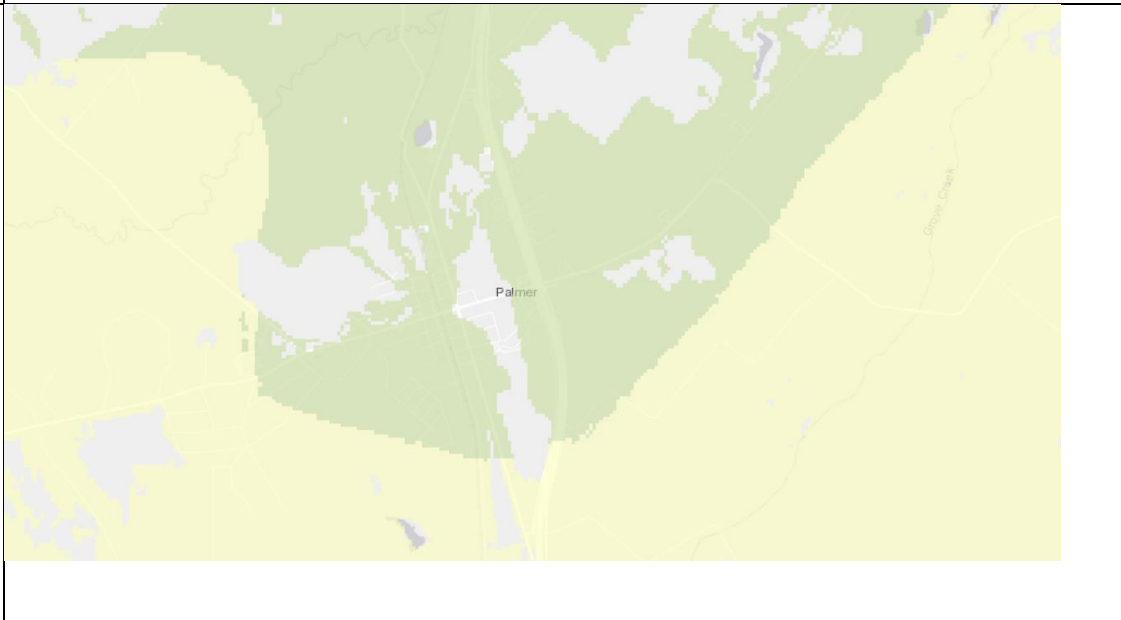
**Latitude:** 32°  
07' 13.20" N  
**Longitude:** -  
96° 56'  
28.79" W

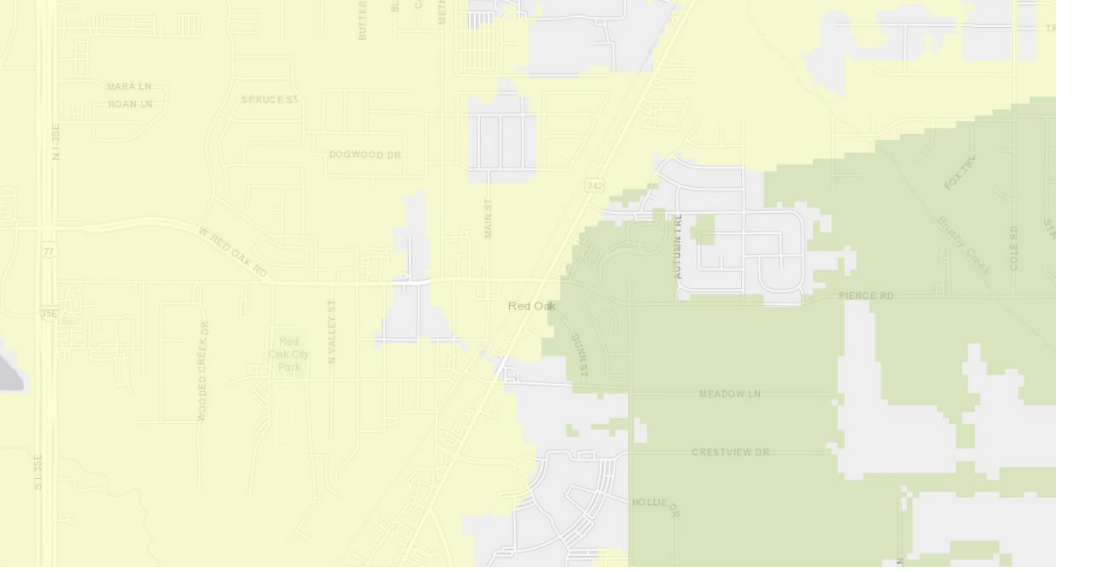


Oak Leaf

**Latitude:** 32°  
31' 7.79" N  
**Longitude:** -  
96° 51'  
11.99" W



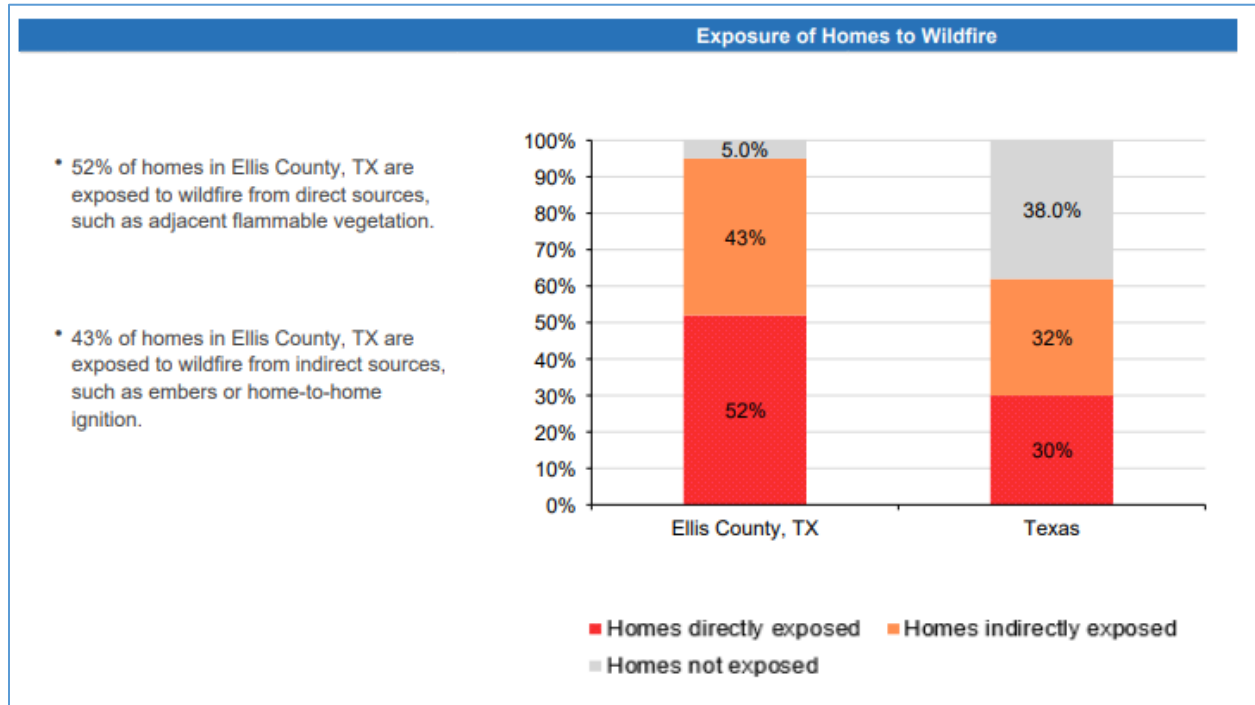
<p>Ovilla</p> <p><b>Latitude:</b> 32° 31' 32.39" N</p> <p><b>Longitude:</b> - 96° 53' 17.39" W</p>	 <p>A map showing a color gradient from orange on the left to yellow on the right. The area is labeled 'Ovilla' and 'Oak Leaf'. There are some white patches on the map, possibly representing water or undeveloped land.</p>
<p>Palmer</p> <p><b>Latitude:</b> 32° 25' 27.59" N</p> <p><b>Longitude:</b> - 96° 40' 4.79" W</p>	 <p>A map showing a color gradient from yellow on the left to green on the right. The area is labeled 'Palmer'. There are some white patches on the map, possibly representing water or undeveloped land.</p>

<p>Red Oak</p> <p><b>Latitude:</b> 32° 31' 32.19" N</p> <p><b>Longitude:</b> - 96° 48' 22.28" W</p>	
<p>Waxahachie</p> <p><b>Latitude:</b> 32° 23' 59.50" N</p> <p><b>Longitude:</b> - 96° 50' 50.25" W</p>	

The Keetch-Byram Drought Index (KBDI) is used by the Texas A&M Forest Service and was developed to correlate the effects of drought on wildfire potential. This relationship is reflected in the *Drought* hazard section.

According to Headwater Economics, 52% of homes in Ellis County are exposed to wildfire from direct sources, such as adjacent flammable vegetation, and 43% of homes in Ellis County are exposed to

wildfire from indirect sources, such as embers or home-to-home ignition. The chart below reflects this data. More details on the county’s wildfire risk are provided in *A Profile of Wildfire Risk* in Appendix F.



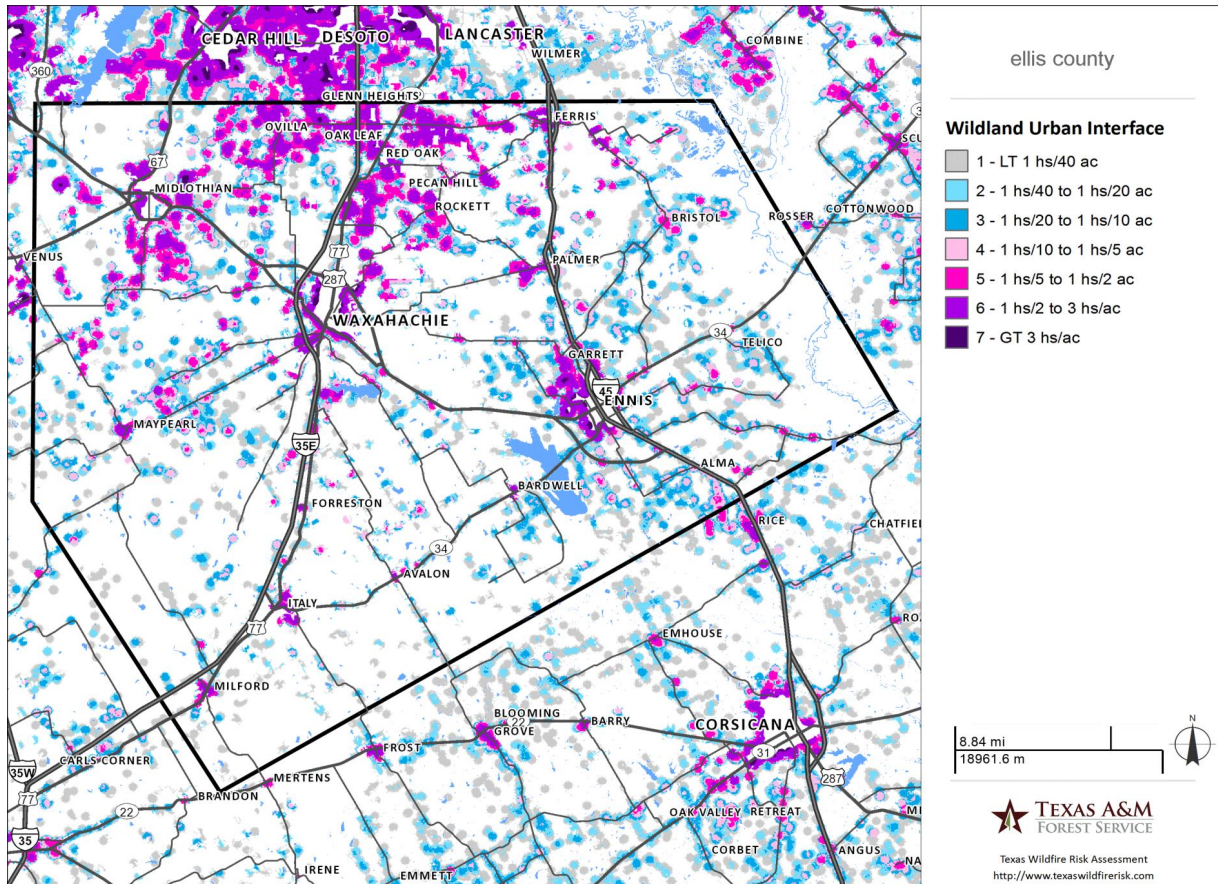
### Wildland Urban Interface

For the purposes of this hazard analysis, wildfires are assessed under what is known as the wildland-urban interface (WUI). The WUI is an area of development that is susceptible to wildfires due to the amount of structures located in an area with vegetation that can act as fuel for a wildfire. The WUI creates an environment in which fire can move readily between structural and vegetation fuels. The expansion of these areas has increased the likelihood that wildfires will threaten structures and people.

### WUI – Population and Acres in Ellis County

Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
LT 1hs/40ac	1,431	1.2 %	64,552	30.7 %
1hs/40ac to 1hs/20ac	2,803	2.3 %	34,655	16.5 %
1hs/20ac to 1hs/10ac	6,237	5.1 %	34,472	16.4 %
1hs/10ac to 1hs/5ac	10,677	8.8 %	28,625	13.6 %
1hs/5ac to 1hs/2ac	20,201	16.6 %	24,881	11.8 %
1hs/2ac to 3hs/1ac	72,908	59.9 %	22,715	10.8 %
GT 3hs/1ac	7,533	6.2 %	598	0.3 %
<b>Total</b>	<b>121,790</b>	<b>100.0 %</b>	<b>210,498</b>	<b>100.0 %</b>



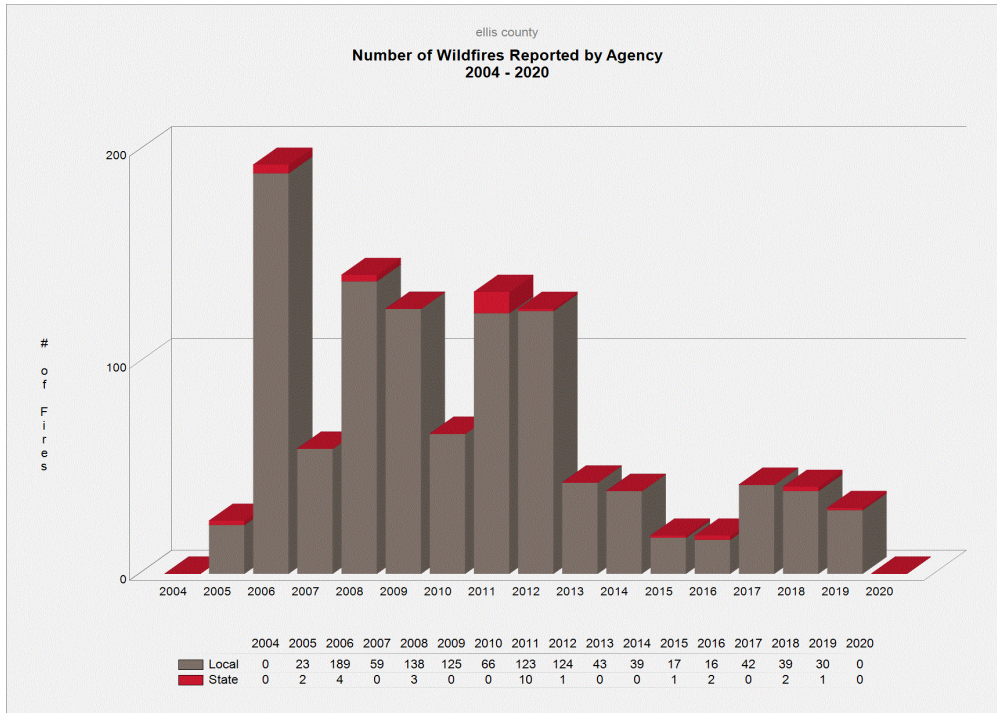


## Wildfire Occurrence Statistics

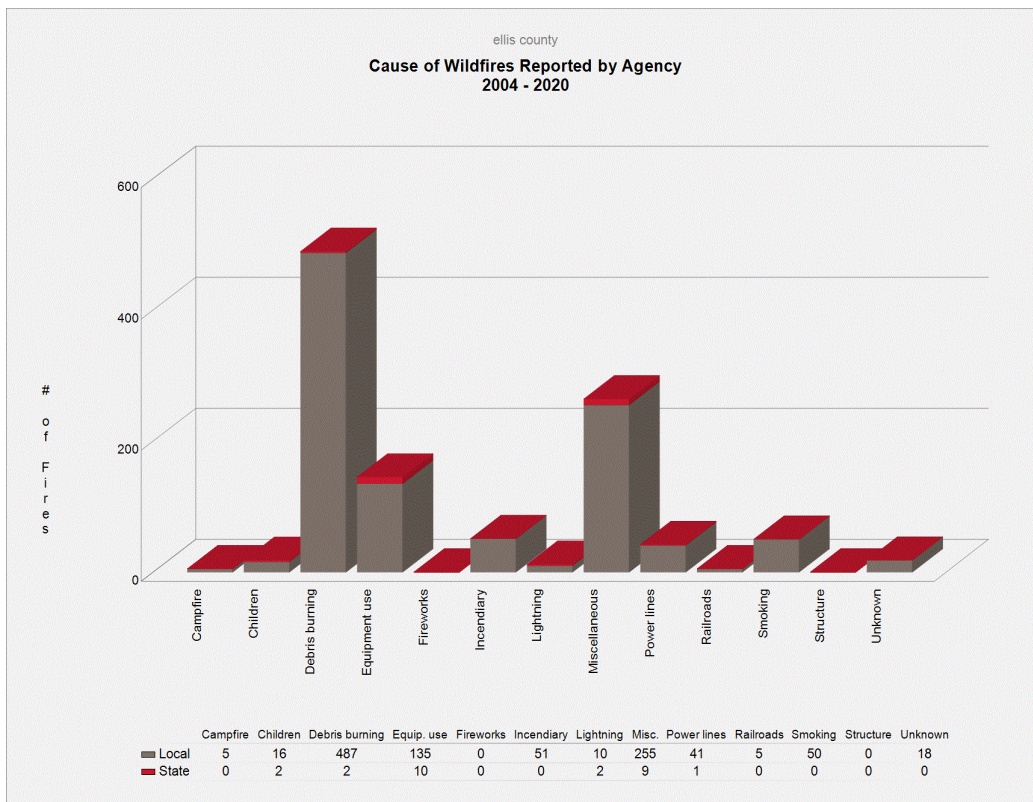
Wildfire occurrence statistics provide insight as to the number of fires, acres burned and cause of fires in Texas. These statistics are useful for prevention and mitigation planning. They can be used to quantify the level of fire business, determine the time of year most fires typically occur, and develop a fire prevention campaign aimed at reducing a specific fire cause. The fire occurrence statistics are grouped by primary response agency type, which include:

- **Texas Forest Service (TFS)** – The Texas Forest Service fire occurrence database represents all state-reported fires.
- **Local** – The local category includes fires reported via Texas Forest Service’s online fire department reporting system. It is a voluntary reporting system that includes fires reported by both paid and volunteer fire departments since 2004.

Seventeen years of historic fire report data was used to create the fire occurrence summary charts. Data was obtained from state and local fire department report data sources for the years 2004 to 2020. The compiled fire occurrence database was cleaned to remove duplicate records and to correct inaccurate locations.



The following Wildfire Ignitions dataset from the Texas A&M Forest Service (TFS) shows the cause of the fires reported in 2004-2020. The date range is set by TFS.



Source: Texas A&M Forest Service

## Prioritized Fuel Reduction and Treatment of Structural Ignitability

Wildfire, or wildland fire, is any fire occurring on grassland, forest, or prairie, regardless of ignition source, damages, or benefits. Wildfires are fueled almost exclusively by natural vegetation. Interface or intermix fires are urban/wildland fires in which vegetation and the built environment provide fuel. The following chart shows the vegetation, and thus the amount of fuel sources, in Ellis County. Grassland is the majority of vegetation in the county and can be used for grazing.

	Class	Description	Acres	Percent
	Open Water	All areas of open water, generally with < 25% cover of vegetation or soil	10,500	1.7 %
	Developed Open Space	Impervious surfaces account for < 20% of total cover (i.e. golf courses, parks, etc...)	29,397	4.7 %
	Developed Low Intensity	Impervious surfaces account for 20-49% of total cover	31,022	5.0 %
	Developed Medium Intensity	Impervious surfaces account for 50-79% of total cover	4,867	0.8 %
	Developed High Intensity	Impervious surfaces account for 80-100% of total cover	2,392	0.4 %
	Barren Land (Rock/Sand/Clay)	Vegetation generally accounts for <15% of total cover	1,795	0.3 %
	Cultivated Crops	Areas used for the production of annual crops, includes land being actively tilled	135,916	21.7 %
	Pasture/Hay	Areas of grasses and/or legumes planted for livestock grazing or hay production	97,302	15.5 %
	Grassland/Herbaceous	Areas dominated (> 80%) by grammanoid or herbaceous vegetation, can be grazed	231,567	37.0 %
	Marsh	Low wet areas dominated (>80%) by herbaceous vegetation	1,135	0.2 %
	Shrub/Scrub	Areas dominated by shrubs/trees < 5 meters tall, shrub canopy > than 20% of total vegetation	1,031	0.2 %
	Floodplain Forest	> 20% tree cover, the soil is periodically covered or saturated with water	9,949	1.6 %
	Deciduous Forest	> 20% tree cover, >75% of tree species shed leaves in response to seasonal change	64,653	10.3 %
	Live Oak Forest	> 20% tree cover, live oak species represent >75% of the total tree cover	373	0.1 %
	Live Oak/Deciduous Forest	> 20% tree cover, neither live oak or deciduous species represent >75% of the total tree cover	2	0.0 %
	Juniper or Juniper/Live Oak Forest	> 20% tree cover, juniper or juniper/live oak species represent > 75% of the total tree cover	183	0.0 %
	Juniper/Deciduous Forest	> 20% tree cover, neither juniper or deciduous species represent > 75% of the total tree cover	4,027	0.6 %
	Pinyon/Juniper Forest	> 20% tree cover, pinyon or juniper species represent > 75% of the total tree cover	0	0.0 %
	Eastern Redcedar Forest	> 20% tree cover, eastern redcedar represents > 75% of the total tree cover	1	0.0 %
	Eastern Redcedar/Deciduous Forest	> 20% tree cover, neither eastern redcedar or deciduous species represent > 75% of the total tree cover	0	0.0 %
	Pine Forest	> 20% tree cover, pine species represent > 75% of the total tree cover	0	0.0 %
	Pine Regeneration	Areas of pine forest in an early successional or transitional	0	0.0 %

		stage		
	Pine/Deciduous Forest	> 20% tree cover, neither pine or deciduous species represent > 75% of the total tree cover	0	0.0 %
	Pine/Deciduous Regeneration	Areas of pine or pine/deciduous forest in an early successional or transitional stage	0	0.0 %
	<b>Total</b>		<b>626,112</b>	<b>100.0 %</b>

Source: Texas Wildfire Risk Assessment Portal Professional Viewer.

Common practices to minimize the spread of wildfire are fuel breaks and fire breaks. A **fuel break** is the thinning of vegetation, or fuels, over a specific area of land. They are most commonly used to surround a community and slow the spread of a wildfire. By decreasing the amount of vegetation that the fire has to travel through, the risk of extreme fire behavior greatly depreciates.

Types of fuel breaks include:

- **Mechanical Treatments-** A mechanical treatment removes fuels by cutting shrubs, small trees and ladder fuels that make up the understory of a forested area. Materials are either taken from the site or chipped into smaller pieces. Fuels are selected for removal based on how they would contribute to a wildfire. For example, a thick patch of cedar could readily ignite and release significant heat and embers. This fuel type contributes to the rapid spread of a wildfire and would need to be removed.

The objective of mechanical treatment is to reduce the intensity of wildfire. If there is less fuel to burn the fire stays low to the ground giving firefighters a safer condition in which to work.

- **Mulching-** A mulching operation is intended to break fuels into smaller pieces and spread them within the fuel break. While the smaller pieces will still carry fire, they will significantly reduce the intensity of it. The goal is to reduce ladder fuels like tall brush that could carry a ground fire into the top of a tree.

Mulching equipment is classified as either traditional mowers or mulchers that grind the material. Heavy duty mowers are useful when fuels are small enough to be pushed over. However, for sites with an established woody mid-story, or ladder fuels, other equipment may be needed.

- **Herbicide Treatment-** Herbicides are used to control invasive species of plants that will “take over” an area. Invasive plant species can also be reduced with mechanical thinning.

The effectiveness of herbicide treatments depends on existing vegetation, topography, and other local restrictions. Thick underbrush may require mechanical treatments prior to the use of herbicides.

- **Grazing-** Removing fuels by grazing relies on the consumption of plants by animals. Various types of livestock are used in this way across the state, including Ellis County.
- **Prescribed Burning-** Prescribed or controlled, burning is the most commonly used tool for managing hazardous fuel buildups because of its relatively low cost per acre. Prescribed fire improves natural habitats and reduces heavy fuels. It is important to use a certified prescribe burn manager to improve fire safety and reduce smoke management issues.

Fuel breaks are most effective when placed along a natural fire break like a road. Choosing a site along a road also allows easy access for equipment. Regular maintenance of breaks increases their effectiveness

in preventing wildfires. To maintain a fuel break, the use of herbicides as a follow up treatment to mulching will help reduce the amount of weed sprouts. Grazing is also an option to maintain a fuel break.

When creating a fuel break, these tips should be used:

- Follow a natural fire break or contour lines.
- Prune large trees to 10 feet from ground.
- Remove ladder fuels such as tall brush and small trees.
- Thin trees to create a crown spacing of 25 to 30 feet.
- Break up thick areas of brush.
- Maintain a minimum width of 60 feet on flat land and 100 feet on slopes.

A **fire break** is a break in vegetation. In some cases, it may be a gravel road, a river, or a clearing made by a bulldozer. A ‘green’ fire break uses grasses with high moisture content, such as winter rye or winter wheat to provide a break in the continuity of the fuel. If wide enough, a fire break will stop the spread of direct flame. However, embers can still be lofted into the air and travel across the line.

Considering the various types of fuel and fire breaks, the participating jurisdictions who have identified wildfires as a threat have listed wildfire mitigation actions in Chapter 4, along with actions for all the other identified hazards.

### 3.2.9 Winter Storms

Potential impacts from winter storms include:

- Structure and infrastructure damage
- Injury or death
- Power outages
- Loss of ability to use roads for driving
- Increased traffic accidents
- Loss of heat
- Stranded travelers / motels at full capacity
- Tree debris create fuel load for fire hazard
- Delayed emergency response time
- Frozen/ busted pipes leading to loss of water
- Disruption of traffic
- Impacts to the economy
- Communication capabilities decrease

Winter Storms				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Alma	Extensive	Likely	Limited	Medium
Bardwell	Extensive	Likely	Limited	Medium

<b>Winter Storms</b>				
<b>Jurisdiction</b>	<b>Location</b>	<b>Probability of Future Events</b>	<b>Level of Possible Damage</b>	<b>Maximum Probable Extent/Strength</b>
Ennis	Extensive	Likely	Critical	Major
Ferris	Extensive	Likely	Minor	Major
Garrett	Extensive	Likely	Limited	Medium
Italy	Extensive	Likely	Limited	Medium
Maypearl	Extensive	Highly Likely	Catastrophic	Major
Midlothian	Extensive	Likely	Limited	Medium
Milford	Extensive	Likely	Limited	Medium
Oak Leaf	Extensive	Possible	Minor	Medium
Ovilla	Extensive	Likely	Limited	Medium
Palmer	Extensive	Likely	Limited	Medium
Red Oak	Extensive	Possible	Limited	Major
Waxahachie	Extensive	Likely	Limited	Medium
Ellis County Unincorporated	Extensive	Likely	Limited	Medium

**Weather Conditions and SPIA Index Levels at a Glance:**

<b>Ice and Wind:</b> Radial Ice in Inches; Wind in Miles per Hour.	<b>&lt; 15</b> mph	<b>15-25</b> mph	<b>25-35</b> mph	<b>&gt; = 35</b> mph
<b>0.10 – 0.25</b> inches	0	1	2	3
<b>0.25 – 0.50</b> inches	1	2	3	4
<b>0.50 – 0.75</b> inches	2	3	4	5
<b>0.75 – 1.00</b> inches	3	4	5	5
<b>1.00 – 1.50</b> inches	4	5	5	5
<b>&gt; 1.50</b> inches	5	5	5	5

The Sperry-Piltz Ice Accumulation (SPIA) Index is used to determine the extent of winter conditions.

Winter storms originate as mid-latitude depressions or cyclonic weather systems, sometimes following the path of the jet stream. A winter storm or blizzard combines heavy snowfall, high winds, extreme cold, and ice storms. Many winter depressions give rise to exceptionally heavy rain and widespread flooding and conditions worsen if the precipitation falls in the form of snow. The winter storm season varies widely, depending on latitude, altitude, and proximity to moderating influences. The time period

of most winter weather is expected to be during the winter season, between November and March. Winter storms affect the entire planning area equally.

During periods of extreme cold and freezing temperatures, water pipes can freeze and crack, roads and bridges can become unpassable, and critical services could be paralyzed. Ice can build up, causing power lines to break under the weight or causing tree limbs to fall on the lines. These events can disrupt electric service for long periods of time.

There are over 534 bridges in Ellis County. Bridge details are located in Section 3.3, *Vulnerabilities and Changes in Development*.

One of the most recent disaster declarations in the County, and the whole State, was for a winter storm.

Disaster	Event	Incident Period	Declared
DR-4586	Texas Severe Winter Storms	February 11-21, 2021	February 19, 2021

DR-4586 showed how the effect of no power resulted in lack of heat and lack of water, causing hypothermia and death in many vulnerable populations. The following news article, *Death Toll From Texas Winter Storm Continues to Rise*, from The New York Times, reflects this disaster:

***Death Toll From Texas Winter Storm Continues to Rise***

*Epidemiologists examining causes of deaths reported from Feb. 11 to March 5 have added 59 deaths to the storm’s toll, bringing it to 210.*

By [Christine Hauser](#) and [Edgar Sandoval](#)

July 14, 2021

“The death toll from the freezing winter weather that battered Texas and caused widespread power outages this year has risen by 59, bringing the total to 210, officials said.

The human loss — of young and old, in urban and rural communities — has devastated families across Texas. The Department of State Health Services, which [released the latest data](#) on Tuesday, said the numbers could rise as epidemiologists examine the causes of deaths reported from Feb. 11 to March 5.

“The majority of confirmed deaths were associated with hypothermia,” the department said in a report. Other deaths were caused by vehicle accidents, carbon monoxide poisoning, falls, fire, and exacerbation of chronic illnesses tied to the winter storm, it said.

The deaths took place across 60 counties, the data shows. The hardest hit were Harris County, with 43 confirmed storm deaths; Travis County, with 28; and Dallas, with 20.”

An economic impact may occur due to increased consumption of heating fuel, which can lead to energy shortages and higher prices. Schools often close when severe winter weather is forecasted, and it becomes a logistical burden for parents who then have to miss work or find alternative childcare. House fires and resulting deaths tend to occur more frequently from increased and improper use of alternate heating sources. Fires during winter storms also present a greater danger because water supplies may freeze and impede firefighting efforts.

According to the Texas Tribune, “the 2021 February power outages... were primarily caused by the inability of power plants to operate in the extreme cold. It was the same problem that Texas faced during the 2011 winter storm.” They go on to say, “But after the 2011 storm, recommendations made by federal regulators and experts to better prepare the Texas electricity grid for winter weather were never implemented by Texas leaders. When the February storm caused even bigger disruptions, state leaders were hammered publicly for ignoring the warnings of 2011.

Lawmakers this year passed a sweeping piece of legislation to require power plants to “weatherize” their facilities against extreme weather conditions. They left the details of how to do that up to the Public Utility Commission of Texas, which regulates utilities and is designing the weatherization requirements for power plants, and the Texas Railroad Commission, which regulates the state’s oil and gas industry.”<sup>6</sup>

The following article highlights the severe impacts of winter weather in North Central Texas and Ellis County. Although this article describes a 2013 storm, it also describes what Ellis County could experience again.

#### National Weather Service: North Texas Snowfall Events

##### **December 5-6, 2013**

A winter storm affected much of North and Central Texas for an extended period from December 5th through the 10th. A combination of freezing rain, sleet, and a little snow began falling during the day on the 5th and continued through the morning hours of the 6th. As the ice and sleet settled on the 6th, a thick layer of ice paralyzed most of the area north of a line from Goldthwaite to Cleburne to Ennis to Sulphur Springs. In this area, accumulations of sleet and ice measured up to 5" with the highest amounts from Denton to Sherman to Bonham.



*NBC 5 News captured "cobblestone ice" on North Texas roads*

Temperatures remained below freezing until the 9th and 10th resulting in a prolonged winter event. Most residents were forced to remain at home for several days. A new term, coined "cobblestone ice," was used to describe the condition of the ice on the interstates and highways due to the compaction of ice and sleet.

South of this area, lighter amounts of icing occurred producing mainly icy bridges, overpasses, and elevated surfaces. As a result of the ice storm, significant tree damage occurred with thousands of tree branches falling under the weight of the ice. Power lines were also brought down, and at the peak of the storm, 275,000 customers were without power in the North Texas region. Most schools, especially in the hardest hit areas, were closed for several days. Some businesses were forced to close for a day or two also. Hundreds of injuries were reported due to falls on the ice but exact

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<sup>6</sup> By Erin Douglas, The Texas Tribune. <<https://www.texastribune.org/2021/10/21/texas-power-companies-winter-weather-rule/>>, [texastribune.org](https://www.texastribune.org)



numbers were not available. Seven fatalities occurred during this event; 4 in vehicles, 2 from exposure, and 1 from a fall on the ice. Early estimates from the insurance council estimated \$30 million in residential insured losses. The estimate did not include damage to vehicles or roads. Many roads and bridges were damaged from the ice and/or from attempts by Texas Department of Transportation to remove the ice using plows and graders. Hundreds of people and semi-trucks were stranded for long periods on many of the main highways and interstates including I-35 from Fort Worth to the Oklahoma border and Interstate 20 from Fort Worth going west. The clean-up from this event took weeks and even a few months in some places.<sup>7</sup>

Historical Events- Winter Storm							
Location	Date	Type	Mag	Dth	Inj	PrD	CrD
ELLIS (ZONE)	12/5/2013	Winter Storm		0	0	40000	0
ELLIS (ZONE)	2/23/2015	Winter Storm		0	0	300000	0
ELLIS (ZONE)	3/5/2015	Heavy Snow		0	0	0	0
ELLIS (ZONE)	12/7/2017	Winter Weather		0	0	0	0
ELLIS (ZONE)	10/31/2019	Cold/Wind Chill		0	0	0	0
ELLIS (ZONE)	2/13/2021	Winter Storm		0	0	10000	0
ELLIS (ZONE)	2/14/2021	Extreme Cold/Wind Chill		0	0	600000	0
<b>Totals:</b>				0	0	950K	0.00K

Source: NOAA National Centers for Environmental Information

### 3.3 Vulnerabilities and Changes in Development

Vulnerabilities can be social, environmental, economic, or political in nature. These vulnerabilities in turn have various impacts.

We know that, by definition, disasters can cause death and injury. We also know that housing and schools may be destroyed. These particular losses may be considered to be social impacts, as they affect the ability of individuals and families to function.

With regard to negative environmental impacts, if a community contains important ecological sites (e.g., the site of a unique flora or fauna habitat), then these areas may be extremely vulnerable to almost any sort of disaster.

There is monetary loss, or negative economic impact, whenever buildings, non-structural property, or infrastructure is damaged or destroyed. These losses can also result in loss of jobs, loss of economic stability, and loss of services (e.g., power). The more vulnerable the community is to these types of losses, the greater the economic vulnerability to a disaster.

The ability of the community to influence policy makers to reduce vulnerabilities is critical. A disaster entails political impacts. After a disaster has struck, a community often turns to its politicians when

<sup>7</sup> North Texas Snowfall Events 2013-1879, National Weather Service.  
<https://www.weather.gov/fwd/snowevents>

looking for guidance. Vulnerabilities may be considered in terms of the individual, the location, the capacity to respond, and the time of day, week, or year.

According to FEMA, the definition of vulnerability is *“the susceptibility of people, property, industry, resources, ecosystems, or historic buildings and artifacts to the negative impact of a disaster.”* The Ellis County Hazard Mitigation Planning Team (HMPT) conducted a risk assessment to determine vulnerabilities in their jurisdictions. The following information is an overview of vulnerabilities within Ellis County, including data about critical facilities/infrastructure, historic buildings, lakes, and natural environment.

The overall vulnerability level and priorities of the participants have remained the same since the previous mitigation plan.

### 3.3.1 Critical & Vulnerable Facilities, Infrastructure, and Assets

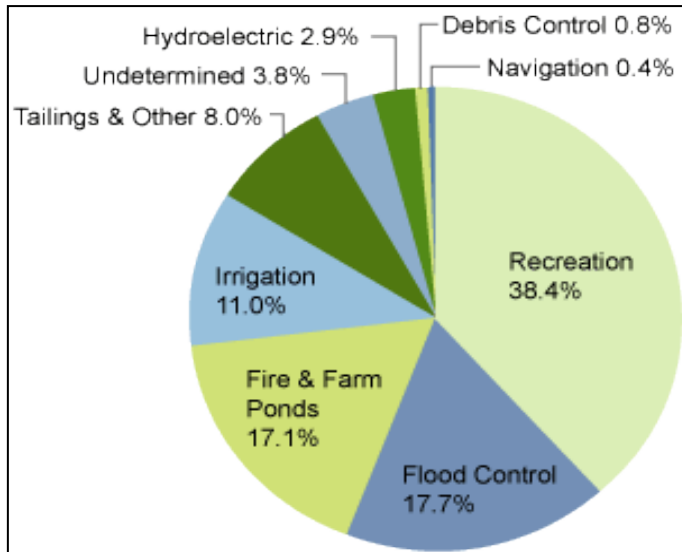
According to the Department of Homeland Security, there are 16 critical infrastructure sectors whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof. The following list identifies the 16 critical infrastructure sectors.

**Critical Infrastructure Sectors**

- |                                   |   |
|-----------------------------------|---|
| 1. Chemical Sector                | 9. Financial Services Sector                      |
| 2. Commercial Facilities Sector   | 10. Food and Agriculture Sector                   |
| 3. Communication Sector           | 11. Government Facilities Sector                  |
| 4. Critical Manufacturing Sector  | 12. Healthcare and Public Health Sector           |
| 5. Dams Sector                    | 13. Information Technology Sector                 |
| 6. Defense Industrial Base Sector | 14. Nuclear Reactors, Materials, and Waste Sector |
| 7. Emergency Services Sector      | 15. Transportation Sector                         |
| 8. Energy Sector                  | 16. Water and Wastewater Systems Sector           |

The age of this infrastructure ties into its level of vulnerability. The older the infrastructure, the more likely it is to fail due to the impacting hazards. Collapsed bridges, unsafe power grids, interrupted water supply- weak infrastructure can turn natural hazards into disasters. Critical facilities and infrastructure provide services and functions essential to a community, especially during and after a disaster. For a critical facility to function, building systems and equipment must remain operational. Furthermore, it must be supplied with essential utilities (typically power, water, waste disposal, and communications, but occasionally natural gas and steam). When critical infrastructure fails, it becomes nearly impossible to aid those who lack the means of evacuating on their own. This results in rescue operations that take longer to plan and execute and pose increased risks to first responders and residents due to the lack of information on the number of affected residents or the location of those who need additional assistance. The following sections go into detail about some (not all) of these critical facilities and infrastructures. An inventory of critical facilities in each participating jurisdiction is located in the Appendix A.

#### 5. Dams Sector



Source: FEMA- Benefits of Dams

Dams provide a range of economic, environmental, and social benefits, including recreation, flood control, water supply, hydroelectric power, waste management, river navigation, and wildlife habitat. The graph to the right reflects the benefits of dams in the United States.

Dams are classified by hazard potential. A high-hazard-potential rating does not imply that a dam has an increased risk for failure; it simply means that if failure were to occur, the resulting consequences would likely be a direct loss of human life and extensive property damage. Over the last 20 years, the number of high-hazard-potential dams has more than doubled as development steadily

encroaches on once-rural dams and reservoirs. Please contact the dam owner or the Dam Safety Section of the TCEQ for detailed information on specific dams.

### Responsibility

Local emergency management is only responsible for the *impact* of flooding from dam failure on surrounding areas. The responsibility for maintaining a safe dam rests with its owner. Dam owners are:

- responsible for maintaining safety *at* and *around* their dam.
- the only ones who can directly maintain the dams and implement mitigation and safety measures on the structures.<sup>8</sup>
- responsible for ensuring that their dam is in compliance with the Texas Commission on Environmental Quality's (TCEQ) regulations regarding emergency action plans.<sup>9</sup>

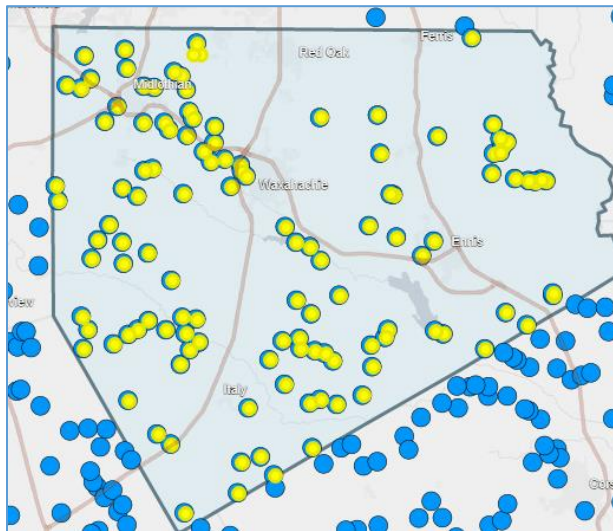
Additionally, each dam owner required to have an emergency action plan must know and be prepared to take the actions outlined in their emergency action plan, should their dam begin to fail.

Responsible Parties	Dam Related Safety Activities
Dam Owners/Operators	<ul style="list-style-type: none"> <li>• Identification of emergency at dam</li> <li>• Initial notifications</li> <li>• Implementation of repairs</li> <li>• Security and technical assistance on site</li> </ul>
Local Emergency Management and Local Responders	<ul style="list-style-type: none"> <li>• Public warning</li> <li>• Possible evacuation</li> </ul>

<sup>8</sup> <https://damsafety-prod.s3.amazonaws.com/s3fs-public/files/All%20-%20Dam%20Owner%20Fact%20Sheets%202019.pdf> Dam Ownership Fact Sheet. 2018.

<sup>9</sup> <https://www.tceq.texas.gov/compliance/investigation/damsafetyprog.html> For the most up-to-date information, contact TCEQ directly.

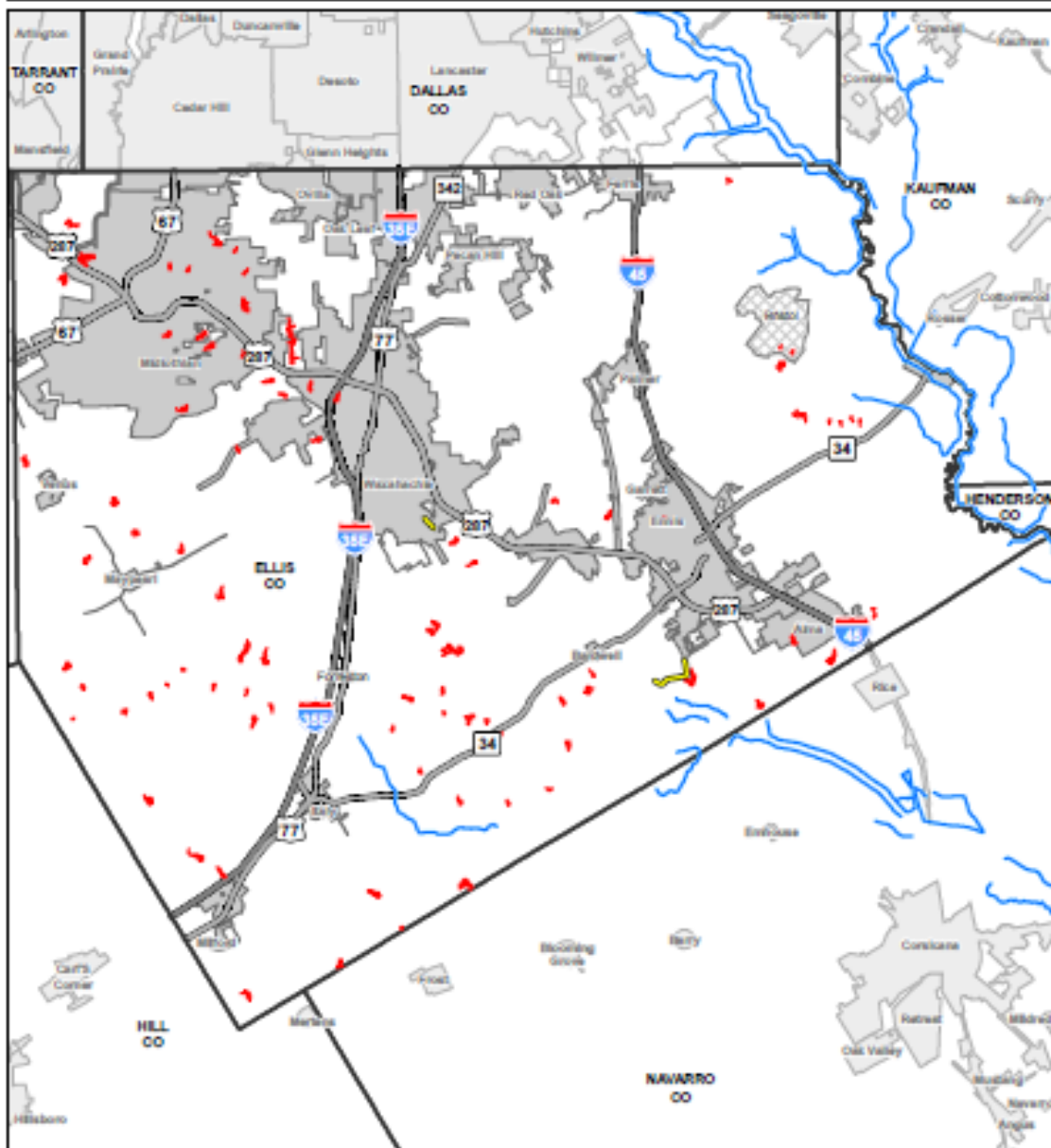
Responsible Parties	Dam Related Safety Activities
	<ul style="list-style-type: none"> <li>• Shelter plan activated</li> <li>• Rescue and recovery</li> <li>• State of Emergency declaration</li> <li>• Termination of emergency status</li> </ul>
State Emergency Management	<ul style="list-style-type: none"> <li>• Aid affected area when requested</li> <li>• Coordinate specialized assistance</li> <li>• Notify appropriate state agencies</li> <li>• Determine who does what in an emergency</li> </ul>



According to USACE, there are 122 total dams within Ellis County and are identified by the yellow dots in the following map. The inundation maps of these dams are located in the Emergency Action Plan of each dam.

The following is a list of the dams in Ellis County provided by the United States Army Corps of Engineers. Those without a city name can be presumed to be located in the unincorporated County. The list reflects the most current 2018 National Inventory of Dams (NID) database. More details than provided on the following list is available on the [National Inventory of Dams website](#).

# Ellis County- Dams & Levees



<b>Levees</b>	<b>County Lines</b>
<b>Dams</b>	<b>Ellis County Communities</b>
	Cities
<b>SWCD FP Sites</b>	Unincorporated Community
	<b>Non-Ellis County Cities</b>



**Disclaimer:** This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. Ellis County has produced this product for reference purposes only and offers no warranties for the product's accuracy or completeness.

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet, Projection: Lambert Conformal Conic, Datum: North American 1983, Units: Foot US  
 Produced by Ellis Co GIS release.cba Date Printed: 8/17/2021 © 2020/2021 EMPA/MAPMag4444MAP\_Template\_8x11\_Public.txd

Dam Name	NID ID	Owner Names	City	Primary Purpose	Hazard Potential Classification	EAP Prepared
Village Walker Creek WS SCS Site 3 Dam	TX01292	ELLIS COUNTY;ELLIS COUNTY LID 2;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Village Walker Creek WS SCS Site 7 Dam	TX01296	ELLIS COUNTY;ELLIS COUNTY LID 2;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Village Walker Creek WS SCS Site 4 Dam	TX01293	ELLIS COUNTY;ELLIS COUNTY LID 2;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Village Walker Creek WS SCS Site 8a Dam	TX01298	ELLIS COUNTY;ELLIS COUNTY LID 2;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Village Walker Creek WS SCS Site 6 Dam	TX01295	ELLIS COUNTY;ELLIS COUNTY LID 2;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Village Walker Creek WS SCS Site 8 Dam	TX01297	ELLIS COUNTY;ELLIS COUNTY LID 2;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Village Walker Creek WS SCS Site 5 Dam	TX01294	ELLIS COUNTY;ELLIS COUNTY LID 2;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Village Walker Creek WS SCS Site 2 Dam	TX01291	ELLIS COUNTY;ELLIS COUNTY LID 2;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 102 Dam	TX01320	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 9 Dam	TX01270	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 19 Dam	TX01287	CITY OF ENNIS;ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Mountain Creek WS SCS Site 9 Dam	TX01310	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 94 Dam	TX01249	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required

Dam Name	NID ID	Owner Names	City	Primary Purpose	Hazard Potential Classification	EAP Prepared
Chambers Creek WS SCS Site 24 Dam	TX04523	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 83 Dam	TX01319	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 23 Dam	TX01254	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 92 Dam	TX01251	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 93 Dam	TX01250	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 89 Dam	TX01252	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 55 Dam	TX01306	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 98a Dam	TX01241	ELLIS COUNTY;ELLIS PRAIRIE SWCD	MILFORD	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 82 Dam	TX01258	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 97 Dam	TX01243	ELLIS COUNTY;ELLIS PRAIRIE SWCD	MILFORD	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 56 Dam	TX01261	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 11 Dam	TX01272	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 86 Dam	TX01238	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required

Dam Name	NID ID	Owner Names	City	Primary Purpose	Hazard Potential Classification	EAP Prepared
Chambers Creek WS SCS Site 78 Dam	TX01227	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 79d Dam	TX04525	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 53 Dam	TX01304	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	No
Chambers Creek WS SCS Site 110 Dam	TX01248	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 115 Dam	TX01230	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 29 Dam	TX01228	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 17 Dam	TX01277	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	No
Chambers Creek WS SCS Site 80 Dam	TX01260	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 101c Dam	TX01234	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 107 Dam	TX01245	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 125 Dam	TX01283	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 95 Dam	TX01229	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 6 Dam	TX01268	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes



Dam Name	NID ID	Owner Names	City	Primary Purpose	Hazard Potential Classification	EAP Prepared
Mountain Creek WS SCS Site 11 Dam	TX01315	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 10 Dam	TX01271	ELLIS COUNTY;ELLIS PRAIRIE SWCD	WAXAHACHIE	Flood Risk Reduction	Not Available	Yes
Richland Creek WS SCS Site 44 Dam	TX01236	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 85b Dam	TX01237	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 118 Dam	TX01289	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 79b Dam	TX01262	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 116 Dam	TX01231	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 81 Dam	TX01259	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 75c Dam	TX06649	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 126 Dam	TX01284	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 49a Dam	TX04524	ELLIS COUNTY;ELLIS PRAIRIE SWCD	MAY PEARL	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 108 Dam	TX01246	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 16 Dam	TX01276	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Yes

Dam Name	NID ID	Owner Names	City	Primary Purpose	Hazard Potential Classification	EAP Prepared
Chambers Creek WS SCS Site 20 Dam	TX01288	CITY OF ENNIS;ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 77 Dam	TX01307	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 111 and 112	TX01256	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 108a Dam	TX05787	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 75b Dam	TX01303	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 12 Dam	TX01273	ELLIS COUNTY;ELLIS PRAIRIE SWCD	WAXAHACHIE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 54 Dam	TX01305	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	No
Chambers Creek WS SCS Site 109 Dam	TX01247	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 79a Dam	TX01239	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 106 Dam	TX04526	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	No
Chambers Creek WS SCS Site 98 Dam	TX01242	ELLIS COUNTY;ELLIS PRAIRIE SWCD	MILFORD	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 113 Dam	TX01253	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS	TX01235	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required

Dam Name	NID ID	Owner Names	City	Primary Purpose	Hazard Potential Classification	EAP Prepared
Site 99 Dam						
Chambers Creek WS SCS Site 121a Dam	TX01233	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 117 Dam	TX01232	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 84 Dam	TX01257	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 100 Dam	TX01244	ELLIS COUNTY;ELLIS PRAIRIE SWCD	NONE	Flood Risk Reduction	Not Available	Not Required
Chambers Creek WS SCS Site 15 Dam	TX01275	ELLIS COUNTY;ELLIS PRAIRIE SWCD	WAXAHACHIE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 2b Dam	TX01316	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Grays Creek WS SCS Site 102 Dam	TX05824	ELLIS PRAIRIE SWCD		Flood Risk Reduction	Not Available	Not Required
Bell Branch Ranch Dam	TX01240	BELL BRANCH RANCH VAN C ELLIS		Recreation	Not Available	Not Required
Chambers Creek WS SCS Site 3 Dam	TX01265	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 2f Dam	TX01264	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 5 Dam	TX01267	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 4 Dam	TX01266	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Grays Creek WS SCS Site 101 Dam	TX05823	ELLIS PRAIRIE SWCD		Flood Risk Reduction	Not Available	Not Required

Dam Name	NID ID	Owner Names	City	Primary Purpose	Hazard Potential Classification	EAP Prepared
Chambers Creek WS SCS Site 8 Dam	TX01318	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 7 Dam	TX01269	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 14 Dam	TX01280	ELLIS COUNTY;ELLIS PRAIRIE SWCD	WAXAHACHIE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 1 Dam	TX01317	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 20a Dam	TX01285	CITY OF ENNIS;ELLIS COUNTY;ELLIS PRAIRIE SWCD	ENNIS	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 13 Dam	TX01274	ELLIS COUNTY;ELLIS PRAIRIE SWCD	WAXAHACHIE	Flood Risk Reduction	Not Available	Yes
Chambers Creek WS SCS Site 2a Dam	TX01263	ELLIS COUNTY;ELLIS PRAIRIE SWCD	SARDIS	Flood Risk Reduction	Not Available	Yes
Shiloh Forest East Dam	TX07550				Not Available	No
Shiloh Forest West Dam	TX09738				Not Available	No
Beulah Dam	TX09494	STEVE HAWKS		Recreation	Not Available	Yes
Hefner Lake No 1 Dam	TX01301	CW HEFNER		Recreation	Not Available	Not Required
Hefner Lake No 2 Dam	TX01302	CW HEFNER		Recreation	Not Available	Not Required
Mg Wilson Gss	TX06183	MG WILSON	NONE	Other	Not Available	Not Required
Obrien Gss	TX06187	TERRANCE OBRIEN	NONE	Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required
Wilemon Lake Dam	TX01308	PEARY WILEMON		Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required
Matthews Gss	TX06182	ODOS MATTHEWS JR	MAYPEARL	Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required
Borders Gss	TX06186	CAMPBELL & CAMPBELL LP	NONE	Fire Protection, Stock, Or	Not Available	Not

Dam Name	NID ID	Owner Names	City	Primary Purpose	Hazard Potential Classification	EAP Prepared
				Small Fish Pond		Required
Joint Booster Pump Station No 3 Reservoir Dam	TX07441	TARRANT REGIONAL WATER DISTRICT		Other	Not Available	Yes
Lake Clopton Dam	TX01281	PETE CLOPTON		Recreation	Not Available	Not Required
Cement Plant Dam	TX01313	MARTIN MARIETTA MATERIALS SOUTHWEST INC		Other	Not Available	Yes
Cherry Lake Dam	TX01299	WB CHERRY		Recreation	Not Available	Not Required
Griffith Dam	TX01290	LYNN GRIFFITH		Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required
Ellis Lake Dam	TX01300	MS JOHNSON		Recreation	Not Available	Not Required
Mackinnon Gss	TX06181	JOHN MACKINNON	NONE	Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required
Crawford Dam	TX06650	BILLY CRAWFORD	NONE	Fish and Wildlife Pond	Not Available	Not Required
Everett Gss	TX06180	NL EVERETT	NONE	Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required
Camp Hobilitzelle Lake Dam	TX01311	THE SALVATION ARMY		Recreation	Not Available	Not Required
South Prong Dam	TX01255	ELLIS COUNTY WCID 1		Water Supply	Not Available	Yes
Youngblood Gss	TX06184	HERMAN YOUNGBLOOD	NONE	Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required
Midlothian Balancing Reservoir Dam	TX07464	TARRANT REGIONAL WATER DISTRICT A WCID		Other	Not Available	Yes
Mountain Creek WS SCS Site 10 Dam	TX01309	DALWORTH SWCD;ELLIS COUNTY	NONE	Flood Risk Reduction	Not Available	Yes
Jh Wilson Gss	TX06185	JOHN WILSON	BRITTON	Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required
Couch Gss	TX06179	DONALD BONHAM	COLUMBUS	Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required

Dam Name	NID ID	Owner Names	City	Primary Purpose	Hazard Potential Classification	EAP Prepared
Ten Mile Creek WS SCS Site 9 Dam	TX04724	CULBERSON COUNTY;HIGHPOINT SWCD	WALNUT SPRINGS	Flood Risk Reduction	Not Available	Not Required
Lake Clark Dam	TX01286	CITY OF ENNIS		Flood Risk Reduction	Not Available	Yes
Waxahachie Country Club Lake Dam	TX01282	WAXAHACHIE COUNTRY CLUB	WAXAHACHIE	Irrigation	Not Available	Yes
Daniel Gss	TX06197	OLIVER DANIEL	NONE	Fire Protection, Stock, Or Small Fish Pond	Not Available	Not Required
Crossroads Lake Dam	TX01312	CROSSROADS PROPERTY		Recreation	Not Available	Not Required
Hi View Ranch Lake Dam	TX01278	AH MEADOWS		Irrigation	Not Available	Not Required
Diamond J Ranch Dam No 2	TX04268	WEST BEN B AND DEPRez PATRICK F	WAXAHACHIE	Recreation	Not Available	Not Required
Rodney Green Dam	TX07085	RODNEY GREEN		Other	Not Available	Not Required
Ash Grove Cement Plant Dam	TX01314	GIFFORD-HILL & COMPANY INC		Other	Not Available	Not Required
Katy Lake Dam	TX01279	KATY LAKE HOMEOWNERS ASSOCIATION	WAXAHACHIE	Recreation	Not Available	Yes
Bardwell Dam	TX00001	USACE - Fort Worth District	CORSICANA	Flood Risk Reduction	High	Yes

Source: USACE National Inventory of Dams

\* An Emergency Action Plan (EAP) is a formal document that identifies potential emergency conditions at a dam and specifies actions to be followed to minimize loss of life and property damage. Under the EAP category, the following acronyms are used Y (Yes), N (No), or NR (Not Required).


## 15. Transportation Sector (Roads & Bridges)

Roads make a crucial contribution to economic development and growth and bring important social benefits. They are of vital importance to make a community grow and develop. In addition, providing access to employment, social, health and education services makes a road network crucial in fighting against poverty. Roads open more areas and stimulate economic and social development. For those reasons, road infrastructure is the most important of all public assets. Bridges are also immensely important to everyday travel. Bridges allow safe passage where previously it was not possible or much more difficult. Bridges allow people go to school, seek medical help, and go to work without having to negotiate a busy road, a dangerous railway line, or a fast-flowing river. As extreme weather events become more common, transport infrastructure is increasingly being tested by these events.

Roads and bridges that are not owned by jurisdictions fall under the responsibility of the Texas Department of Transportation (TxDOT). TxDOT uses the following terminology when describing their roadways.

- **On-System:** Under the jurisdiction of TxDOT.
- **Off-System:** Not under the jurisdiction of TxDOT.
- **Centerline Mileage:** Mileage of a segment of roadway, regardless of the number of through lanes. Unless otherwise specified, “mileage” in this document is by default centerline mileage. Centerline mileage for mainlanes is calculated separately from centerline mileage for frontage roads, which are considered distinct roadways. For instance, a 1-mile segment of highway with left and right roadbeds, each with four lanes, would be represented as 1 centerline mile. If that segment contained right and left frontage roads, the mainlanes and frontage roads would be represented in the data as 3 unique roadways, 1 centerline mile each, for a total of 3 miles.
- **Lane Mileage:** Mileage of all through lanes of a segment of roadway. For instance, a 1-mile segment of highway with left and right roadbeds, each with four through lanes, would be represented as 8 lane miles. As with centerline mileage, frontage road lane mileage is calculated separately from the lane mileage of mainlanes.
- **Daily Vehicle Miles of Travel (DVMT):** Daily number of miles traveled by all vehicles. Inclusive of Truck DVMT.
- **Truck Daily Vehicle Miles of Travel (Truck DVMT):** Daily number of miles traveled by trucks only. Unlike other data types, Truck DVMT values are not rounded before aggregation. Therefore, aggregating Truck DVMT by different combinations of subtotal values may result in a negligible discrepancy from the Statewide Total, especially regarding Rural / Urban subtotals. Roadway Data Tables: The data for many of these reports are also available in tabular format in the MultiYear
- Roadway Data Tables. This document also contains extensive annotations regarding data criteria and calculations and is intended as a companion to these Annual Reports. The Roadway Data Tables can be found at the following URL: <https://www.txdot.gov/inside-txdot/division/transportation-planning/roadway-inventory.html>

The following table reflects the miles of TxDOT roads in Ellis County, the 71<sup>st</sup> county in their report.

Data Source: YE2020 Certified Files		 <b>TEXAS DEPARTMENT OF TRANSPORTATION</b> <b>Transportation Planning and Programming Division</b>			
Annual Report - Highway Status Open To Traffic Only		by County by Highway System			
Mileage					
County	Highway System	Centerline	Lane	DVMT	Truck DVMT
<b>Ellis (71)</b>					
	<b>IH Highways</b>	56.499	272.780	2,569,959.119	683,159.648
	<b>US Highways</b>	77.867	262.186	1,604,887.237	207,998.278
	<b>State Highways, Spurs, Loops, Business Routes</b>	66.883	158.290	336,427.849	40,961.023
	<b>Farm or Ranch to Market Roads and Spurs</b>	303.543	617.136	841,442.815	39,936.167
	<b>Frontage Roads</b>	118.811	236.980	176,907.485	10,021.375
	<b>On-System Subtotal</b>	623.603	1,547.372	5,529,624.505	982,076.491
	<b>City Streets</b>	649.504	1,318.254	423,897.122	13,784.895
	<b>Certified County Roads</b>	926.926	1,853.852	190,726.033	6,801.705
	<b>Federal Roads</b>	11.962	23.924	838.658	25.527
	<b>Off-System Subtotal</b>	1,588.392	3,196.030	615,461.813	20,612.127
	<b>County Total</b>	2,211.995	4,743.402	6,145,086.318	1,002,688.618

Source: [TxDOT Roadways Inventory 2020 Annual Report](#)

The TxDOT manages 659 on & off system bridges open to public traffic within the County.

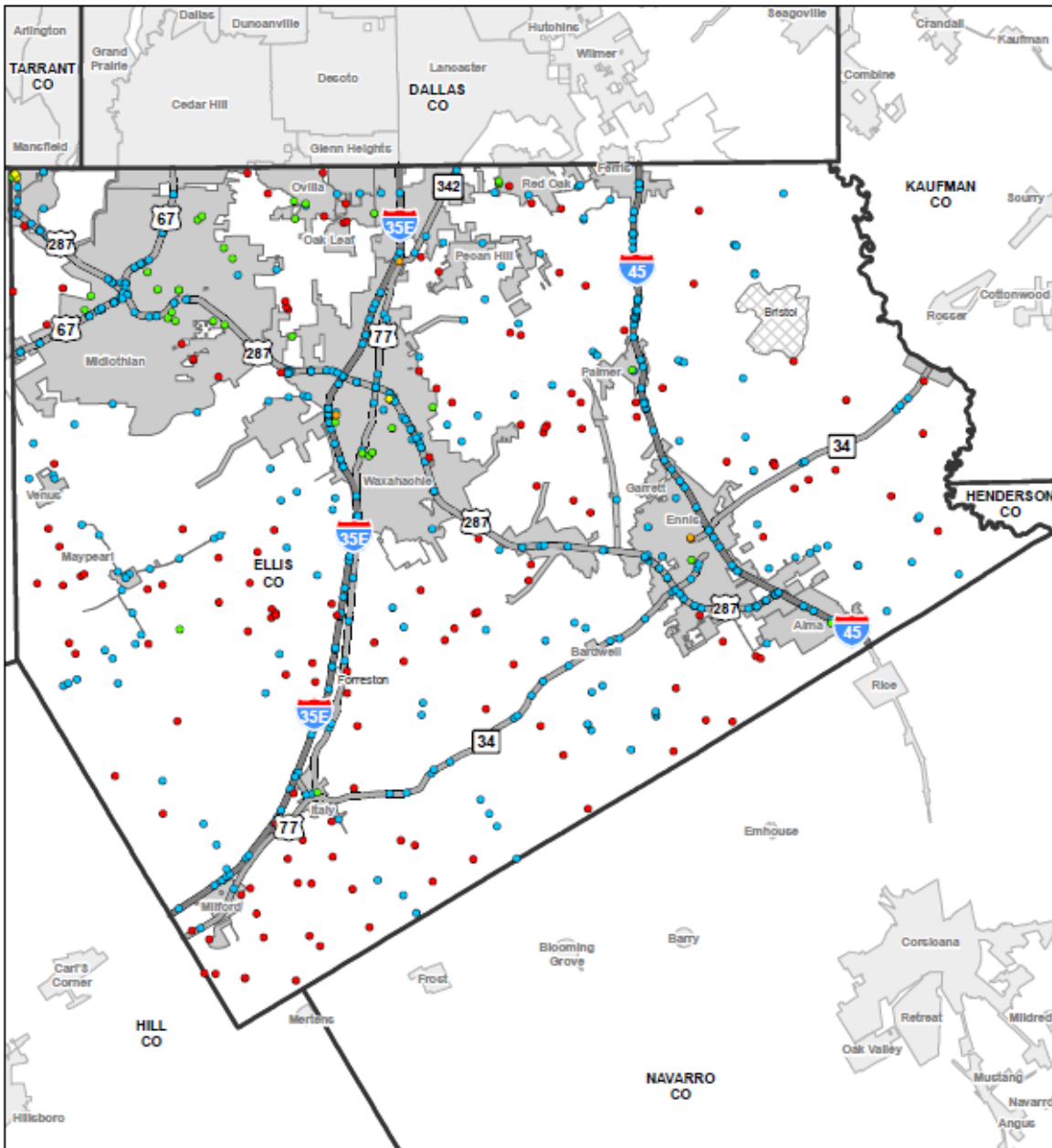
- On-system bridges are located on the designated state highway system, are maintained by TxDOT, and are typically funded with a combination of federal and state or state-only funds.
- Off-system bridges are not part of the designated state highway system and are under the direct jurisdiction of the local government such as a county, city, other political subdivision of the state, or special district with authority to finance a highway improvement project.

Utilizing an assortment of funding sources and programs, TxDOT is continuously developing improvement projects for public bridges throughout the year. Most funds available for bridge projects are allocated towards Category 6 of TxDOT's Unified Transportation Program (UTP). Within Category 6 are several programs with the goal of improving the condition of Texas bridges. Most notable are 1) the Highway Bridge Program (HBP) which focuses on replacement projects; and 2) the Bridge Maintenance and Improvement Program (BMIP) which focuses on bridge preservation projects. Recently, TxDOT has developed the Bridge System Safety Program (BSSP), intended to upgrade safety features on bridges that are otherwise in good condition.<sup>10</sup>

<sup>10</sup> TxDOT Bridge Division. Report of Texas Bridge; Fiscal year 2020. < <https://ftp.txdot.gov/pub/txdot-info/library/reports/gov/bridge/fy20.pdf>>



# Ellis County- TxDOT Bridges



- |                      |                                 |
|----------------------|---------------------------------|
| <b>TxDOT Bridges</b> | <b>County Lines</b>             |
| • State              | County Lines                    |
| • County             | <b>Ellis County Communities</b> |
| • City               | Cities                          |
| • Railroad           | Unincorporated Community        |
| • Toll Authority     | Non-Ellis County Cities         |



0 2 4 Miles

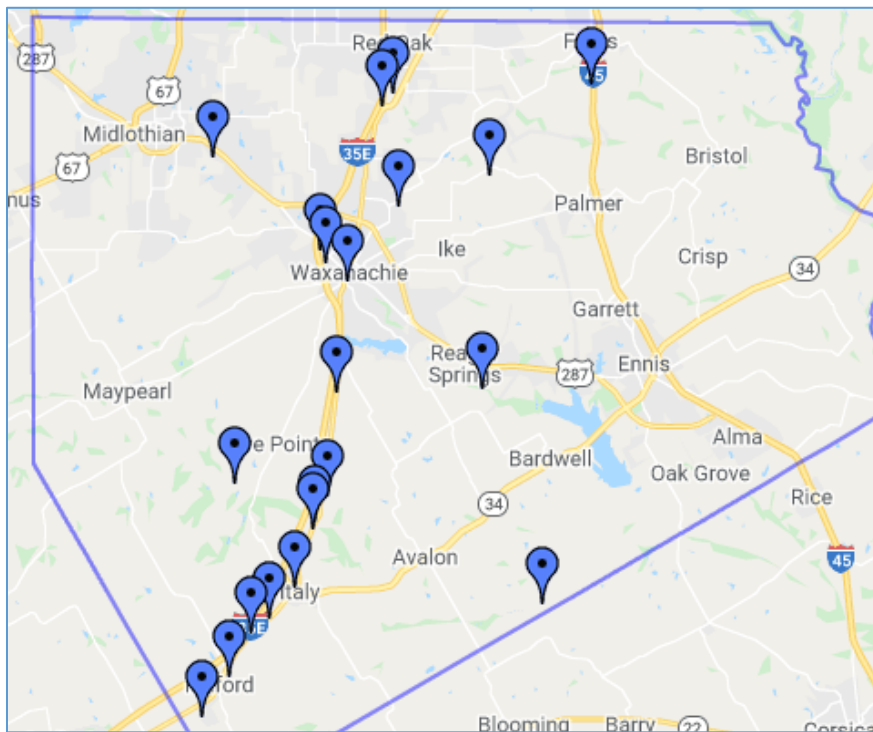


**Disclaimer:** This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. Ellis County has produced this product for reference purposes only and offers no warranties for the product's accuracy or completeness.





Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet, Projection: Lambert Conformal Conic, Datum: North American 1983, Units: Foot US  
 Produced by Ellis Co GIS: rebecca.charles Date Printed: 8/16/2021 G:\GIS\EC\06 EMH\Map\Maps\HazMAP\_Template\_8x11\_Portrait.mod

Ellis County adopted a [Master Thoroughfare Plan](#) to assist in long-term project planning. The plan includes a map that provides the framework for existing and future transportation networks. In addition, the document provides an analysis of existing conditions, existing and potential issues, as well as classification for future transportation corridors. This thoroughfare plan shows road networks through private rural land. Those future projects may take years to develop and the alignments are not yet determined. The last update was in 2007 but a lot has changed since then. The population has grown exponentially and with more growth headed towards Ellis County, they wanted to look at the county as a whole and develop recommendations to assist with those transportation issues. In 2019, Ellis County hired Freese & Nichols, Inc. to update its Master Thoroughfare Plan. This update gives reasonable long-term guidance to County officials and will be reviewed regularly and updated approximately every 5-7 years to reflect changes in growth and development. The county will utilize the master thoroughfare plan for long-term planning and investment decisions for future projects. Some maps from this Thoroughfare Plan can be found in Appendix A.






Below is a detailed list and coinciding map of the historic and notable bridges within the county. Some of these bridges have been abandoned yet could be transformed into bike or animal bridges to provide options during evacuations.





Name ▾	Location	Status	Design	Year Built	Year Lost	Span Length (ft.)	Total Length (ft.)
<a href="#">BNSF - Waxahachie Creek Bridge</a>	BNSF Railway over Waxahachie Creek	Open to traffic	Pony/through plate girder	--	--	--	--
<a href="#">Brookside Road Bridge</a>	Brookside Road over Waxahachie Creek	Open to traffic	Stringer	1955	--	29.9	122.1
<a href="#">Chambers Creek Bridge</a>	Armstrong Road over Chambers Creek	Open to traffic	Steel stringer	1992	--	55.1	188.0

Name ▼	Location	Status	Design	Year Built	Year Lost	Span Length (ft.)	Total Length (ft.)
<a href="#">Getzandaner Park Footbridge</a>	Footpath over Waxahachie Creek	Open to pedestrians only	Warren pony truss	1910	--	--	98.0
<a href="#">Holden Road Bridge</a>	Holden Road over Branch of Chambers Creek	Open to traffic	Warren pony truss with alternating verticals	--	--	38.1	39.0
<a href="#">MKT - Chambers Creek Bridge</a>	Bridge over Chambers Creek	Derelict/abandoned	Concrete deck girder	1923	--	--	--
							
<a href="#">MKT - Chambers Creek Bridge</a>	Bridge over Chambers Creek	Derelict/abandoned	Through truss	--	--	--	--
							
<a href="#">MKT - Hog Creek Bridge</a>	MKT Railroad over Hog Creek	Abandoned	Unknown	--	--	--	--
<a href="#">MKT - Houston Creek Bridge</a>	Abandoned Missouri-Kansas-Texas Railroad over Houston Creek	Derelict/abandoned	Slab	--	--	--	--
							
<a href="#">MKT - Little Onion Creek</a>	Bridge over Little Onion Creek	Derelict/abandoned	Timber stringer	--	--	--	--
							
<a href="#">MKT - Mill Creek Bridge</a>	MKT Railroad over Mill Creek	Abandoned	Polygonal Warren pony truss	1933	--	25.0	60.0

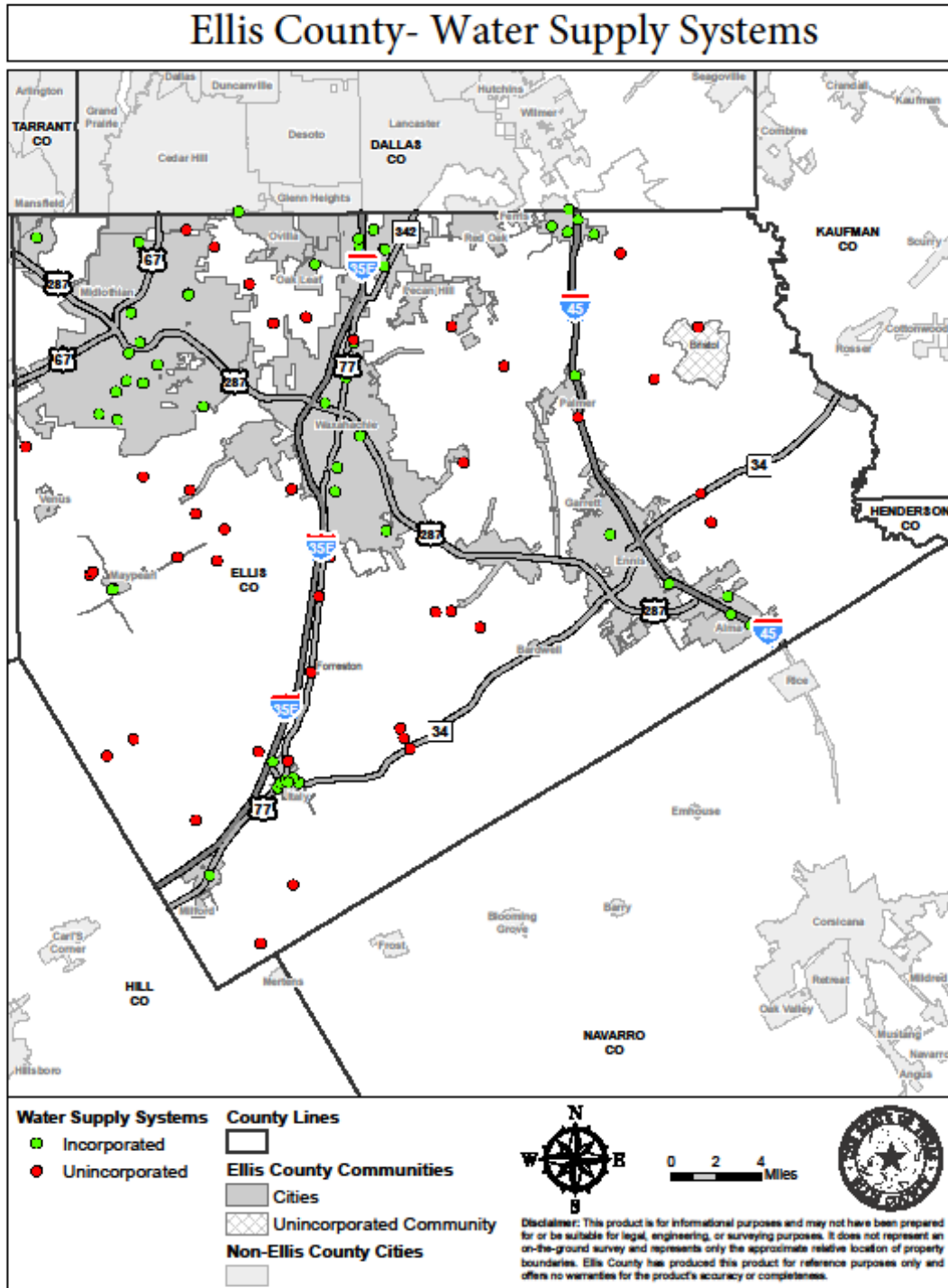
Name ▼	Location	Status	Design	Year Built	Year Lost	Span Length (ft.)	Total Length (ft.)
							
<a href="#">MKT - Waxahachie Creek Bridge</a>	Abandoned Missouri-Kansas-Texas Railroad over Waxahachie Creek	Abandoned	Polygonal Warren pony truss	1926	--	--	--
							
<a href="#">Mt. Zion Road Bridge</a>	road over unnamed creek	Open to traffic	Warren pony truss with alternating verticals	1910	--	70.0	70.0
							
<a href="#">Richland Creek Bridge</a>	Old Brandon Road over Richland Creek	Bypassed by new bridge	Warren pony truss with alternating verticals	ca. 1930	--	28.9	91.9
							
<a href="#">Rogers Street Bridge</a>	Rogers Street over Waxahachie Creek	Open to pedestrians	Pratt through truss	1889	--	--	--
							
<a href="#">Rutherford's Crossing Bridge</a>	Rutherford Road over Red Oak Creek	Closed to traffic	Warren pony truss	1919	--	69.9	69.9
							
<a href="#">Spring Creek Road Bridge</a>	Spring Creek Road over Grove Creek	Preserved awaiting full restoration	Pratt through truss	1890	--	44.9	134.8
							

Name ▼	Location	Status	Design	Year Built	Year Lost	Span Length (ft.)	Total Length (ft.)
							
<a href="#">Texas Electric - Culvert (Near Italy)</a>	Texas Electric Railway over Small Stream	Abandoned	Concrete culvert	--	--	--	--
							
<a href="#">UP - Long Branch Bridge</a>	Railroad (UP) over Long Branch	Open to traffic	Deck plate girder	1938	--	--	--
							
<a href="#">UP - Red Oak Creek Bridge</a>	Railroad (UP) over Red Oak Creek	Open to traffic	Warren pony truss	--	--	--	--
							
<a href="#">UP - US77 Overpass</a>	Railroad (UP) over US 77	Open to traffic	Deck plate girder	1940	--	124.0	129.9
							
<a href="#">Waxahachie Viaduct</a>	US 77 (Elm Street) over Union Pacific Railroad and Waxahachie Creek	Open to traffic	Concrete tee beam	1931	--	56.1	1121.1

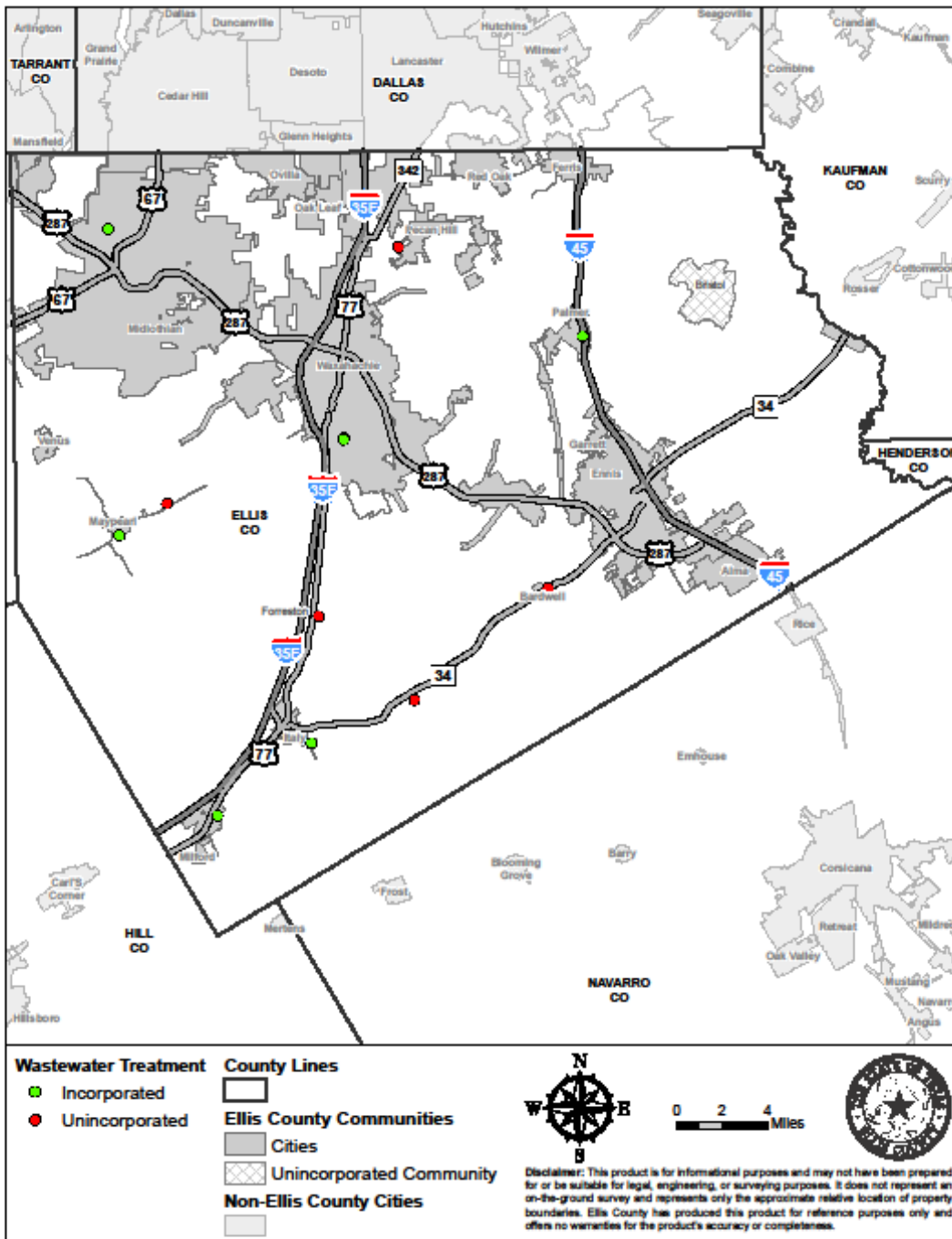
Name ▼	Location	Status	Design	Year Built	Year Lost	Span Length (ft.)	Total Length (ft.)
							
<a href="#">Witten Road Bridge</a> 	Old railroad grade over Unnamed creek	Derelict/abandoned	Concrete stringer	1911	--	14.0	14.0

Source: [Bridgehunter.com](http://Bridgehunter.com)

16. Water and Wastewater Systems Sector



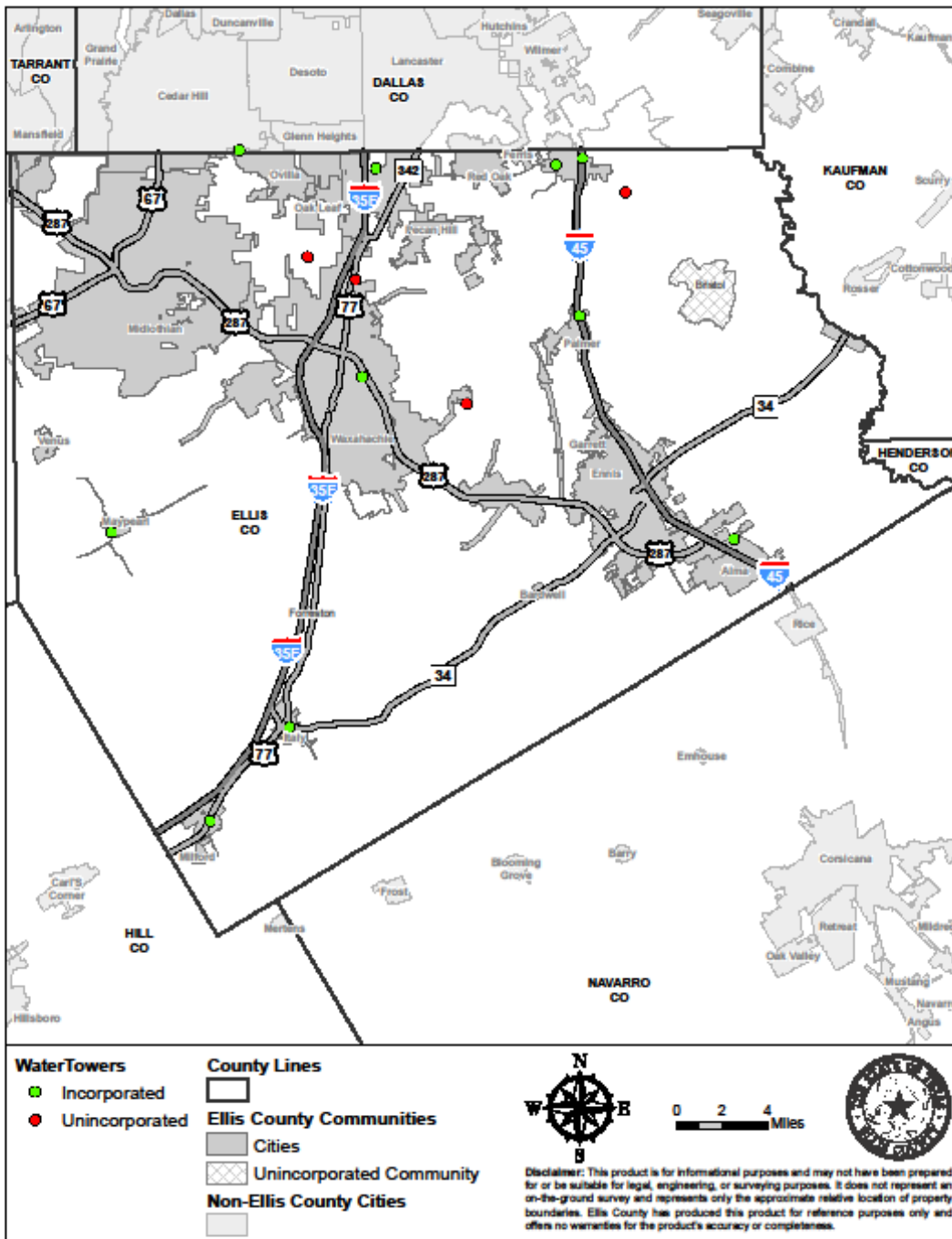
# Ellis County- Wastewater Treatment Plants



Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet, Projection: Lambert Conformal Conic, Datum: North American 1983, Units: Foot US  
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# Ellis County- Water Towers



Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet, Projection: Lambert Conformal Conic, Datum: North American 1983, Units: Foot US  
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Bodies of water, such as lakes, reservoirs, and rivers, are vulnerable to severe weather and natural hazards, and the level of water has a dramatic effect on drought and flooding impacts on people and property in the participating jurisdictions.

The following list identifies all the lakes and reservoirs in the County.

Name	United States Geological Survey Topographic Map
<a href="#">Bardwell Lake</a>	Ennis West
<a href="#">Bell Branch Ranch Lake</a>	Italy
<a href="#">Camp Hoblitzelle Lake</a>	Midlothian
<a href="#">Cement Plant Lake</a>	Midlothian
<a href="#">Cherry Lake</a>	Bristol
<a href="#">Crossroads Lake</a>	Venus
<a href="#">Diamond J Ranch Lake Number 2</a>	Midlothian
<a href="#">Gifford-Hill Lake</a>	Britton
<a href="#">Griffith Reservoir</a>	Palmer
<a href="#">Hefner Lake Number 1</a>	Bristol
<a href="#">Hefner Lake Number 2</a>	Bristol
<a href="#">Hi-View Ranch Lake</a>	Midlothian
<a href="#">Johnson Lake</a>	Bristol
<a href="#">Katy Lake</a>	Waxahachie
<a href="#">Lake Clark</a>	Ennis West
<a href="#">Lake Clopton</a>	Waxahachie
<a href="#">Lake Waxahachie</a>	Forreston
<a href="#">Old Lake</a>	Ennis West
<a href="#">Range Reservoir</a>	Ennis West
<a href="#">Soil Conservation Service Site 1 Reservoir</a>	Cedar Hill
<a href="#">Soil Conservation Service Site 10 Reservoir</a>	Venus
<a href="#">Soil Conservation Service Site 10 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 100 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 101c Reservoir</a>	Frost
<a href="#">Soil Conservation Service Site 102 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 106 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 107 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 108 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 109 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 11 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 11 Reservoir</a>	Britton
<a href="#">Soil Conservation Service Site 110 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 111 and 112 Reservoir</a>	Forreston
<a href="#">Soil Conservation Service Site 113 Reservoir</a>	Forreston
<a href="#">Soil Conservation Service Site 115 Reservoir</a>	Cryer Creek

Name	United States Geological Survey Topographic Map
<a href="#">Soil Conservation Service Site 116 Reservoir</a>	Cryer Creek
<a href="#">Soil Conservation Service Site 117 Reservoir</a>	Cryer Creek
<a href="#">Soil Conservation Service Site 118 Reservoir</a>	Ennis West
<a href="#">Soil Conservation Service Site 12 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 121a Reservoir</a>	Emhouse
<a href="#">Soil Conservation Service Site 125 Reservoir</a>	Ennis East
<a href="#">Soil Conservation Service Site 126 Reservoir</a>	Ennis East
<a href="#">Soil Conservation Service Site 13 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 14 Reservoir</a>	Waxahachie
<a href="#">Soil Conservation Service Site 15 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 16 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 17 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 19 Reservoir</a>	Ennis West
<a href="#">Soil Conservation Service Site 2 Reservoir</a>	Bristol
<a href="#">Soil Conservation Service Site 20 Reservoir</a>	Ennis West
<a href="#">Soil Conservation Service Site 23 Reservoir</a>	Forreston
<a href="#">Soil Conservation Service Site 24 Reservoir</a>	Forreston
<a href="#">Soil Conservation Service Site 29 Reservoir</a>	Cryer Creek
<a href="#">Soil Conservation Service Site 2a Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 2b Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 2f Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 3 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 3 Reservoir</a>	Bristol
<a href="#">Soil Conservation Service Site 4 Reservoir</a>	Bristol
<a href="#">Soil Conservation Service Site 4 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 44 Reservoir</a>	Mertens
<a href="#">Soil Conservation Service Site 49a Reservoir</a>	Venus
<a href="#">Soil Conservation Service Site 5 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 5 Reservoir</a>	Bristol
<a href="#">Soil Conservation Service Site 53 Reservoir</a>	Maypearl
<a href="#">Soil Conservation Service Site 54 Reservoir</a>	Maypearl
<a href="#">Soil Conservation Service Site 55 Reservoir</a>	Maypearl
<a href="#">Soil Conservation Service Site 56 Reservoir</a>	Boz
<a href="#">Soil Conservation Service Site 6 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 6 Reservoir</a>	Bristol
<a href="#">Soil Conservation Service Site 7 Reservoir</a>	Bristol
<a href="#">Soil Conservation Service Site 7 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 75b Reservoir</a>	Maypearl
<a href="#">Soil Conservation Service Site 77 Reservoir</a>	Maypearl
<a href="#">Soil Conservation Service Site 78 Reservoir</a>	Files Valley
<a href="#">Soil Conservation Service Site 790 Reservoir</a>	Boz

Name	United States Geological Survey Topographic Map
<a href="#">Soil Conservation Service Site 79a Reservoir</a>	Italy
<a href="#">Soil Conservation Service Site 79b Reservoir</a>	Boz
<a href="#">Soil Conservation Service Site 8 Reservoir</a>	Bristol
<a href="#">Soil Conservation Service Site 8 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 80 Reservoir</a>	Boz
<a href="#">Soil Conservation Service Site 81 Reservoir</a>	Boz
<a href="#">Soil Conservation Service Site 82 Reservoir</a>	Boz
<a href="#">Soil Conservation Service Site 83 Reservoir</a>	Italy
<a href="#">Soil Conservation Service Site 84 Reservoir</a>	Boz
<a href="#">Soil Conservation Service Site 85b Reservoir</a>	Italy
<a href="#">Soil Conservation Service Site 86 Reservoir</a>	Italy
<a href="#">Soil Conservation Service Site 89 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 8a Reservoir</a>	Bristol
<a href="#">Soil Conservation Service Site 9 Reservoir</a>	Midlothian
<a href="#">Soil Conservation Service Site 9 Reservoir</a>	India
<a href="#">Soil Conservation Service Site 9 Reservoir</a>	Venus
<a href="#">Soil Conservation Service Site 92 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 93 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 94 Reservoir</a>	Avalon
<a href="#">Soil Conservation Service Site 95 Reservoir</a>	Cryer Creek
<a href="#">Soil Conservation Service Site 97 Reservoir</a>	Italy
<a href="#">Soil Conservation Service Site 98 Reservoir</a>	Italy
<a href="#">Soil Conservation Service Site 98a Reservoir</a>	Italy
<a href="#">Soil Conservation Service Site 99 Reservoir</a>	Frost
<a href="#">Wilemon Lake</a>	Maypearl

Source: TX HomeTownLocator

### Historic Buildings and Districts

Historic landmarks and districts are important to consider when evaluating vulnerabilities to hazards. What is historic, and worth saving, varies with the beholder. “Historic” applies to a building that is part of a community’s tangible past. Due to the advanced of these structures, they are highly susceptible to cracking, leaning, and total destruction caused by any of the hazards. The Ellis County Historical Commission is responsible for identifying and preserving Ellis County's historic resources. The Historical Commission assists in the development of tourism by helping the county's citizens become aware of the economic benefits derived from the preservation and promotion of Ellis County's historical sites, areas, and resources.

Historic buildings and structures, artwork, monuments, family heirlooms, and historic documents are often irreplaceable, and may be lost forever in a disaster if not considered in the mitigation planning process. The loss of these resources is all the more painful because of how often residents rely on their presence after a disaster, to reinforce connections with neighbors and the larger community, and to seek comfort in the aftermath of a disaster.

The continued presence of historic properties in Ellis County enhances the quality life; it helps to establish sense of place and defines the very character of the community. The Historical Commission focuses on conserving each of Ellis County 's cities historic resources and promoting civic awareness of the communities' history.

According to the Texas Historic Sites Atlas, there are 122 national register properties, 4 courthouses, 122 cemeteries, 2 museums, and 125 historical markers throughout Ellis County.<sup>11</sup>

### 3.3.2 Vulnerable Populations & Species

In the context of emergencies, vulnerable groups may include individuals with disabilities, pregnant women, children, elderly persons, prisoners, certain members of ethnic minorities, people with language barriers, and the impoverished. For these populations, emergency response failures can have catastrophic consequences, including loss of the ability to work or live independently, permanent injury, and death. Without appropriate preparation, vulnerable individuals may not be able to evacuate as instructed, reach points of distribution for medical countermeasures, understand written or verbal communications during an emergency, or find suitable housing if their residences are destroyed during a disaster. Along with vulnerable populations, there are natural assets that are more vulnerable to natural disasters than others.

#### Vulnerable Population

New technologies that provide 9-1-1 and public safety officials with the ability to proactively engage the community have had a dramatic effect on mortality rates during these increasing amounts and strength of natural disasters. Identifying at risk populations and providing them with information and assistance when they most need it can make a significant difference, especially in the event of an evacuation or seeking shelter. One measure of the strength of a community’s response and recovery system is its attentiveness to its most vulnerable citizens. It is a cruel fact: disasters discriminate.

The following table provides demographic information from the U.S. Census Bureau QuickFacts. QuickFacts provides statistics for all states and counties, and for cities and towns with a **population of 5,000 or more**. Note that the cities of Alma, Bardwell, Ferris, Garrett, Italy, Maypearl, Milford, Oak Leaf, Ovilla, and Palmer do not have QuickFacts data available. The Ellis County column of numbers includes the county in its entirety.

#### Demographics Table

	Waxahachie city, Texas	Red Oak city, Texas	Midlothian city, Texas	Ennis city, Texas	Ellis County, Texas
<b>Population estimates, July 1, 2019, (V2019)</b>	<b>37,988</b>	<b>13,464</b>	<b>33,532</b>	<b>20,357</b>	<b>184,826</b>
<b>PEOPLE</b>					
<b>Population</b>					
<b>Population estimates, July 1, 2019,</b>	<b>37,988</b>	<b>13,464</b>	<b>33,532</b>	<b>20,357</b>	<b>184,826</b>

<sup>11</sup> Texas Historical Sites Atlas. 2015. Texas Historical Commission. <<https://atlas.thc.state.tx.us/>>

	Waxahachie city, Texas	Red Oak city, Texas	Midlothian city, Texas	Ennis city, Texas	Ellis County, Texas
<b>(V2019)</b>					
Population estimates base, April 1, 2010, (V2019)	29,538	10,733	22,918	18,593	149,610
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	28.6%	25.4%	46.3%	9.5%	23.5%
Population, Census, April 1, 2020	41,140	14,222	35,125	20,159	192,455
Population, Census, April 1, 2010	29,621	10,769	18,037	18,513	149,610
<b>Age and Sex</b>					
Persons under 5 years, percent	7.6%	6.2%	6.8%	7.9%	6.7%
Persons under 18 years, percent	26.0%	30.7%	28.5%	27.6%	26.5%
Persons 65 years and over, percent	12.6%	10.8%	10.7%	13.7%	13.1%
Female persons, percent	50.5%	53.2%	51.0%	52.0%	50.6%
<b>Race and Hispanic Origin</b>					
White alone, percent	79.5%	57.2%	88.4%	74.2%	84.1%
Black or African American alone, percent(a)	13.3%	32.9%	5.0%	15.2%	12.2%
American Indian and Alaska Native alone, percent(a)	0.5%	0.2%	0.4%	0.7%	0.8%
Asian alone, percent(a)	0.6%	0.8%	0.8%	0.2%	0.8%
Native Hawaiian and Other Pacific Islander alone, percent(a)	0.0%	0.0%	0.0%	0.0%	0.1%
Two or More Races, percent	3.4%	6.7%	4.4%	4.5%	1.9%
Hispanic or Latino, percent(b)	25.2%	20.4%	15.2%	46.1%	26.9%
White alone, not Hispanic or Latino, percent	60.4%	42.6%	74.8%	36.3%	58.9%
<b>Population Characteristics</b>					
Veterans, 2015-2019	2,083	922	1,976	752	10,718
Foreign born persons, percent, 2015-2019	6.0%	5.3%	3.8%	16.6%	7.7%

	Waxahachie city, Texas	Red Oak city, Texas	Midlothian city, Texas	Ennis city, Texas	Ellis County, Texas
<b>Housing</b>					
Housing units, July 1, 2019, (V2019)	X	X	X	X	65,940
Owner-occupied housing unit rate, 2015-2019	55.4%	66.3%	80.6%	62.5%	74.4%
Median value of owner-occupied housing units, 2015-2019	\$176,300	\$207,600	\$228,000	\$111,200	\$191,400
Median selected monthly owner costs -with a mortgage, 2015-2019	\$1,549	\$1,849	\$1,868	\$1,358	\$1,663
Median selected monthly owner costs -without a mortgage, 2015-2019	\$551	\$645	\$631	\$484	\$553
Median gross rent, 2015-2019	\$1,088	\$1,136	\$1,192	\$915	\$1,054
Building permits, 2020	X	X	X	X	2,731
<b>Families &amp; Living Arrangements</b>					
Households, 2015-2019	12,276	4,040	9,812	6,557	57,307
Persons per household, 2015-2019	2.77	3.11	3.03	2.95	3.00
Living in same house 1 year ago, percent of persons age 1 year+, 2015-2019	82.7%	81.8%	86.2%	89.2%	87.7%
Language other than English spoken at home, percent of persons age 5 years+, 2015-2019	15.2%	10.5%	7.7%	37.2%	18.0%
<b>Computer and Internet Use</b>					
Households with a computer, percent, 2015-2019	94.2%	96.0%	96.6%	87.8%	94.4%
Households with a broadband Internet subscription, percent, 2015-2019	86.6%	91.8%	94.2%	81.4%	87.8%
<b>Education</b>					
High school graduate or higher, percent of persons age 25 years+, 2015-2019	88.0%	92.2%	94.4%	72.7%	86.2%
Bachelor's degree or higher, percent of persons age 25 years+, 2015-2019	22.9%	23.9%	32.6%	15.9%	24.3%
<b>Health</b>					
With a disability, under age 65 years, percent, 2015-2019	8.2%	6.4%	7.8%	6.2%	8.0%
Persons without health insurance,	??	??	??	??	??

	Waxahachie city, Texas	Red Oak city, Texas	Midlothian city, Texas	Ennis city, Texas	Ellis County, Texas
under age 65 years, percent	16.4%	11.5%	10.8%	27.0%	18.9%
<b>Economy</b>					
In civilian labor force, total, percent of population age 16 years+, 2015-2019	66.5%	72.7%	70.8%	66.2%	66.7%
In civilian labor force, female, percent of population age 16 years+, 2015-2019	61.3%	68.0%	64.0%	61.3%	60.6%
Total accommodation and food services sales, 2012 (\$1,000)(c)	84,981	D	D	36,279	177,743
Total health care and social assistance receipts/revenue, 2012 (\$1,000)(c)	169,329	17,631	23,735	D	326,638
Total manufacturers shipments, 2012 (\$1,000)(c)	1,293,840	D	1,378,217	1,356,243	4,129,652
Total retail sales, 2012 (\$1,000)(c)	623,921	93,645	232,312	332,962	1,459,370
Total retail sales per capita, 2012(c)	\$20,068	\$8,451	\$12,162	\$17,850	\$9,478
<b>Transportation</b>					
Mean travel time to work (minutes), workers age 16 years+, 2015-2019	26.3	36.3	32.0	23.6	30.6
<b>Income &amp; Poverty</b>					
Median household income (in 2019 dollars), 2015-2019	\$65,589	\$71,957	\$95,306	\$57,619	\$76,871
Per capita income in past 12 months (in 2019 dollars), 2015-2019	\$29,149	\$31,154	\$35,084	\$24,123	\$32,571
Persons in poverty, percent	12.3%	6.1%	5.3%	15.0%	8.7%
<b>BUSINESSES</b>					
<b>Businesses</b>					
Total employer establishments, 2019	X	X	X	X	3,221
Total employment, 2019	X	X	X	X	46,208
Total annual payroll, 2019 (\$1,000)	X	X	X	X	1,998,579
Total employment, percent change, 2018-2019	X	X	X	X	-0.1%
Total nonemployer establishments, 2018	X	X	X	X	16,101
All firms, 2012	2,751	1,126	1,720	1,777	12,813

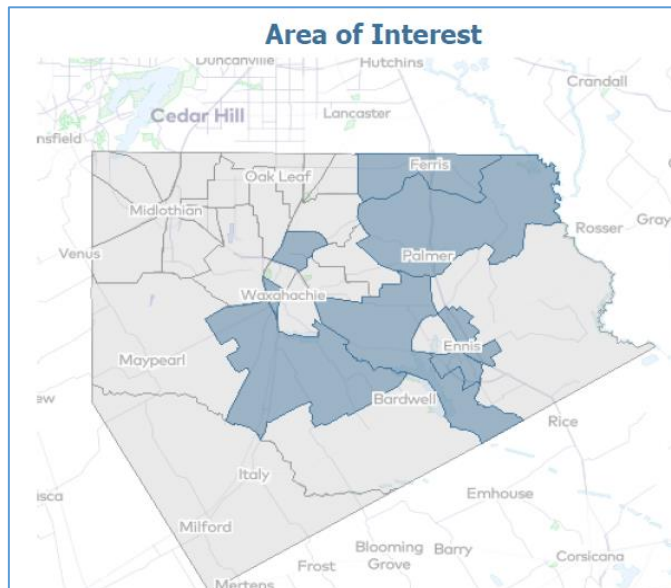


Men-owned firms, 2012	1,377	589	1,005	931	7,028
Women-owned firms, 2012	927	353	529	594	4,063
Minority-owned firms, 2012	811	436	274	591	3,413
Nonminority-owned firms, 2012	1,693	633	1,342	1,048	8,949
Veteran-owned firms, 2012	249	106	112	93	1,121
Nonveteran-owned firms, 2012	2,305	964	1,497	1,490	11,080
GEOGRAPHY					
Geography					
Population per square mile, 2010	621.6	719.6	362.5	669.4	159.9
Land area in square miles, 2010	47.65	14.97	49.75	27.65	935.49
FIPS Code	4876816	4861196	4848096	4824348	48139

Source: US Census Bureau Quick Facts, [www.census.gov](http://www.census.gov).

Overall, there are 8 census tracts in Ellis County that show to be more vulnerable to natural disasters due to their demographics and climate exposure, according to Headwater Economics. A full report, *Neighborhoods at Risk*, can be found in Appendix F. The following areas in blue identity tracks that met the following criteria:

- People who don't speak English well
- People without health insurance
- Children under 5 years
- Area lacking tree canopy
- Area of impervious surface
- Area in 500-yr floodplain



### Vulnerable Species

Currently, there are no regional plans related to the future of North Texas' natural assets of habitat, plants, animals, open space areas and corridors, tree canopy, or carbon footprint. There are studies of particular topics that have been conducted for other purposes. For example, the Environmental Impact Statement of an individual project considers the project's impact on endangered species. Also, there are studies underway on particular topics but for smaller areas within the North Texas region.<sup>12</sup>

Under Chapter 12.0011 of the Texas Parks and Wildlife Code, Texas Parks and Wildlife Department (TPWD) is charged with "providing recommendations that will protect fish and wildlife resources to local, state, and federal agencies that approve, permit, license, or construct developmental projects" and "providing information on fish and wildlife resources to any local, state, and federal agencies or

<sup>12</sup> North Texas to 2030: Extending the Trends. Vision North Texas.

private organizations that make decisions affecting those resources." Project types reviewed by TPWD include reservoirs, highway projects, pipelines, urban infrastructure, utility construction, renewable energy, and residential and commercial construction, as well as many others.

Each state in the U.S. has completed a Wildlife Action Plan or Comprehensive Wildlife Conservation Strategy to improve the stability and recovery of species which are in decline, already listed as threatened or endangered, and/or are representative of the diversity and health of the state's wildlife. To date, these plans have become important guides for natural resource management programs, conservation funding, partnership building, project development, and problem-solving at local and regional levels. TPWD is the steward of the Texas Conservation Action Plan, formerly called the Texas Comprehensive Wildlife Conservation Strategy 2005 - 2010 or Texas Wildlife Action Plan.

While the Texas Conservation Action Plan is a conservation plan for species at most at risk, its primary purpose is to bring people together to realize conservation benefits, prevent species listings, and preserve our natural heritage for future generations. Handbooks contain information on Species of Greatest Conservation Need, regionally important habitats, local conservation goals and projects, regional and statewide activities, contact information for conservation partners, and maps. The activities in each handbook are starting points to engage landowners, land-use planners, natural resources professionals, and the public in regional and local community-based conservation.<sup>13</sup>

The Texas Parks and Wildlife Department established the following list of rare, threatened, and endangered species within Ellis County. All species on the county list are tracked in the Texas Natural Diversity Database (TXNDD).<sup>14</sup> Species that appear on county lists do not all share the same probability of occurrence within the county. Ranges depicted by the county list online application do not distinguish between breeding range, wintering range, and migratory range. Therefore, species shown on the lists have varying degrees of potential occurrence depending on the season or habitat availability/suitability. The county list is intended to provide county-level information regarding potential occurrence of protected (i.e. federal- or state-listed threatened or endangered) species and Species of Greatest Conservation Need (SGCN).

Taxon	Common Name	Description
Amphibians	Woodhouse's toad	Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.
Amphibians	Strecker's chorus frog	Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

<sup>13</sup> Texas Conservation Action Plan. Texas Parks & Wildlife.

< [https://tpwd.texas.gov/huntwild/wild/wildlife\\_diversity/nongame/tcap/](https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/tcap/) >

<sup>14</sup> Texas Parks and Wildlife Department, Wildlife Division, Diversity and Habitat Assessment Programs. TPWD County Lists of Protected Species and Species of Greatest Conservation Need. Ellis County. 09 December 2021.

Taxon	Common Name	Description
Amphibians	southern crawfish frog	Terrestrial and aquatic: The terrestrial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.
Birds	white-faced ibis	Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.
Birds	wood stork	Prefers to nest in large tracts of baldcypress ( <i>Taxodium distichum</i> ) or red mangrove ( <i>Rhizophora mangle</i> ); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960
Birds	bald eagle	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds
Birds	Black Rail	Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of <i>Salicornia</i>
Birds	whooping crane	Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.
Birds	pipin plover	Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.
Birds	Rufa Red Knot	Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes

Taxon	Common Name	Description
Birds	Franklin's gull	This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.
Birds	interior least tern	Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony
Birds	western burrowing owl	Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows
Birds	Chestnut-collared Longspur	Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands
Mammals	southeastern myotis bat	Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological communities near water. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.
Mammals	cave myotis bat	Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow ( <i>Hirundo pyrrhonota</i> ) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.
Mammals	tricolored bat	Forest, woodland and riparian areas are important. Caves are very important to this species.
Mammals	big brown bat	Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.
Mammals	eastern red bat	Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East
Mammals	hoary bat	Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.
Mammals	swamp rabbit	Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Taxon	Common Name	Description
Mammals	Muskrat	Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.
Mammals	long-tailed weasel	Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.
Mammals	eastern spotted skunk	Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.
Mammals	western hog-nosed skunk	Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. <i>telmalestes</i>
Mammals	mountain lion	Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.
Reptiles	alligator snapping turtle	Aquatic: Perennial water bodies; rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near running water; sometimes enters brackish coastal waters. Females emerge to lay eggs close to the waters edge.
Reptiles	western chicken turtle	Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.
Reptiles	eastern box turtle	Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.
Reptiles	western box turtle	Terrestrial: Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.
Reptiles	slender glass lizard	Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.
Reptiles	Texas horned lizard	Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Taxon	Common Name	Description
Reptiles	Prairie Skink	The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.
Reptiles	common garter snake	Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.
Reptiles	Texas garter snake	Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.
Reptiles	timber (canebrake) rattlesnake	Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.
Insects	American bumblebee	Habitat description is not available at this time.
Insects	a katydid	Habitat description is not available at this time.
Insects	No accepted common name	Habitat description is not available at this time.
Mollusks	Sandbank Pocketbook	Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]
Mollusks	Louisiana Pigtoe	Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]
Mollusks	Texas Heelsplitter	Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]
Mollusks	Trinity Pigtoe	Found in a variety of habitats but most common in riffles. Inhabits various substrates though most often sand, gravel, and cobble (species was recently split from Texas Pigtoe and occurs in similar habitats; Howells 2010a; Randklev et al. 2013b; Randklev et al. 2014a; Troia et al 2015). [Mussels of Texas 2020]
Plants	Engelmann's bladderpod	Grasslands and calcareous rock outcrops in a band along the eastern edge of the Edwards Plateau, ranging as far north as the Red River (Carr 2015).
Plants	Hall's prairie clover	In grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides; Perennial; Flowering May-Sept; Fruiting June-Sept

Taxon	Common Name	Description
Plants	Sutherland hawthorn	In mesic soils of woods or on edge of woods, treeline/fenceline, or thicket. Above\near creeks and draws, in river bottoms. Flowering Mar-Apr; fruiting May-Oct.

### 3.3.3 Factors that Increase Vulnerability

#### Climate Variability

A key factor to an increase in vulnerability is climate variability, also known as climate change. According to the United States Environmental Protection Agency (EPA),

Texas's climate is changing. Most of the state has warmed between one-half and one-degree Fahrenheit (°F) in the past century. In the eastern two-thirds of the state, average annual rainfall is increasing, yet the soil is becoming drier. Rainstorms are becoming more intense, and floods are becoming more severe... In the coming decades, storms are likely to become more severe, deserts may expand, and summers are likely to become increasingly hot and dry, creating problems for agriculture and possibly human health. Our climate is changing because the earth is warming. People have increased the amount of carbon dioxide in the air by 40% since the late 1700s. Other heat-trapping greenhouse gases are also increasing. These gases have warmed the surface and lower atmosphere of our planet about one degree during the last 50 years. Evaporation increases as the atmosphere warms, which increases humidity, average rainfall, and the frequency of heavy rainstorms in many places—but contributes to drought in others...<sup>15</sup>

The following is an article from the Dallas Morning News that describes the effects of climate change in North Central Texas and the impacts on the existing natural hazards:

The United States has just come off a record year for weather and climate disasters and, by most accounts, it's only going to get worse.

Last year hurricanes Harvey, Irma, and Maria; the wildfires and floods in California; and tornado outbreaks in the Midwest and the South delivered \$306.2 billion in damages, more than any year in history when adjusted for inflation.

Texas is particularly vulnerable to a changing climate. It has had more costly weather-related disasters than any other state, and those events will happen more often as air and ocean temperatures climb, scientists say.

"Climate change is not just about polar bears," said Katharine Hayhoe, a climate scientist at Texas Tech University with an impressive YouTube following. "It will affect North Texas profoundly."

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<sup>15</sup> What Climate Change Means for Texas. August 2016. EPA 430-F-16-045. United States Environmental Protection Agency. <<https://archive.epa.gov/epa/sites/production/files/2016-09/documents/climate-change-tx.pdf>>

Between 2041 and 2050, Dallas-Fort Worth may see August temperatures rise from a mean of 86 °F at the end of the 20th century to 94 °F, with extremes rising above 120, reports one study by scientists at the University of Texas at Arlington.

Longer droughts and more extreme rainstorms will pose a challenge for those who manage drinking water supplies, those who raise cattle, and those who oversee our roads and railways.

The changes may also have unexpected effects on people's daily lives, including jobs. Intense heat can imperil cars and airplanes, evaporate drinking water supplies, and halt outdoor labor such as farm work and construction.

Adam Smith, a scientist with the federal government's main climate agency, the National Oceanic and Atmospheric Administration, calls Texas "the disaster capital of the United States."

As Smith explains, Texas is susceptible to almost every kind of weather and climate hazard, from extreme cold to extreme heat, from severe drought and wildfires to torrential floods. Texas is also home to a booming population and critical infrastructure, including the petrochemical plants that were damaged in Hurricane Harvey.

"Texas is a hot-spot for a wide range of extreme natural events due to its geography," said Smith. "We expect many of these extremes to become more frequent and intense as time moves forward."

While uncertainty is built into climate models, scientists have a high degree of confidence in many of the changes they observe and predict.

The bigger, longer and more common an event is, the greater the accuracy with which scientists can project how climate change will impact it, said Hayhoe, a lead author of a November 2017 climate change report overseen by scientists at 13 federal agencies. Larger events have more data associated with them and can be easier to model.

Researchers are very confident that climate change will increase both average and extreme temperatures. They are also confident that climate change is likely to increase the risk of heavy precipitation in many areas and may bring stronger droughts to the south-central and southwestern parts of the U.S.

Projected impacts on smaller-scale events like tornadoes and hailstorms are less well understood.

One area of consensus is the cause of climate change. "It is extremely likely that human activities, especially emissions of greenhouse gases, are the dominant cause of the observed warming since the mid-20th century," note the authors of the Fourth National Climate Assessment, a Congressionally mandated review that scientists conduct every four years. They add that there are no convincing alternative explanations.

Below is how these changes will affect our area, the evidence behind the projections, and how confident scientists are in each of these findings.

## **Heat**

More record-setting heat in North Texas is a virtual certainty. Already, we are living through the warmest period in the history of modern civilization, the federal report found, and that warming will accelerate.



Climate science contrarians often attack the models on which climate projections are based. Myron Ebell, who led President Donald Trump's transition team at the Environmental Protection Agency, accepts that humans are most likely responsible for warming, but he says models have exaggerated the outcome. Ebell is director of the Center for Energy and Environment at the Competitive Enterprise Institute, a libertarian advocacy group based in Washington, D.C. He acknowledges that he is not a scientist.

In fact, researchers have used models to predict global temperature changes for more than 50 years, and the models' projections have been fairly accurate over the long term. In the early 21st century, a discrepancy appeared between observed and modeled temperatures—a period dubbed the "global warming slowdown" or "hiatus."

Scientists have published scores of studies on the mismatch and tied it to several factors that contributed to lower-than-expected observed temperatures. Those factors include a series of small volcanic eruptions, the cooling effects of which scientists had underestimated, and lower than expected solar output.

Findings from those studies are helping to improve climate model simulations and helping scientists better understand why there are differences between simulations and observations in the early 21<sup>st</sup> century, said Ben Santer, a climate scientist at the Lawrence Livermore National Laboratory.

Global average temperatures increased about 1.8 degrees Fahrenheit in the last 115 years. In Dallas, they climbed from about 65 °F during the early part of the 20th century to 68 °F during the most recent decade. If nothing is done to reduce emissions of carbon dioxide and other greenhouse gases, average temperatures in the city may reach the low 70s by 2050 and surpass 75°F by the end of the century.

Earlier this year, Amir Jina and colleagues published a study in the journal *Science* that estimated economic damage from climate change in each county of the United States.

Once temperatures reach the high 90s, equal to or above body temperature, fatality rates go up.

Besides people, heat also affects roads. A 2015 study by the University of Texas at Arlington (UTA) that focused on the impact of climate change on transportation predicted "an increase in wildfires along paved highways, heat-induced stress on bridges and railroads, air-conditioning problems in public transport vehicles and heat-related accidents by failure of individual vehicles and heat-related stress."

The study concluded, "These impacts can be translated into substantial mobility and economic loss."

### **Drought**

Along with heat will come stronger drought, which "has profound economic impacts," said Hayhoe.

The prediction that North Texas will have longer and more severe droughts is based on multiple factors, including the relationship between high temperatures and soil dryness and the presence of more frequent and longer lasting high-pressure systems in summer that suppress rainfall and deflect storms away from our area.

Hayhoe points to Texas' 2010-2013 drought as a probable sign of things to come. Although this drought occurred naturally, as a result of a strong La Niña event that typically brings dry conditions to our area, it was exacerbated by extreme heat. That event created severe hay shortages for cattle farmers and led some ranchers to prematurely slaughter their herds or export them out of state.

"Cotton can be drought-resistant, but not cattle," said Hayhoe.

The 2015 UTA study predicts a reduction in soil moisture of 10% to 15% in all seasons by 2050, which can also lead to cracked pavement and the premature loss of roads, railways, and other infrastructure.

Heat and drought also pose a problem for drinking water supplies, which North Texas sources from surface reservoirs that will be increasingly prone to evaporation. Hayhoe says some water managers are considering pumping the reservoirs underground during exceptionally hot and dry conditions, or covering them with polymer "blankets."

The blankets are an invisible layer of organic molecules that can help reduce evaporation.

### **Floods**

While it's not likely that annual precipitation totals will change in North Texas, rainfall patterns likely will. Hayhoe and Nielsen-Gammon both say we will likely see enhanced "feast or famine" cycles with torrential rainstorms in the spring followed by longer than usual dry periods.

These predictions carry a high degree of certainty, because climatologists have already recorded this trend playing out.

"Rainfall becoming more extreme is something we expect because we've observed this not just in North Texas but throughout the United States, and models consistently predict it will continue to happen," said Nielsen-Gammon.

Severe rainstorms, the UTA scientists predict, will have the capacity to flood highway exit and service roads in the Federal Emergency Management Agency (FEMA) 100-year floodplain.

"While the state highway system was built above flooding levels, the connector roads may be easily flooded," said Arne Winguth, a climate scientist at UTA who co-authored the report.

### **Tornadoes and hail**

Two events climate scientists cannot reliably project are hailstorms and tornadoes. "A lot of the things we care about are too small-scale to predict with more confidence," said Nielsen-Gammon. "The historical record is not large enough for longer-term forecasts."

There is some evidence that tornadoes, like rainstorms, are becoming more concentrated on fewer days and that their season has become less predictable.

The same is true with hail. "One thing we expect to happen with a warming climate is that the average humidity in the lower atmosphere may decrease, and if that happens it's easier for hail to stay frozen," said Nielsen-Gammon. "That factor might increase hailstorms, but that's just one of many factors that do affect hail."

### **Economy**

Jina of the University of Chicago predicted in his study that climate change would decrease Dallas County's annual income by 10% to 20% in the coming decades unless emissions are reduced. "North Texas is one of the worst-affected places in the country," he said. Much of the loss comes from higher mortality rates, soaring air-conditioning costs, and reduced labor productivity.

To track labor productivity, Jina and his colleagues examined national time-use surveys, diaries kept by thousands of volunteers across the country, and compared them with local weather data. He found that on extremely hot days, people tended to stop working about 30 minutes early.

"There's direct evidence that people concentrate less well, make more mistakes and their brain just functions less efficiently if it's too hot," he said. Heat also disrupts sleep. "The general lack of productivity leads to them saying, 'No more work today.'"

The good news is that many climate-change effects are manageable. They do require local and federal authorities to plan ahead and take action, said Smith of the National Oceanic and Atmospheric Administration.

"It is important," he said, "to address where we build, how we build and also to build protections for populations already exposed in vulnerable areas."<sup>16</sup>

All participating jurisdictions are experiencing the effects of climate variability.

#### Population Increase

Population growth and distribution, especially increased population density and urbanization, increases vulnerability to disasters.<sup>17</sup> The elderly, very young, those without air conditioning or heating, and outdoor laborers are most at risk to the effects of extreme heat and winter storms. Residents living in a floodplain are most at risk to flooding and residents living in the Wildland-Urban Interface (WUI) are most at risk to wildfires. Those living in poverty and in homes not built using enhanced building codes are most susceptible to the damages of these hazards.

The following table reflects the **estimated** changes in participating jurisdictions' demographics since the adoption of the 2015 HMP, gathered by the North Central Texas Council of Governments. In the table, population estimates for Ellis County refers to the entire county, not just the unincorporated portion. Population estimates are based on current housing inventories for cities in the NCTCOG Region with populations of 1,000 or more. The following cities marked in grey had a population too small to calculate.

Jurisdiction	2010 Population Estimate	2021 Population Estimate
Alma		
Bardwell		

<sup>16</sup> Climate change to bring North Texas longer droughts, heavy rains, 120-degree temps within 25 years. Kuchment, Anna. 2018, February 15. <<https://www.dallasnews.com/news/climate-change-1/2018/02/15/climate-change-to-bring-texas-longer-droughts-heavy-rains-120-temps-august-within-25-years>>

<sup>17</sup> Ben Wisner et al., *At Risk: Natural Hazards, People's Vulnerability, and Disasters*, 2d ed. (London: Routledge, 2004).

Jurisdiction	2010 Population Estimate	2021 Population Estimate
Ennis	18,513	20,940
Ferris	2,436	3,020
Garrett		
Italy	1,863	1,880
Maypearl		
Midlothian	18,037	36,090
Milford		
Oak Leaf	1,298	1,400
Ovilla	3,492	4,190
Palmer	2,000	2,280
Red Oak	10,769	14,550
Waxahachie	29,621	40,750
<i>Ellis County</i>	<i>149,610</i>	<i>206,810</i>

Source: [2021 NCTCOG Population Estimates](#). North Central Texas Regional Data Center.

### Repetitive Loss Properties

Among the National Flood Insurance Policy (NFIP) policyholders are thousands whose properties have flooded multiple times. Called “repetitive loss properties,” these are buildings and/or contents for which the NFIP has paid at least two claims of more than \$1,000 in any 10-year period since 1978. “Severe repetitive loss properties” are those for which the program has either made at least four payments for buildings and/or contents of more than \$5,000 or at least two building-only payments that exceeded the value of the property.

These two kinds of properties are the biggest draw on the NFIP Fund. They not only increase the NFIP’s annual losses and the need for borrowing; but they drain funds needed to prepare for catastrophic events. Community leaders and residents should also be concerned with the Repetitive Loss problem because residents’ lives are disrupted and may be threatened by the continual flooding.

The primary objective of identifying these properties is to eliminate or reduce the damage to property and the disruption to life caused by repeated flooding of the same properties.

The tables below provide information about the repetitive loss and severe repetitive loss properties within the participating jurisdictions, as provided by the Federal Emergency Management Agency. More details about the properties are not available to the public.

Repetitive Loss Properties as of 01/05/2022						
City	Occupancy	Rated Flood Zone 1	Cumulative Building Payment	Cumulative Contents Payment	Total Losses	Total Paid
BARDWELL	SINGLE FMLY	X	5311.96	258	2	5569.96
Mitigated	NO					
NFIP Insured	NO					
OAK LEAF	SINGLE FMLY	X	46672.63	23600.76	2	70273.39
Mitigated	NO					

Repetitive Loss Properties as of 01/05/2022						
City	Occupancy	Rated Flood Zone 1	Cumulative Building Payment	Cumulative Contents Payment	Total Losses	Total Paid
NFIP Insured	NO					
RED OAK	SINGLE FMLY	X	13848.78	2142.74	2	15991.52
Mitigated	NO					
NFIP Insured	NO					
RED OAK	SINGLE FMLY	AE	36362.27	0	2	36362.27
Mitigated	NO					
NFIP Insured	YES					
RED OAK	SINGLE FMLY	X	37015.31	10779.57	2	47794.88
Mitigated	NO					
NFIP Insured	NO					
RED OAK	SINGLE FMLY	X	10129.48	12562.81	2	22692.29
Mitigated	NO					
NFIP Insured	NO					
WAXAHACHIE	SINGLE FMLY	AE	51568.71	0	5	51568.71
Mitigated	NO					
NFIP Insured	NO					
WAXAHACHIE	SINGLE FMLY	C	7379.47	0	2	7379.47
Mitigated	NO					
NFIP Insured	NO					
WAXAHACHIE	SINGLE FMLY	X	70713.12	11267.89	5	81981.01
Mitigated	YES					
NFIP Insured	NO					
WAXAHACHIE	SINGLE FMLY	X	38313.48	9045.84	2	47359.32
Mitigated	NO					
NFIP Insured	NO					

### New Development

Unsustainable development is one of the major factors in the rising costs of natural disasters. Many mitigation design strategies and technologies serve double duty, by not only preventing or reducing disaster losses but serving the broader goal of long-term community sustainability. For example, land use regulations prohibiting development in flood-prone areas may also help preserve the natural and beneficial functions of floodplains. New development in hazard-prone areas increases the risk of damage and injury from that hazard.

No new developments in hazard-prone areas were identified within the participating jurisdictions.

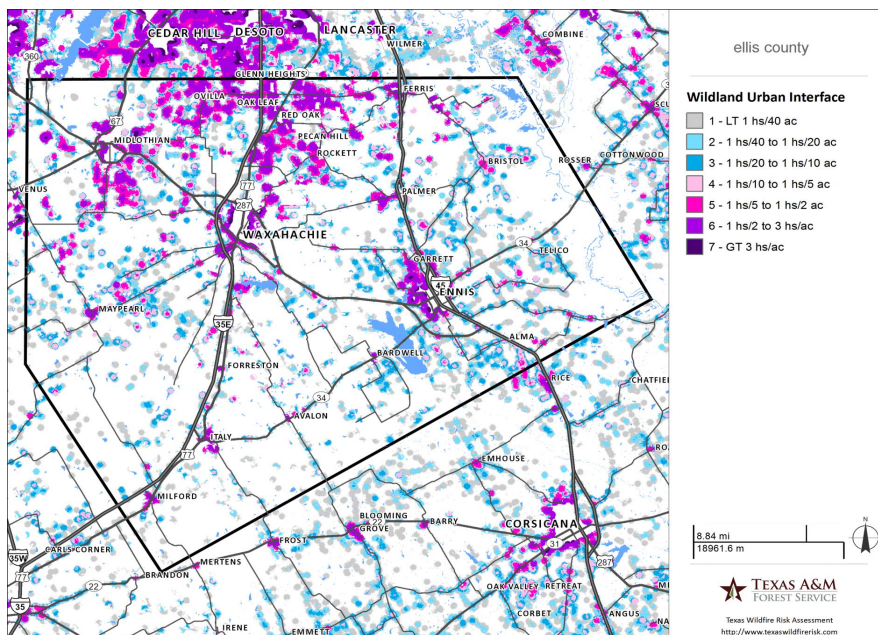
### Wildland-Urban Interface

The Wildland-Urban Interface (WUI) layer of a map reflects housing density depicting where humans and their structures meet or intermix with wildland fuels. WUI housing density is categorized based on

the standard Federal Register and United States Forest Service (USFS) Silvics data set categories. The number of housing density categories is extended to provide a better gradation of housing distribution to meet specific requirements of the states for their fire protection planning activities. While units of the data set are in houses per square kilometer, which is consistent with other data such as USFS SILVICS, the data is presented as the number of houses per acre to aid with interpretation and use in Texas.

Wildfires can cause significant damage to property and threatens the lives of people who are unable to evacuate WUI areas. All improved property, critical facilities, and critical structures and infrastructure located in these wildfire-prone areas are considered vulnerable and can be exposed to this hazard. The

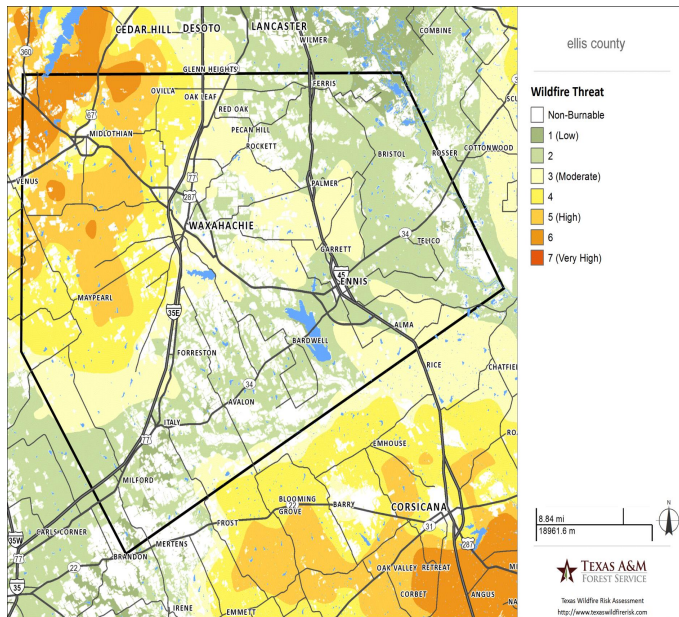
Source: Texas Wildfire Risk Assessment Portal Professional Viewer.  
 following map reflects the WUI areas in Ellis County.



**Wildfire Threat** is the likelihood of a wildfire occurring or burning into an area. Threat is derived by combining a number of landscape characteristics including surface and canopy fuels, resultant fire behavior, historical fire occurrence, percentile weather derived from historical weather observations, and terrain conditions. These inputs are combined using analysis techniques based on established fire science.

The measure of wildfire threat used in the Texas Wildfire Risk Assessment (TWRA) is based on the Wildland Fire Susceptibility Index (WFSI). WFSI combines the probability of an acre igniting (Wildfire Ignition Density), and the expected final fire size based on rate of spread in four percentile weather categories. WFSI is defined as the likelihood of an acre burning.

Source: Texas Wildfire Risk Assessment Portal Professional Viewer.



### 3.3.4 Factors that Decrease Vulnerability

Factors that decrease vulnerability to hazards include the mitigation actions that have previously been implemented, the adoption of new codes and policies, and the participation in regional projects sponsored by the North Central Texas Council of Governments (NCTCOG) and other governing agencies.

#### Local Mitigation Activities

The participating jurisdictions have implemented a variety of mitigation actions to protect their communities from damaging disasters. These previous mitigation actions are described in detail in Chapter 4.

#### National Policy

On October 5, 2018, President Trump signed the Disaster Recovery Reform Act of 2018 (DRRA) into law as part of the Federal Aviation Administration Reauthorization Act of 2018. These reforms acknowledge the shared responsibility of disaster response and recovery, aim to reduce the complexity of FEMA and build the nation's capacity for the next catastrophic event. The law contains more than 50 provisions that require FEMA policy or regulation changes for full implementation, as they amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act. It has yet to be seen how the DRRA will be implemented and how it will impact state and local agencies, but highlights from the DRRA include:

Highlights from the DRRA include:

- **Greater investment in mitigation, before a disaster:** Authorizing the National Public Infrastructure Pre-Disaster Hazard Mitigation Grant Program, which will be funded through the Disaster Relief Fund as a six percent set aside from disaster expenses.
  - This program will focus on funding public infrastructure projects that increase community resilience before a disaster occurs.

- Previously, funding for pre-disaster mitigation grants relied on congressional appropriations which varied from year to year. Now, with a reliable stream of sufficient funding, communities will be able to plan and execute mitigation programs to reduce disaster risk nationwide.
- According to a 2017 National Institute of Building Sciences report, the nation saves six dollars in future disaster costs for every one dollar invested in mitigation activities.
- **Reducing risk from future disasters after fire:** Providing hazard mitigation grant funding in areas that received Fire Management Assistance Grants as a result of wildfire. Adding fourteen new mitigation project types associated with wildfires and windstorms.
- **Increasing state capacity to manage disaster recovery:** Allowing for higher rates of reimbursement to state, local and tribal partners for their administrative costs when implementing public assistance (12 percent) and hazard mitigation projects (15 percent). Additionally, the legislation provides flexibility for states and tribes to administer their own post-disaster housing missions, while encouraging the development of disaster housing strategies.
  - States, tribes, territories and local governments bear significant administrative costs implementing disaster recovery programs. Often these costs can be high and substantially burdensome for the impacted entity to meet. Increasing the funding for administrative costs will enable faster, more effective delivery of vital recovery programs to communities.
  - State and tribal officials have the best understanding of the temporary housing needs for survivors in their communities. This provision incentivizes innovation, cost containment and prudent management by providing general eligibility requirements while allowing them the flexibility to design their own programs.
- **Providing greater flexibility to survivors with disabilities:** Increasing the amount of assistance available to individuals and households affected by disasters, including allowing accessibility repairs for people with disabilities, without counting those repairs against their maximum disaster assistance grant award.
- **Retaining skilled response and recovery personnel:** Authorizing FEMA to appoint certain types of temporary employees who have been with the agency for three continuous years to full time positions in the same manner as federal employees with competitive status. This allows the agency to retain and promote talented, experienced emergency managers.

#### National Flood Insurance Program



The National Flood Insurance Program (NFIP) aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners, renters and businesses and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Overall, the program reduces the socio-economic impact of disasters by



promoting the purchase and retention of general risk insurance, but also of flood insurance, specifically. When a community participates in the NFIP, it participates in one of two phases: the Emergency Program or the Regular Program.

**Emergency Program:** Entry-level participation phase.

- Limited coverage
- Flat rates
- Basic Flood Hazard Boundary Map (FHBM)\*

*\*Initial flood hazard identification*

**Regular Program:** Most participating communities are in this phase.

- Full participation
- Detailed Flood Insurance Rate Map (FIRM)
- NFIP’s full limits of insurance
- Flood Insurance Risk Zones means zone designations on Flood Hazard Boundary Map (FHBM) and Flood Insurance Rate Map (FIRM) that indicate the magnitude of the flood hazard in specific areas of a community. The zone categories are below:

High Risk Area	Description
In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones.	
<b>Zone A</b>	Special flood hazard areas inundated by the 100-year flood; base flood elevations are not determined. Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
<b>Zone AE</b>	Special flood hazard areas inundated by the 100-year flood; base flood elevations are determined. The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
<b>Zone A1-30</b>	Special flood hazard areas inundated by the 100-year flood; base flood elevations are determined. These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).
<b>Zone AO</b>	Special flood hazard areas inundated by the 100-year flood; with flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
<b>Zone AH</b>	Special flood hazard areas inundated by the 100-year flood; flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations are determined. Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
<b>Zone A99</b>	Special flood hazard areas inundated by the 100-year flood to be protected from the 100-year flood by a Federal flood protection system under construction; no base flood elevations are determined. Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.
Moderate to Low Risk Area	Description
In communities that participate in the NFIP, flood insurance is available to all property owners and renters in these zones.	
<b>Zone B and Zone X</b>	Areas of 500-year flood; areas subject to the 100-year flood with average depths of less than 1 foot or

<b>(shaded)</b>	with contributing drainage area less than 1 square mile; and areas protected by levees from the base flood. Area of moderate flood hazard, usually the area between the limits of the 100- year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
<b>Zone C and Zone X (un-shaded)</b>	Areas determined to be outside the 500-year floodplain. Area of minimal flood hazard usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100- year flood.
<b>Undetermined Risk Area</b>	<b>Description</b>
<b>Zone D</b>	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.

The following table includes the NFIP status of the participating jurisdictions. Jurisdictions participating in the NFIP are required to regulate any development in designated flood prone areas.

<b>NFIP STATUS</b>							
<b>Community Name</b>	<b>CID</b>	<b>County</b>	<b>Initial FHBM Identified</b>	<b>Initial FIRM Identified</b>	<b>Current Effective Map Date</b>	<b>Re-Emer Date</b>	<b>Tribal</b>
Bardwell	481087#	Ellis	07/30/76	06/15/12	06/05/12(M)	06/05/12	No
Ennis	480207#	Ellis	06/28/74	06/15/82	06/03/13	06/15/82	No
Ferris	481076#	Dallas/Ellis	02/01/74	08/22/78	07/07/14	08/22/78	No
Italy	480800#	Ellis	08/15/75	01/20/99	06/03/13	08/12/10	No
Maypearl	480208#	Ellis	11/29/74	01/20/99	06/03/13	01/03/12	No
Midlothian	480801#	Ellis	07/09/76	09/04/85	06/03/13	09/04/85	No
Milford	480802#	Ellis	08/29/75	01/20/99	06/03/13	03/06/01	No
Oak Leaf	481672#	Ellis	Unknown	01/20/99	06/03/13	09/15/00	No
Ovilla	481155#	Dallas/Ellis	07/11/75	04/15/80	07/07/14	04/15/80	No
Palmer	480209#	Ellis	08/13/76	06/01/90	06/03/13	06/01/90	No
Red Oak	481650#	Ellis	Unknown	01/20/99	06/03/13	01/20/99	No
Waxahachie	480211#	Ellis	06/28/74	08/01/80	06/03/13	08/01/80	No
Ellis County Unincorporated	480798#	Ellis	08/16/77	08/19/87	06/03/13	08/19/87	No
<b>CID:</b> A different community identification number is assigned for the incorporated city versus the unincorporated county.							
<b>Community Name:</b> The incorporated city or unincorporated county, parish, or borough.							
<b>County:</b> This column should match the relative incorporated city, township, village, or other entity.							
<b>Init FHBM Identified:</b> This date tells when the Flood Hazard Boundary Map was created. This map is only a factor in communities that do not have a Flood Insurance Rate Map.							
<b>Init FIRM Identified:</b> This date represents the community's first Flood Insurance Rate Map, and it is important because it represents the dividing line between two building categories called Pre-FIRM and Post-FIRM.							
<b>Current Effective Map Date:</b> This is the date of the map currently in effect.							
<b>Reg-Emer Date:</b> The date the community first joined the NFIP. An "E" next to the date indicates that the community is in the Emergency Program and subject to limited coverage. If there is no "E" next to the date, then the community participates in the							

NFIP STATUS
Regular Program.
<b>Tribal:</b> A "yes" in this column indicates that the participating community is a tribal nation.
<b>NSFHA:</b> A 'Non-Special Flood Hazard Area' is an area that is in a moderate-to-low risk flood zone (Zones B, C, X Pre- and Post-FIRM)

Source: FEMA Community Status Book Report, <http://www.fema.gov/cis/TX.html>.

The following table includes jurisdictions not participating in the NFIP.

Community Name	CID	County	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Sanction Date	Tribal
Alma	481546#	Ellis	04/29/80	01/20/99	06/03/13	04/29/81	No
Garrett	480799#	Ellis					No

In Ellis County, all work within a Federal Emergency Management Agency (FEMA) designated floodplain requires a floodplain permit.

The NFIP offers three Standard Flood Insurance Policy forms: Dwelling, General Property, and Residential Condominium Building Association. These forms provide policyholders with a description of their coverage and other important coverage information. Below is a table of the local policy statistics of policies in force (PIF) and should not be considered an official federal report.

Policy Statistics as of 01/05/2022					
Community Name	Community Number	PIF	Total Coverage	Total Premium + FPF	
BARDWELL, CITY OF	481087	3	\$405,000	\$2,454	
ELLIS COUNTY*	480798	284	\$81,158,500	\$224,793	
ENNIS, CITY OF	480207	30	\$6,195,800	\$23,128	
FERRIS, CITY OF	481076	1	\$210,000	\$400	
ITALY, CITY OF	480800	1	\$280,000	\$686	
MAYPEARL, CITY OF	480208	3	\$1,700,000	\$2,632	
MIDLOTHIAN, CITY OF	480801	60	\$18,661,100	\$48,549	
OAK LEAF, CITY OF	481672	24	\$8,059,000	\$14,523	
OVILLA, CITY OF	481155	17	\$5,642,000	\$10,209	
PALMER, CITY OF	480209	13	\$3,008,900	\$10,729	
RED OAK, CITY OF	481650	24	\$7,386,300	\$12,999	
UNKNOWN	UNKNOWN	13	\$4,513,000	\$23,416	
WAXAHACHIE, CITY OF	480211	128	\$35,119,000	\$99,917	

The following table describes NFIP compliance within the participating jurisdictions. More education by FEMA would benefit these rural communities.

For any jurisdictions who answered (unknown) to the following questions have added a New Action Item to help adopt, implement, participate, and promote the National Flood Insurance Program. This

initiative will help adopt floodplain ordinance, regulate development in the floodplain, and appoint a floodplain administrator for each community to better answer the following questions in future.

NFIP Topic	Source of Information
<b>How many structures are exposed to flood risk within the community?</b>	Community Floodplain Administrator (FPA)
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> None	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> Unknown	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Unknown	
<b>Describe any areas of flood risk with limited NFIP policy coverage</b>	Community FPA and FEMA Insurance Specialist
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> None	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> Unknown	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Unknown	
<b>Is the Community FPA or NFIP Coordinator certified?</b>	Community FPA
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> No- vacant	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> No- vacant	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	

NFIP Topic	Source of Information
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> No	
<b>Red Oak:</b> No	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Yes	
<b>Is floodplain management an auxiliary function?</b>	Community FPA
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> No	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> No	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Yes	
<b>Provide an explanation of NFIP administration services (e.g. permit review, GIS, education or outreach, inspections, engineering capability)</b>	Community FPA
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> Unknown	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> Permit and development plan review.	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Permit review, GIS, outreach, limited engineering services	
<b>What are the barriers to running an effective NFIP program in the community, if any?</b>	Community FPA
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> Short staffing	
<b>Italy:</b> Unknown	

NFIP Topic	Source of Information
<b>Maypearl:</b> Short staffing	
<b>Midlothian:</b> Short staffing	
<b>Milford:</b> Short staffing	
<b>Oak Leaf:</b> Short staffing	
<b>Ovilla:</b> Short staffing	
<b>Palmer:</b> Funding and staffing	
<b>Red Oak:</b> Funding and staffing	
<b>Waxahachie:</b> Short staffing	
<b>Ellis County Unincorporated:</b> Outdated maps & data; ignorance on how NFIP works and why it exists.	
<b>Is the community in good standing with the NFIP?</b>	State NFIP Coordinator, FEMA NFIP Specialist, community records
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> Unknown	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> Unknown	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Yes	
<b>Are there any outstanding compliance issues (i.e. current violations)?</b>	State NFIP Coordinator, FEMA NFIP Specialist, community records
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> Unknown	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> Unknown	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Unknown	
<b>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</b>	State NFIP Coordinator, FEMA NFIP Specialist, community records
<b>Bardwell:</b> Unknown	

NFIP Topic	Source of Information
<b>Ennis:</b> Unknown	
<b>Ferris:</b> Unknown	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> Unknown	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b>	
<b>Is a CAV or CAC scheduled or needed?</b>	State NFIP Coordinator, FEMA NFIP Specialist, community records
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> Unknown	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> Unknown	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b>	
<b>Are the FIRMs digital or paper?</b>	Community FPA
<b>Bardwell:</b> Digital	
<b>Ennis:</b> Digital	
<b>Ferris:</b> Paper	
<b>Italy:</b> Digital	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Paper	
<b>Red Oak:</b> Digital	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Digital	

NFIP Topic	Source of Information
<b>Do floodplain development regulations meet or exceed FEMA or state minimum requirements? If so, in what ways?</b>	Community FPA
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> Yes, City of Ferris uses City of Fort Worth Drainage Criteria	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> Yes, we require a minimum of 2' above BFE for any structures adjacent to the floodplain and adjacent to any drainage areas not included in the FIRM's.	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Yes	
<b>Provide an explanation of the permitting process.</b>	Community FPA, State, FEMA NFIP
<b>Bardwell:</b> Unknown	
<b>Ennis:</b> Unknown	
<b>Ferris:</b> Through permits at <a href="http://www.ferristexas.gov">www.ferristexas.gov</a> , developer of project component submits a Floodplain Development Permit for any work near or adjacent to floodplains within the City. City staff inspect construction site to make sure floodplains are not impacted by any new construction.	
<b>Italy:</b> Unknown	
<b>Maypearl:</b> Unknown	
<b>Midlothian:</b> Unknown	
<b>Milford:</b> Unknown	
<b>Oak Leaf:</b> Unknown	
<b>Ovilla:</b> Unknown	
<b>Palmer:</b> Unknown	
<b>Red Oak:</b> Floodplain development permit submitted and processed by City Engineer. FEMA long form elevation certificate required in some cases. Developer required to submit LOMA, LOMR, CLOMR, etc. required to be submitted to FEMA by City.	
<b>Waxahachie:</b> Unknown	
<b>Ellis County Unincorporated:</b> Permits applied for through the Department of Development either in-person or inline. Floodplain Permit applications are submitted through the Engineering Department for review and approval or denial.	

*Community Rating System*

The Community Rating System (CRS) is a voluntary program for communities that participate in the National Flood Insurance Program (NFIP). The goals of the CRS are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. The CRS has been developed to provide incentives in the form of



premium discounts for communities to go beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding. For a community to be eligible, it must be in full compliance with the NFIP.

All communities start out with a Class 10 rating, which provides no discount. There are 10 CRS classes: Class 1 requires the most credit points and gives the greatest premium discount; Class 10 identifies a community that does not apply for the CRS or does not obtain a minimum number of credit points and receives no discount. There are 18 activities recognized as measures for eliminating exposure to floods. Credit points are assigned to each activity. The activities are organized under 4 main categories:

- Public Information
- Mapping and Regulation
- Flood Damage Reduction
- Flood Preparedness

Premium discounts ranging from 5% to a maximum of 45% are applied to eligible policies written in a community as recognition of the floodplain management activities instituted.

All CRS communities must maintain completed FEMA elevation and floodproofing certificates for all new and substantially improved construction in the Special Flood Hazard Area (SFHA) after the date of application for CRS classification. These certificates must be available upon request. Therefore, in writing a policy, an agent/producer should be able to get these certificates from any CRS community. In addition, some CRS communities receive credit for having completed certificates for Post-Flood Insurance Rate Map (FIRM) buildings constructed prior to the CRS application date. If they do receive this credit, these certificates should also be available to agents/producers writing flood insurance.

According to the [April 2022 Community Rating System Eligible Communities Report](#), there are no CRS communities amongst the plan participants in Ellis County.

### 3.3.5 Greatest Vulnerabilities

Below is a list of the participating jurisdictions greatest vulnerabilities in relation to natural hazards.

Alma	<ul style="list-style-type: none"> <li>• Any substantial event would be devastating to the financial capabilities of the city</li> <li>• Any major event would overwhelm the local resources</li> </ul>
Bardwell	<ul style="list-style-type: none"> <li>• Any substantial event would be devastating to the financial capabilities of the city</li> <li>• Any major event would overwhelm the local resources</li> </ul>
Ennis	<ul style="list-style-type: none"> <li>• Any substantial event would be devastating to the financial capabilities of the city</li> <li>• Any major event would overwhelm the local resources</li> </ul>
Ferris	<ul style="list-style-type: none"> <li>• Any substantial event would be devastating to the financial capabilities of the city</li> <li>• Any major event would overwhelm the local resources</li> </ul>
Garrett	<ul style="list-style-type: none"> <li>• Any substantial event would be devastating to the financial capabilities of the city</li> </ul>

	<ul style="list-style-type: none"> <li>Any major event would overwhelm the local resources</li> </ul>
Italy	<ul style="list-style-type: none"> <li>Any substantial event would be devastating to the financial capabilities of the city</li> <li>Any major event would overwhelm the local resources</li> </ul>
Maypearl	<ul style="list-style-type: none"> <li>Minor/Major event would overwhelm our resources.</li> <li>Limited road infrastructure for emergency escape.</li> </ul>
Midlothian	<ul style="list-style-type: none"> <li>A large, complex, incident would overwhelm and exhaust our local available resources and require mutual aid resources to support our local response.</li> <li>The City of Midlothian would require support of regional special operations teams to come and support our local response.</li> </ul>
Milford	<ul style="list-style-type: none"> <li>Any substantial event would be devastating to the financial capabilities of the city</li> </ul>
Oak Leaf	<ul style="list-style-type: none"> <li>Any substantial event would be devastating to the financial capabilities of the city</li> <li>Any major event would overwhelm the local resources</li> </ul>
Ovilla	<ul style="list-style-type: none"> <li>Any substantial event would be devastating to the financial capabilities of the city</li> </ul>
Palmer	<ul style="list-style-type: none"> <li>Any major event would overwhelm the local resources</li> </ul>
Red Oak	<ul style="list-style-type: none"> <li>Any large events would overwhelm and exhaust local resources</li> <li>There are two new multi-family complexes being built and a new senior living facility.</li> </ul>
Waxahachie	<ul style="list-style-type: none"> <li>Any substantial event would be devastating to the financial capabilities of the city</li> <li>Any major event would overwhelm the local resources</li> </ul>
Ellis County Unincorporated	<ul style="list-style-type: none"> <li>Any major event would overwhelm the local resources</li> </ul>

### 3.4 Hazard Ranking

Due to the frequency of occurrence and high impact of hazards during this planning period, the ranking order of these hazards has changed since the 2015 plan. After assessing the vulnerabilities, capabilities, and risks, the participating jurisdictions considered the possible effects on population, economy, existing and future structures, improved property, critical facilities and infrastructure, and the natural environment when ranking each hazard.

The following table reflects the rankings of each hazard, per jurisdiction.

Jurisdiction	Drought	Earthquake	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms
Alma	6	9	7	5	4	2	1	8	3
Bardwell	7	9	8	6	3	2	1	4	5

Jurisdiction	Drought	Earthquake	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms
Ennis	4	9	7	5	6	1	2	8	3
Ferris	4	9	8	3	6	2	5	1	7
Garrett	5	9	6	3	8	2	4	7	1
Italy	5	9	8	7	2	1	3	6	4
Maypearl	6	9	7	5	4	2	1	8	3
Midlothian	6	8	9	7	2	3	1	4	5
Milford	7	9	8	6	5	1	2	3	4
Oak Leaf	7	9	8	5	3	2	1	4	6
Ovilla	6	9	7	5	4	2	1	8	3
Palmer	7	9	8	6	3	2	1	4	5
Red Oak	6	9	4	4	2	1	3	6	3
Waxahachie	6	9	7	5	4	2	1	8	3
Ellis County Unincorporated	7	9	8	6	3	2	1	4	5

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# Chapter 4: Mitigation Strategy

Requirement	
§201.6(c)(3)	[The plan shall include the following:] A mitigation strategy that provides the jurisdiction’s blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.
§201.6(c)(3)(i)	[The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
§201.6(c)(3)(iii)	[The hazard mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA [Federal Emergency Management Agency] after October 1, 2008, must also address the jurisdiction’s participation in the NFIP [National Flood Insurance Program], and continued compliance with NFIP requirements, as appropriate.
§201.6(c)(3)(iv)	[The hazard mitigation strategy shall include an] action plan, describing how the action identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.
§201.6(c)(4)(ii)	<p>For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.</p> <p>[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvements, when appropriate.</p>

## 4.1 Mitigation Goals

The Ellis County Hazard Mitigation Planning Team reviewed the previous Ellis County mitigation goals and unanimously agreed to forego these goals and adopt the following hazard mitigation goals:

**“Our goals are to protect life and reduce bodily harm from natural hazards, and to lessen the impacts of natural hazards on property and the community through hazard mitigation.”**

## 4.2 Mitigation Strategy

The mitigation strategy serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The Stafford Act directs hazard mitigation plans to describe hazard mitigation actions and establish a strategy to implement those actions. Therefore, all other requirements for a hazard mitigation plan lead to and support the mitigation strategy.

Numerous actions can be taken, and hazard mitigation interventions put in place, to minimize the impacts of natural hazards and reduce the overall risk of disasters, while also increasing community resilience. Some actions cut across multiple hazards; others are uniquely designed to address a single hazard. The types of actions include:

- Locals plans and regulations
- Structure and infrastructure projects
- Natural systems protection
- Education and awareness programs

Each participating jurisdiction recommended strategies and actions that would support the mitigation goals, then went through a ranking process to determine which actions they would prioritize for completion. The jurisdictions conducted a cost benefit analysis to determine which strategies would most benefit their community. All project cost estimations are based on agency expertise by those submitting mitigation actions as well as previous project costs; however, many projects provided have not yet undergone the official benefit-cost analysis provided by FEMA. In these cases, jurisdictions derived the benefit cost per project based on a study conducted by the National Institute of Building Science. The key findings of the report included that \$1 spent on mitigation saves society an average of \$6, with positive benefit-cost ratios for all hazard types studied.<sup>18</sup> Therefore, to reflect the benefits of future projects, each estimated project was multiplied by 6 to represent the benefit of each mitigation strategy. Utilizing this information, in addition to their jurisdiction's priorities, jurisdictions ranked their mitigation strategies and submitted them to the HMPT.

## 4.3 Funding Priorities

As necessary, Ellis County and participating jurisdictions will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified for proposed actions listed in the mitigation strategies.

Priority will go towards projects will the highest positive impact on community resilience.

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<sup>18</sup> Multihazard Mitigation Council (2017) Natural Hazard Mitigation Saves 2017 Interim Report: An Independent Study. Principal Investigator Porter, K.; Co-Principal Investigators Scawthorn, C.; Dash, N.; Santos, J.; Investigators: Eguchi, M., Ghosh, S., Huyck, C., Isteita, M., Mickey, K., Rashed, T.; P. Schneider, Director, MMC. National Institute of Building Sciences, Washington.

## 4.4 Mitigation Action Items

### Previous Mitigation Action Items

The action items in the 2015 Ellis County HMP were determined by the 2015 Local Planning Team (LPT) in each jurisdiction. Below are the action items from each participating jurisdiction from the 2015 plan and the status of each action. Actions deleted are no longer a priority and actions deferred are deferred to this HMP.

### New Mitigation Action Items

New action items were determined by each participating jurisdiction’s Local Planning Team for this plan. These actions include mitigation actions that qualify for mitigation funding as well as enforcement, maintenance, and response actions that the jurisdictions have identified as opportunities to increase their resiliency to hazards. The “primary” community lifeline each action impacts will also be identified. These actions will be implemented as time, staffing, funding, and community support allows.

### Community Lifelines and Lifeline Components

						
<b>Safety &amp; Security</b>	<b>Food, Water, Shelter</b>	<b>Health &amp; Medical</b>	<b>Energy (Power &amp; Fuel)</b>	<b>Communications</b>	<b>Transportation</b>	<b>Hazardous Material</b>
 Law Enforcement/Security	 Food	 Medical Care	 Power (Grid)	 Infrastructure	 Highway/Roadway	 Facilities
 Fire Services	 Water	 Patient Movement	 Fuel	 Alerts, Warnings, & Messages	 Mass Transit	 HAZMAT, Pollutants, Contaminants
 Search & Rescue	 Shelter	 Public Health	 911 and Dispatch	 Railway		
 Government Services	 Agriculture	 Fatality Management	 Responder Communications	 Aviation		
 Community Safety		 Medical Supply Chain	 Finance	 Maritime		

FEMA launched the Community Lifelines Framework in 2019 to help communities better monitor disruptions to critical services and systems following a disaster and reduce cascading impacts across government and business functions. BRIC—Building Resilient Infrastructure in Communities—is a new FEMA grant program that takes hazard mitigation measures further than ever before. It encourages larger-scale projects that not only reduce risk from all hazards but also create community resilience. BRIC encourages Community Lifeline projects that promote more resilient energy, water, transportation, flood protection, food distribution, and other critical community services that protect communities before natural disasters strike. When applying to BRIC, the applicant must indicate that the project will mitigate risk to at least one of the seven Community Lifelines to enable the continuous operation of critical government and business functions essential to human health and safety or economic security.

Community Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function.

While Community Lifelines were developed to support response planning and operations, the concept can be applied across the entire preparedness cycle. Efforts to protect, prevent, and mitigate potential impacts to Community Lifelines, and building back stronger and smarter during recovery, will drive overall resilience of the nation.

Since the seven Community Lifelines and their respective components (as shown in the graph) were introduced, they have resonated strongly in response and recovery circles to organize both day-to-day operations and strategic planning after a disaster. Community Lifelines can also be a powerful tool for state, local, tribal, and territorial governments to use in evaluating risk and developing strategies to reduce hazard impacts.

The new actions have been identified with the community lifelines that they primarily impact, though an action could impact multiple lifelines. When applying for FEMA BRIC funding, this tool could be especially useful.

### ***Estimated Benefits***

During the capabilities assessment and hazard analysis, previously impacted assets and populations were analyzed to determine the highest probability of damage and potential of loss of life per hazard. To determine the estimated benefit of each action item, data from the 2017 Interim Report was used to develop a cost-benefit analysis [*Estimated Cost*  $\times$  6 = *Estimated Benefit*], as it reports that \$1 spent in mitigation saves a community an average of \$6 in recovery.<sup>19</sup>

**Below are the action items for this hazard mitigation plan:**


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<sup>19</sup> Natural Hazard Mitigation Saves: 2017 Interim Report. National Institute of Building Science.  
< <https://www.nibs.org/page/mitigationsaves> >





## City of Alma Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Develop and implement a comprehensive public education program.
Deferred to 2022 HMP	Develop, implement, and enforce water conservation codes and ordinances.
Deferred to 2022 HMP	Purchase and distribute hail and wind resistant window coverings to vulnerable populations.
Deferred to 2022 HMP	Adopt and Promote the National Flood Insurance Program
Deferred to 2022 HMP	Adopt and enforce mandatory insulation and lightning protection codes for new construction.
Deferred to 2022 HMP	Partner with the Texas Fire Service in establishing Alma as a “Firewise” community
Deferred to 2022 HMP	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Hire consultant to complete new inundation studies of all high and moderate hazard dams.

 <b>Hazard(s) Addressed:</b> All Hazards							
<b>Action: Install back-up emergency generators and automatic transfer switches (UPS systems) in new and existing city facilities that house critical infrastructure, personnel, and equipment to include existing and new City of Alma facilities. (Emergency generator, electrician costs, transfer switches, status monitors, wiring for facilities).</b>							
Participating Jurisdiction	City of Alma						
Sites and Location(s):	<table border="1"> <tr> <td>Alma Community Center City of Alma Municipal Administrative Offices – City Hall 469-881-1405</td> <td>104 Interurban Rd, Alma, Texas 75119</td> </tr> <tr> <td>Alma Volunteer Fire Department 972-875-6832</td> <td>104 B Interurban Rd, Alma, Texas 75119</td> </tr> <tr> <td>Alma Police Department</td> <td>104 Interurban Rd, Alma, Texas</td> </tr> </table>	Alma Community Center City of Alma Municipal Administrative Offices – City Hall 469-881-1405	104 Interurban Rd, Alma, Texas 75119	Alma Volunteer Fire Department 972-875-6832	104 B Interurban Rd, Alma, Texas 75119	Alma Police Department	104 Interurban Rd, Alma, Texas
	Alma Community Center City of Alma Municipal Administrative Offices – City Hall 469-881-1405	104 Interurban Rd, Alma, Texas 75119					
	Alma Volunteer Fire Department 972-875-6832	104 B Interurban Rd, Alma, Texas 75119					
Alma Police Department	104 Interurban Rd, Alma, Texas						

	469-881-1406	75119
	Alma Lift Station	121 Main St. Alma, TX 75119
	Alma Municipal Court 469-456-0403	104 Interurban Rd, Alma, Texas 75119
Priority:	1	
Estimated Cost:	\$1M	
Estimated Benefit:	\$6M	
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement	
Lead Agency/Department Responsible:	City Manager, Police Chief, Fire Chief, Emergency Management	
Implementation Schedule:	12 – 18 months	

 <b>Hazard(s) Addressed:</b> <b>Tornado, Thunderstorm, Wildfire, Winter Storms</b>	
<b>Action: Construction of storm shelters, community safe rooms (hardening) in existing and new construction of recreational and government buildings / facilities.</b>	
Participating Jurisdiction	City of Alma
Priority:	2
Estimated Cost:	\$2
Estimated Benefit:	\$12M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible:	City Manager, Police Chief, Fire Chief, Emergency Management
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Outdoor Warning Siren System to include warning coverage, communications, security, to provide alert, warning and notification to residents and visitors during all hazards</b>	

**emergencies/disasters to include newer updated technologies to include NWS polygon activation, wind sensor for high wind activations and updated outdoor warning sirens due to city growth.**

Participating Jurisdiction	City of Alma
Priority:	3
Estimated Cost:	\$200,000
Estimated Benefit:	\$2.5M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible:	City Manager, Police Chief, Fire Chief, Emergency Management
Implementation Schedule:	18 months



**Hazard(s) Addressed:  
Flooding, Thunderstorms**

**Action: Improve and Enhance Storm Water Draining capabilities to prevent flooding in flood prone areas. A storm water study may be needed to identify storm water drainage projects and associated costs for each project.**

Participating Jurisdiction	City of Alma
Priority:	4
Estimated Cost:	\$200,000 - \$2.5M
Estimated Benefit:	\$15M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible:	City Manager, Public Works, Police Chief, Fire Chief, Emergency Management
Implementation Schedule:	36 months





**Hazard(s) Addressed:  
Expansive Soils, Flooding, Thunderstorms**

**Action: Improve and increase the capacity of storm water system by expanding creeks downstream channel to prevent flooding in flood prone areas to include structural stormwater management projects.**

Participating Jurisdiction	City of Alma
Priority:	5
Estimated Cost:	\$1M
Estimated Benefit:	\$6M

Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	City Manager, Police Chief, Fire Chief, Emergency Management
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Expansive Soils, Flooding, Thunderstorms</b>	
<b>Action: Conduct creek and stream bank erosion studies: conduct a study to identify vulnerability to stream bank erosion. Identify cost effective actions.</b>	
Participating Jurisdiction	City of Alma
Priority:	6
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	City Manager, Police Chief, Fire Chief, Emergency Management
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Flooding</b>	
<b>Action: Adopt, implement, participate, and promote the National Flood Insurance Program.</b>	
Participating Jurisdiction	City of Alma
Priority:	7
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Drought, Earthquakes, Expansive Soils, Wildfires**

**Action: Replace water lines with enhanced pipes & assess access/improve fire hydrants and water delivery systems.**

Participating Jurisdiction	City of Alma
Priority:	8
Estimated Cost:	\$700,000.00
Estimated Benefit:	\$4.2M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months




**Hazard(s) Addressed:**  
**Expansive Soils**

**Action: Road improvements to county roads that would combat the effects of expansive soils.**

Participating Jurisdiction	City of Alma
Priority:	5
Estimated Cost:	\$8M
Estimated Benefit:	\$48M
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	County Commissioners, County Engineer
Implementation Schedule:	36 months

## City of Bardwell Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Develop and implement a comprehensive public education program.
Deferred to 2022 HMP	Develop, implement, and enforce water conservation codes and ordinances.
Deferred to 2022 HMP	Purchase and distribute hail and wind resistant window coverings to vulnerable populations.
Deferred to 2022 HMP	Adopt and Promote the National Flood Insurance Program
Deferred to 2022 HMP	Adopt, implement, and enforce International Residential Code
Deferred to 2022 HMP	Partner with the Texas Fire Service in establishing Bardwell as a “Firewise” community
Deferred to 2022 HMP	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Hire consultant to complete new inundation studies of all high and moderate hazard dams.

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Acquire and install generators, the generator connections/infrastructure, proper mounting system, security barriers, and fuel reservoir for existing and future critical facilities to prevent power failure in the event of a disaster and to continue essential duties.</b>	
Participating Jurisdiction	City of Bardwell
Priority:	1
Estimated Cost:	\$75,000
Estimated Benefit:	\$450,000
Potential Funding Source(s):	City Budget and Hazard Mitigation Grants
Lead Agency/Department Responsible:	Mayor, City Secretary
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Retrofit existing and future government-owned facilities to withstand all hazards.**

Participating Jurisdiction	City of Bardwell
Priority:	2
Estimated Cost:	\$250,000
Estimated Benefit:	\$1.5 M
Potential Funding Source(s):	City budge, Donations, Hazard Mitigation Grants
Lead Agency/Department Responsible:	Mayor, City Secretary
Implementation Schedule:	36 Months



**Hazard(s) Addressed:**  
Flooding

**Action: Implement and promote the National Flood Insurance Program using an education campaign and staff training.**

Participating Jurisdiction	City of Bardwell
Priority:	3
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
Drought, Earthquakes, Expansive Soils, Wildfires

**Action: Replace water lines with enhanced pipes & assess access/improve fire hydrants and water delivery systems.**

Participating Jurisdiction	City of Bardwell
Priority:	4
Estimated Cost:	\$700,000.00
Estimated Benefit:	\$4.2M
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration

Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed: Expansive Soils</b>	
<b>Action: Road improvements to county roads that would combat the effects of expansive soils.</b>	
Participating Jurisdiction	City of Bardwell
Priority:	5
Estimated Cost:	\$8M
Estimated Benefit:	\$48M
Potential Funding Source(s):	General Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: Flooding</b>	
<b>Action: Participate and adopt the National Flood Insurance Program.</b>	
Participating Jurisdiction	City of Bardwell
Priority:	6
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administrator
Implementation Schedule:	36 months





## City of Ennis Mitigation Action Items


STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Adopt and promote a comprehensive public education program.
Deferred to 2022 HMP	Develop and implement new building codes to mitigate against natural hazards.
Deferred to 2022 HMP	Purchase and install CASA WX Radar.
Deferred to 2022 HMP	Expand Outdoor Warning Systems to New Populations
Deferred to 2022 HMP	Install redundant OWS activation switches
Deferred to 2022 HMP	Develop and Implement Expansive Soil Code Enforcement Program
Deferred to 2022 HMP	Develop and implement drought mitigation plan
Deferred to 2022 HMP	Purchase and install two lightning guard systems
Deferred to 2022 HMP	Replace Water Lines with Larger Pipe
Deferred to 2022 HMP	Develop and implement wildfire mitigation public education program
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Hire consultant to complete new inundation studies of all high and moderate hazard dams that could potentially affect property and populations within the city.
Deferred to 2022 HMP	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Acquire and install generators, the generator connections/infrastructure, proper mounting system, security barriers, and fuel reservoir for existing and future critical facilities to prevent power failure in the event of a disaster and to continue essential duties.</b>	
Participating Jurisdiction	City of Ennis
Priority:	1
Estimated Cost:	\$30,000
Estimated Benefit:	\$180,000.
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	Office of Emergency Management


Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed</b> <b>All Hazards</b>	
<b>Action: Retrofit and incorporate tornado shelters into existing and future government-owned facilities to withstand all hazards.</b>	
Participating Jurisdiction	City of Ennis
Priority:	2
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2 M
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Incorporate elevated water storage in underserved areas.</b>	
Participating Jurisdiction	City of Ennis
Priority:	3
Estimated Cost:	\$2M
Estimated Benefit:	\$12M
Potential Funding Source(s):	Grants, General Fund
Lead Agency/Department Responsible:	Office of Emergency Management, City Council
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Retrofit Service Center with community safe room.</b>	
Participating Jurisdiction	City of Ennis
Priority:	4
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2 M


Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Educate the public on their risks to our hazards, and mitigation actions to take, using various outreach methods.</b>	
Participating Jurisdiction	City of Ennis
Priority:	5
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Flooding</b>	
<b>Action: Implement and promote the National Flood Insurance Program using an education campaign and staff training.</b>	
Participating Jurisdiction	City of Ennis
Priority:	6
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Drought, Earthquakes, Expansive Soils, Wildfires</b>	
<b>Action: Replace water lines with enhanced pipes &amp; assess access/improve fire hydrants and water delivery systems.</b>	
Participating Jurisdiction	City of Ennis


Priority:	7
Estimated Cost:	\$700,000.00
Estimated Benefit:	\$4.2M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: Expansive Soils</b>	
<b>Action: Road improvements to county roads that would combat the effects of expansive soils.</b>	
Participating Jurisdiction	City of Ennis
Priority:	8
Estimated Cost:	\$8M
Estimated Benefit:	\$48M
Potential Funding Source(s):	Grants, General Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: Flooding</b>	
<b>Action: Participate and adopt the National Flood Insurance Program.</b>	
Participating Jurisdiction	City of Ennis
Priority:	9
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administrator
Implementation Schedule:	36 months

## City of Ferris Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
In-Progress	Purchase and Install a CASA-WX Radar
Complete	Stricter building code adoption, implementation, and enforcement.
In-Progress	Harden City Hall Against Severe Weather-related Natural Hazards
Deferred to 2022 HMP	Addition of 2 Early Warning Sirens for New Populations
Deferred to 2022 HMP	Establish select city buildings as cooling centers and warming centers to allow citizens, especially vulnerable populations, to seek refuge from extreme hot and cold temperatures.
Deferred to 2022 HMP	Implement Individual Tornado Safe Room Rebate Program
Complete	Create, implement and enforce water rationing ordinance
In Progress	Purchasing and distributing NOAA Weather Radios to public facilities
Complete	Expansive Soil Enforcement Program
Complete	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deleted – No Longer A Priority	Conduct earthquake study to assess potential for earthquakes and their impacts
Deleted – No Longer A Priority	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.

 <b>Hazard(s) Addressed:</b> All Hazards	
<b>Action: Develop and incorporate strategic planning for hazardous events.</b>	
Participating Jurisdiction	City of Ferris
Priority:	1
Estimated Cost:	\$17,000
Estimated Benefit:	\$102,000
Potential Funding Source(s):	Budgeted Items, TEEX, Texas Wildfire Management
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	Continuously Ongoing and Evaluated

 <b>Hazard(s) Addressed:</b> All Hazards	
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**Action: Create Interlocal Agency Agreements with Ellis County and South Dallas County Jurisdictions to ensure a rapid response time in the event of a disaster to minimize loss of life and economic down time.**

Participating Jurisdiction	City of Ferris
Priority:	2
Estimated Cost:	\$9,200
Estimated Benefit:	\$55,200
Potential Funding Source(s):	Budgeted Items, TEEX, Texas Wildfire Management
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	Continuously Ongoing and Evaluated



**Hazard(s) Addressed:  
All Hazards**

**Action: Create and send social media alerts ahead of hazardous events with tips on personal mitigation techniques.**

Participating Jurisdiction	City of Ferris
Priority:	3
Estimated Cost:	\$1,350
Estimated Benefit:	\$8,100
Potential Funding Source(s):	Budgeted Items, TEEX, Texas Wildfire Management
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	Continuously Ongoing and Evaluated



**Hazard(s) Addressed:  
Flooding**

**Action: Implement and promote the National Flood Insurance Program using an education campaign and staff training.**

Participating Jurisdiction	City of Ferris
Priority:	4
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Drought, Earthquakes, Expansive Soils, Wildfires

**Action: Replace water lines with enhanced pipes & assess access/improve fire hydrants and water delivery systems.**

Participating Jurisdiction	City of Ferris
Priority:	4
Estimated Cost:	\$700,000.00
Estimated Benefit:	\$4.2M
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Thunderstorms

**Action: Acquire and install lightning guard systems in public venues.**

Participating Jurisdiction	City of Ferris
Priority:	5
Estimated Cost:	\$90,000
Estimated Benefit:	\$540,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
Flooding, Thunderstorms, Tornadoes, Wildfire


**Action: Purchase, install, and support an Outdoor Warning System across the City of Ferris.**

Participating Jurisdiction	City of Ferris
Priority:	6
Estimated Cost:	\$350,000
Estimated Benefit:	\$2.1M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Office of Emergency Management

Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed:</b> <b>Winter Storm</b>	
<b>Action: Develop and implement a plan for ice prevention and clearing roadways.</b>	
Participating Jurisdiction	City of Ferris
Priority:	7
Estimated Cost:	\$50,000
Estimated Benefit:	\$300,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>Earthquake</b>	
<b>Action: Conduct earthquake assessment study to determine potential for earthquakes to affect the City of Ferris.</b>	
Participating Jurisdiction	City of Ferris
Priority:	8
Estimated Cost:	\$40,000
Estimated Benefit:	\$240,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Extreme Heat, Flooding, Thunderstorms, Tornado, Wildfire, Winter Storms</b>	
<b>Action: Purchase and install generator(s) in City facilities.</b>	
Participating Jurisdiction	City of Ferris
Priority:	9
Estimated Cost:	\$350,000
Estimated Benefit:	\$2.1M




Potential Funding Source(s):	CDBG grants
Lead Agency/Department Responsible:	Public Works, City Administrator
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> Drought, Earthquakes, Expansive Soils, Extreme Heat, Flooding, Winter Storms	
<b>Action: Ensure new and existing utilities are strengthened and reinforced with insulation and flex piping to prevent disruption in services.</b>	
Participating Jurisdiction	City of Ferris
Priority:	10
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> Expansive Soils, Flooding, Thunderstorms	
<b>Action: Improve and increase the capacity of storm water system by expanding creeks downstream channel to prevent flooding in flood prone areas to include structural stormwater management projects.</b>	
Participating Jurisdiction	City of Ferris
Priority:	11
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP)
Lead Agency/Department Responsible	City Administrator
Implementation Schedule:	36 months

## City of Garrett Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Develop and implement a comprehensive public education program.
Deleted – no longer a priority at this time	Develop, implement, and enforce water conservation codes and ordinances.
Deleted – no longer a priority at this time	Purchase and distribute hail and wind resistant window coverings to vulnerable populations.
In Progress	Adopt and Promote the National Flood Insurance Program
Deleted – no longer a priority at this time	Adopt, implement, and enforce International Residential Code
Deleted – no longer a priority at this time	Partner with the Texas Fire Service in establishing Garrett as a “Firewise” community
Deleted – no longer a priority at this time	Conduct earthquake study to assess potential for earthquakes and their impacts
Deleted – no longer a priority at this time	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deleted – no longer a priority at this time	Hire consultant to complete new inundation studies of all high and moderate hazard dams.

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Assist homeowners with application and implementation of residential mitigation projects.</b>	
Participating Jurisdiction	City of Garrett
Priority:	1
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Flooding**

**Action: Participate in the National Flood Insurance Program (NFIP).**

Participating Jurisdiction	City of Garrett
Priority:	2
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**All Hazards**

**Action: Acquire and install generators, the generator connections/infrastructure, proper mounting system, security barriers, and fuel reservoir for existing and future critical facilities to prevent power failure in the event of a disaster and to continue essential duties.**

Participating Jurisdiction	City of Garrett
Priority:	3
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
**Earthquakes, Flooding, Wildfires**


**Action: Update land use planning, using zoning maps & regulations, to prevent future residential development in floodplains and other hazard-prone areas and place requirements on development methods.**

Participating Jurisdiction	City of Garrett
Priority:	4
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000


Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Maintain fuel on-site or have multiple ways to obtain fuel for maintaining power during a power outage from an event.</b>	
Participating Jurisdiction	City of Garrett
Priority:	5
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Adopt and enforce most current building codes.</b>	
Participating Jurisdiction	City of Garrett
Priority:	6
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Update codes, policies, and regulations to address risks and vulnerabilities to hazards.</b>	
Participating Jurisdiction	City of Garrett
Priority:	7


Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed: All Hazards</b>	
<b>Action: Retrofit existing and future government-owned facilities to withstand all hazards.</b>	
Participating Jurisdiction	City of Garrett
Priority:	8
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: All Hazards</b>	
<b>Action: Educate the public on their risks to our hazards, and mitigation actions to take, using various outreach methods.</b>	
Participating Jurisdiction	City of Garrett
Priority:	9
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed Flooding</b>	
<b>Action: Buyout or relocate SRL, RL, and other vulnerable structures within or near a floodplain or dam spillway.</b>	

Participating Jurisdiction	City of Garrett
Priority:	10
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed Flooding</b>	
<b>Action: Educate the public on NFIP policies and their flood risks from various flood sources (bodies of water, dams, flash flooding).</b>	
Participating Jurisdiction	City of Garrett
Priority:	11
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: All Hazards</b>	
<b>Action: Incorporate nature-based, green infrastructure throughout the planning area, where applicable.</b>	
Participating Jurisdiction	City of Garrett
Priority:	12
Estimated Cost:	\$20,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Wildfires

**Action: Create defensible space around existing and future development in the WUI.**

Participating Jurisdiction	City of Garrett
Priority:	13
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Work with neighboring communities on multi-jurisdictional mitigation projects and studies.**

Participating Jurisdiction	City of Garrett
Priority:	14
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months




**Hazard(s) Addressed:**  
All Hazards

**Action: Conduct hazard studies in planning area and surrounding jurisdictions, to address data deficiencies and to update our risk assessment.**

Participating Jurisdiction	City of Garrett
Priority:	15
Estimated Cost:	\$70,000
Estimated Benefit:	\$420,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works

Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed:</b> <b>Flooding</b>	
<b>Action: Participate and adopt the National Flood Insurance Program.</b>	
Participating Jurisdiction	City of Garrett
Priority:	16
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administrator
Implementation Schedule:	36 months

## City of Italy Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
<b>Deferred to 2022 HMP</b>	Adopt and promote a comprehensive public education program.
<b>Deferred to 2022 HMP</b>	Adopt, implement, and enforce International Residential Code
<b>Deferred to 2022 HMP</b>	Implement Individual Tornado Safe Room Rebate Program
<b>In-progress</b>	Develop and implement a tree-trimming program
<b>Deferred to 2022 HMP</b>	Develop and Implement a Plan for Clearing Roadways
<b>Deferred to 2022 HMP</b>	Harden City Hall Against Severe Weather-related Natural Hazards
<b>Deferred to 2022 HMP</b>	Purchase and implement telephone-based mass notification system.
<b>Deferred to 2022 HMP</b>	Dig New Ditches Along Floodplains to Mitigate Flooding
<b>Deferred to 2022 HMP</b>	Conduct earthquake study to assess potential for earthquakes and their impacts
<b>Deferred to 2022 HMP</b>	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
<b>Deferred to 2022 HMP</b>	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils





**Hazard(s) Addressed:**  
All Hazards

**Action: Purchase and install generators for three (3) wells to ensure the continued supply of water during hazardous events.**

Participating Jurisdiction	City of Italy
Priority:	1
Estimated Cost:	200,000.00
Estimated Benefit:	1,200,000.00
Potential Funding Source(s):	CDBG, general operating
Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	6 months



**Hazard(s) Addressed:**  
Drought, Winter Storms

**Action: Design and install a public well to ensure water is available to residents.**

Participating Jurisdiction	City of Italy
Priority:	2
Estimated Cost:	50,000.00
Estimated Benefit:	300,000.00
Potential Funding Source(s):	General operating
Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	6 months





**Hazard(s) Addressed:**  
All Hazards


**Action: Acquire and install generators and the associated equipment/fuel for city's supervisory control and data acquisition (SCADA) system to prevent power failure to this critical software.**

Participating Jurisdiction	City of Italy
Priority:	3
Estimated Cost:	75,000.00
Estimated Benefit:	450,000.00
Potential Funding Source(s):	General operating, grants


Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	6 months


 <b>Hazard(s) Addressed:</b> <b>Thunderstorms, Tornadoes, Wildfires</b>	
<b>Action: Purchase and install outdoor warning sirens.</b>	
Participating Jurisdiction	City of Italy
Priority:	4
Estimated Cost:	100,000.00
Estimated Benefit:	600,000.00
Potential Funding Source(s):	General operating
Lead Agency/Department Responsible:	Fire Department
Implementation Schedule:	6 months


 <b>Hazard(s) Addressed:</b> <b>Earthquake, Extreme Heat, Flooding, Thunderstorms, Tornadoes, Wildfires, Winter Storms</b>	
<b>Action: Create an emergency shelter for citizens.</b>	
Participating Jurisdiction	City of Italy
Priority:	5
Estimated Cost:	1,000,000.00
Estimated Benefit:	6,000,000.00
Potential Funding Source(s):	Hazard Mitigation grants, general operating
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	24 months

 <b>Hazard(s) Addressed</b> <b>All Hazards</b>	
<b>Action: Purchase and install generators for six (6) lift stations.</b>	
Participating Jurisdiction	City of Italy
Priority:	6
Estimated Cost:	150,000.00


Estimated Benefit:	900,000.00
Potential Funding Source(s):	CDBG, general operating
Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	6 months


 <b>Hazard(s) Addressed:</b> <b>Extreme Heat, Flooding, Thunderstorms, Tornadoes, Wildfires, Winter Storms</b>	
<b>Action: Create an 8x8 cinderblock building to house chlorine room equipment and SCADA tower controls.</b>	
Participating Jurisdiction	City of Italy
Priority:	7
Estimated Cost:	15,000.00
Estimated Benefit:	90,000.00
Potential Funding Source(s):	General operating
Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	6 months

 <b>Hazard(s) Addressed:</b> <b>Extreme Heat, Thunderstorms, Tornadoes, Winter Storms</b>	
<b>Action: Create covered parking for city vehicles and equipment.</b>	
Participating Jurisdiction	City of Italy
Priority:	8
Estimated Cost:	100,000.00
Estimated Benefit:	600,000.00
Potential Funding Source(s):	General operating
Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	12 months

 <b>Hazard(s) Addressed</b> <b>Drought, Extreme Heat, Wildfires</b>	
<b>Action: Acquire water tanker trucks (both potable and non-potable) to have in the event when existing water supplies is critically low or compromised or to wet vegetation to prevent a wildfire.</b>	

Participating Jurisdiction	City of Italy
Priority:	9
Estimated Cost:	50,000.00
Estimated Benefit:	300,000.00
Potential Funding Source(s):	General operating
Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	6 months

 <b>Hazard(s) Addressed: Flooding</b>	
<b>Action: Implement and promote the National Flood Insurance Program using an education campaign and staff training.</b>	
Participating Jurisdiction	City of Italy
Priority:	10
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: Drought, Earthquakes, Expansive Soils, Wildfires</b>	
<b>Action: Replace water lines with enhanced pipes &amp; assess access/improve fire hydrants and water delivery systems.</b>	
Participating Jurisdiction	City of Italy
Priority:	11
Estimated Cost:	\$700,000.00
Estimated Benefit:	\$4.2M
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Expansive Soils

**Action: Road improvements to county roads that would combat the effects of expansive soils.**

Participating Jurisdiction	City of Italy
Priority:	12
Estimated Cost:	\$8M
Estimated Benefit:	\$48M
Potential Funding Source(s):	General Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Expansive Soils

**Action: Use membrane to allow streets to stay intact.**

Participating Jurisdiction	City of Italy
Priority:	13
Estimated Cost:	\$2,200,000
Estimated Benefit:	\$13,200,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months




**Hazard(s) Addressed:**  
Flooding

**Action: Participate and adopt the National Flood Insurance Program.**

Participating Jurisdiction	City of Italy
Priority:	14
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administrator
Implementation Schedule:	36 months

## City of Maypearl Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Develop and implement comprehensive public education program.
Deferred to 2022 HMP	Establish public cooling/warming stations in city hall, fire department, school buildings, and/or churches
Deferred to 2022 HMP	Develop and implement water rationing regulations
Deferred to 2022 HMP	Implement the “Firewise” program from the Texas Forest Service.
Deferred to 2022 HMP	Develop and implement a tree-trimming program.
Deferred to 2022 HMP	Create a Storm Water Management Program to analyze historical and current conditions contributing to flooding. Program would offer a better understanding of flooding patters and allow for better development of mitigation projects.
Deferred to 2022 HMP	Purchase and distribute hail and wind resistant window coverings to vulnerable populations.
Deferred to 2022 HMP	Conduct earthquake study to assess potential for earthquakes and their impacts
Deferred to 2022 HMP	Purchase and Install a Generator for City Hall.
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<p><b>Action:</b> <b>Build a new city hall to withstand hazards.</b> <i>Our building is severely antiquated. We have patched the roof due to hail, it can rain at times in our court and city council chambers, the HVAC system poorly manages heating and cooling, windows and doors are all leaking, and other hazards such as lightening can easily occur. Other hazards would likely destroy valuable city archives and records and the office spaces and equipment.</i></p>	
Participating Jurisdiction	City of Maypearl
Priority:	1
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary and Contractors
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Flooding, Thunderstorms, Tornadoes, Wildfire

**Action: Purchase, install, and support an Outdoor Warning System across the City of Maypearl.**

Participating Jurisdiction	City of Maypearl
Priority:	2
Estimated Cost:	\$350,000
Estimated Benefit:	\$2.1M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Flooding, Thunderstorms, Tornadoes, Wildfire

**Action: Install emergency activation switches and emergency shut offs in redundant locations.**

Participating Jurisdiction	City of Maypearl
Priority:	3
Estimated Cost:	\$25,000
Estimated Benefit:	\$150,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months




**Hazard(s) Addressed:**  
Thunderstorms

**Action: Acquire and install lightning guard systems in public venues. *Lightning guards would be installed at places like our parks and sports complexes for City youth – warning when lightning is 30 minutes away to allow for advanced evacuation and notification for safety.***


Participating Jurisdiction	City of Maypearl
Priority:	4
Estimated Cost:	\$90,000

Estimated Benefit:	\$540,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months


Hazard(s) Addressed:  
All Hazards

**Action: Acquire and implement a telephone-based mass notification system.**

Participating Jurisdiction	City of Maypearl
Priority:	5
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months


Hazard(s) Addressed:  
Flooding

**Action: Enhance ditches, drainage, and plumbing to mitigate flooding.**

Participating Jurisdiction	City of Maypearl
Priority:	6
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months


Hazard(s) Addressed:  
All Hazards



**Action: Acquire and install generator(s) in City facilities.**

Participating Jurisdiction	City of Maypearl
Priority:	7
Estimated Cost:	\$300,000
Estimated Benefit:	\$1.8M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed  
Flooding, Wildfire**

**Action: Enforce codes for high grass and debris cleanup. Currently, we have no resources to execute code enforcement.**

Participating Jurisdiction	City of Maypearl
Priority:	8
Estimated Cost:	\$45,000 annually + \$25,000 equipment/materials= \$70,000
Estimated Benefit:	\$420,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:  
Thunderstorms, Tornadoes**

**Action: Install a community saferoom.**

Participating Jurisdiction	City of Maypearl
Priority:	9
Estimated Cost:	\$50,000
Estimated Benefit:	\$300,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Adopt, implement, improve upon, and enforce additional international residential code to mitigate against natural hazards.**

Participating Jurisdiction	City of Maypearl
Priority:	10
Estimated Cost:	\$15,000
Estimated Benefit:	\$90,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Planning & Zoning Commission
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Drought, Earthquakes, Expansive Soils, Wildfires

**Action: Replace water lines with enhanced pipes & assess access/improve fire hydrants and water delivery systems.**

Participating Jurisdiction	City of Maypearl
Priority:	11
Estimated Cost:	\$1.5M
Estimated Benefit:	\$9M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
Extreme Heat, Winter Storm


**Action: Establish select city buildings and the Maypearl schools as cooling and warming centers to allow citizens, especially vulnerable populations, to seek refuge from extreme temperatures.**

Participating Jurisdiction	City of Maypearl
Priority:	12
Estimated Cost:	\$20,000
Estimated Benefit:	\$120,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration


Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed:</b> <b>Thunderstorms, Tornadoes, Wildfire, Winter Storms</b>	
<b>Action: Purchasing and distributing NOAA Weather Radios to public facilities.</b>	
Participating Jurisdiction	City of Maypearl
Priority:	13
Estimated Cost:	\$3,000
Estimated Benefit:	\$18,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Thunderstorms, Tornadoes, Wildfire, Winter Storms</b>	
<b>Action: Enhance and implement a robust tree trimming program that can be consistently executed in the City.</b>	
Participating Jurisdiction	City of Maypearl
Priority:	14
Estimated Cost:	Staff & Equipment/Resources: \$45k annually
Estimated Benefit:	\$270,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator and City Secretary
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Winter Storm</b>	
<b>Action: Develop and implement a plan for ice prevention and clearing roadways.</b>	
Participating Jurisdiction	City of Maypearl
Priority:	15
Estimated Cost:	\$50,000


Estimated Benefit:	\$300,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed**  
**Flooding**

**Action: Create a Storm Water Management Program to analyze historical and current conditions contributing to flooding and execute recommendations. Program would offer a better understanding of flooding patterns and allow for better development and execution of mitigation activities.**

Participating Jurisdiction	City of Maypearl
Priority:	16
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, City Administrator
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Extreme Heat, Thunderstorms, Tornadoes, Winter Storms**

**Action: Install covered parking for government vehicle and critical equipment.**


Participating Jurisdiction	City of Maypearl
Priority:	17
Estimated Cost:	\$35,000
Estimated Benefit:	\$210,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed**  
**Extreme Heat, Thunderstorms**

**Action: Mitigate severe weather by installing covered patios in public parks and other facilities in the City.**


Participating Jurisdiction	City of Maypearl
Priority:	18
Estimated Cost:	\$10,000 per patio
Estimated Benefit:	\$60,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Thunderstorms, Tornado, Wildfire, Winter Storms

**Action: Develop, adopt, execute, and enforce an ordinance to limit debris on private properties.**

Participating Jurisdiction	City of Maypearl
Priority:	19
Estimated Cost:	\$30,000 (staffing)
Estimated Benefit:	\$180,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Drought, Earthquakes, Expansive Soils

**Action: Improve the water supply and delivery systems to save water by installing new water delivery systems to eliminate breaks and leaks.**

Participating Jurisdiction	City of Maypearl
Priority:	20
Estimated Cost:	\$3M
Estimated Benefit:	\$18M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Develop, adopt, execute and action to have fuel storage in case of to ensure continuity of operations during a disaster.**

Participating Jurisdiction	City of Maypearl
Priority:	21
Estimated Cost:	\$15,000
Estimated Benefit:	\$90,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**All Hazards**

**Action: Develop and implement a comprehensive public education program to cover all hazards.**

Participating Jurisdiction	City of Maypearl
Priority:	22
Estimated Cost:	\$15,000
Estimated Benefit:	\$90,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Flooding**

**Action: Adopt, implement, participate, and promote the National Flood Insurance Program.**

Participating Jurisdiction	City of Maypearl
Priority:	23
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Wildfire

**Action: Partner with the Texas A&M Forest Service to establish a “Firewise” community.**

Participating Jurisdiction	City of Maypearl
Priority:	24
Estimated Cost:	\$15,000
Estimated Benefit:	\$90,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Fire Department
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Flooding, Thunderstorms, Tornadoes, Wildfire, Winter Storms

**Action: Purchase, install and support a Weather Radar System to provide the public more accurate weather data and geographically specific weather data culled from the most active levels of the atmosphere.**

Participating Jurisdiction	City of Maypearl
Priority:	25
Estimated Cost:	\$2.5M
Estimated Benefit:	\$15M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works





**Hazard(s) Addressed:**  
Thunderstorms, Tornadoes


**Action: Purchase and distribute hail and wind resistant window coverings to vulnerable populations.**

Participating Jurisdiction	City of Maypearl
Priority:	26
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works

Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed:</b> Flooding, Thunderstorms, Tornadoes, Wildfire, Winter Storms	
<b>Action: Assist citizens with funding for purchase of NOAA weather alert radios.</b>	
Participating Jurisdiction	City of Maypearl
Priority:	27
Estimated Cost:	\$4,000
Estimated Benefit:	\$24,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> Extreme Heat	
<b>Action: Conduct a study extreme heat and its effects on vulnerable populations to determine and then execute a monitoring population program.</b>	
Participating Jurisdiction	City of Maypearl
Priority:	28
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> Expansive Soils	
<b>Action: Conduct a soil analysis to determine the scope, impact and extent of expansive soils and act on analysis recommendations.</b>	
Participating Jurisdiction	City of Maypearl




Priority:	29
Estimated Cost:	\$75,000
Estimated Benefit:	\$450,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: Earthquake</b>	
<b>Action: Conduct earthquake assessment study to determine potential for earthquakes to affect the City of Maypearl.</b>	
Participating Jurisdiction	City of Maypearl
Priority:	30
Estimated Cost:	\$40,000
Estimated Benefit:	\$240,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

## City of Midlothian Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Develop and implement comprehensive public education program.
Deferred to 2022 HMP	Expand Outdoor Warning Systems to New Populations
Deferred to 2022 HMP	Implement the Texas Tornado Safe Room Rebate Program
Deferred to 2022 HMP	Harden new City facilities to withstand impacts from natural hazards.
Deferred to 2022 HMP	Assist citizens with funding for purchase of NOAA Weather Alert Radios.
Deferred to 2022 HMP	Develop public education campaign to encourage “hail resistant” roofing in new construction and roof replacements.
Deferred to 2022 HMP	Expand building codes to include stricter requirements for mitigating impacts of natural hazards on private structures.
Deferred to 2022 HMP	Educate builders and residents about mitigating wind damage.
Deferred to 2022 HMP	Increase public education concerning winter storm mitigation.
Deferred to 2022 HMP	Conduct a study to determine feasibility of monitoring populations at risk from extreme heat.
Deferred to 2022 HMP	Develop public education program on the dangers of excessive heat.
Deferred to 2022 HMP	Determine how the community and its water sources have been impacted by droughts in the past.
Deferred to 2022 HMP	Design water delivery systems to accommodate drought events and develop new and/or upgrade existing water delivery systems to eliminate breaks and leaks.
Deferred to 2022 HMP	Design and implement specific water conservation public education efforts to complement existing programs.
Deferred to 2022 HMP	Increase public education on how to reduce the risks from wildfires.
Deferred to 2022 HMP	Increase code enforcement activity for high grass and debris clean up.
Deferred to 2022 HMP	Increase public education about the effects of expansive soils.
Deferred to 2022 HMP	Expansive soil building codes for developers and builders.
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Conduct earthquake study to assess potential for earthquakes and their impacts

<b>Deferred to 2022 HMP</b>	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
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 <b>Hazard(s) Addressed: All Hazards</b>	
<b>Action: Install back-up emergency generators and automatic transfer switches (UPS systems) in new and existing city facilities that house critical infrastructure, personnel, and equipment to include existing and new City of Midlothian facilities, (Emergency generator, electrician costs, transfer switches, status monitors, wiring for facilities) to prevent the loss of power.</b>	
Participating Jurisdiction	City of Midlothian
Sites and Location(s):	City of Midlothian, Texas 76065 Midlothian Police Department, Emergency Operations Center / 9-1-1 Center, 1150 N Highway 67, Midlothian, Texas 76065 Midlothian Recreation Center Midlothian City Hall Midlothian Library Midlothian Conference Center, 1 Community Circle Midlothian Senior Activity Center, 4 Community Cir. Midlothian Water Treatment Plant, 440 Tayman Rd Midlothian Water Treatment Plant, 1761 Auger Rd Midlothian Public Works Facility and Barn Midlothian Parks and Recreation Barn Animal Shelter Raw water pump station at Joe Pool Lake (Mansfield Highway located in Cedar Hill) Generator on wheels 100KW (100 kva), electrician costs, transfer switches, status monitors, wiring for facilities
Priority:	1
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible:	Public Works, Engineering & Utilities, Police Department, Parks and Recreation, City Manager’s Office, Emergency Management.
Implementation Schedule:	12 months



**Hazard(s) Addressed:**  
**Thunderstorm, Tornado, Wildfires, Winter Storms**

**Action: Construction of storm shelters, community safe rooms (hardening) in existing and new construction of recreational and government buildings / facilities.**

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	Midlothian Police Department, Emergency Operations Center / 9-1-1 Center, 1150 N Highway 67, Midlothian, Texas 76065  Midlothian Recreation Center  Midlothian City Hall  Midlothian Library
Priority:	2
Estimated Cost:	\$2
Estimated Benefit:	\$12M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible:	Midlothian Engineering, Midlothian Public Works Department, Midlothian PD Emergency Management, Parks and Recreation, City Manager's Office
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Earthquakes, Thunderstorms, Tornadoes, Wildfires**


**Action: Enhancement of Outdoor Warning Siren System to include:**

- Increased warning coverage, communications, and security
- Provide warnings and notifications to residents and visitors during hazardous events to include newer technologies, such as NWS polygon activation, wind sensor for high wind activations, and updated outdoor warning sirens due to city growth.

Participating Jurisdiction	City of Midlothian		
Sites and Location(s):	Siren Number	Siren Location (address)	GPS Coordinates (Lat /Long)
	<b>Siren Controller (Dispatch)</b>	1150 N Highway 67 Midlothian Police Department	32.492956 x -96.996659

	<b>1</b>	Jaycee Park, Baseball Field 1809 Meadow Lane	32.503662 x - 96.997563
	<b>2</b>	TE Baxter Elementary School 1050 Park Place Blvd 972-775-8281	32.496044 x -96.961349
	<b>3</b>	Walnut Grove Middle School 990 N Walnut Grove Rd 972-775-5355 x3	32.492197 x -96.940730
	<b>4</b>	Longbranch Elementary School 6631 FM 1387 972-775-2830	32.404807 x -96.908395
	<b>5</b>	The Mile – Midlothian Innovative Learning Experience 700 W Avenue H 972-775-8239	32.480185 x -96.999035
	<b>6</b>	Power Foam 550 Murray ST 972-299-5556	32.474996 x -96.978111
	<b>7</b>	Walnut Grove Rd & Clancey 1081 S Walnut Grove Rd	32.472523 x -96.942057
	<b>8</b>	2800 Blk 663 Byrd Ranch & FM 663 (Autumn Run)	32.454396 x -96.987444
	<b>9</b>	LaRue Miller Elementary School & Dieterich Middle School Sudith Ln & Sunbeam Ct 972-775-4497	32.450748 x -96.971723
	<b>10</b>	Billy Ray Rd & Monroe Drive (Crystal Forest Estates)	32.441070 x - 96.947744
	<b>11</b>	Mt Peak Elementary School 5201 FM 663 Behind Station 3 972-775-2881	32.428869 x - 97.002072
	<b>12</b>	McAlpin Rd & Whitehead Rd (Country South)	32.424737 x -96.975926
	<b>13</b>	Camp Hoblitzelle Singleton Rd & Indian Creek Dr 972-723-2387	32.404807 x -97.005275
	<b>14</b>	Midlothian Power Plant -	32.431249x

		Luminant 4601 Brookhollow Dr 972-923-7415 (Control Room) 972-923-7474 (Plant Electrical Engineer)	-97.053551
	<b>Additional Sirens</b>	Locations within the city due to growth	TBD
Priority:	3		
Estimated Cost:	\$500,000		
Estimated Benefit:	\$3M		
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement		
Lead Agency/Department Responsible:	Police Department / Emergency Management		
Implementation Schedule:	18 months		

	<b>Hazard(s) Addressed:</b> <b>Flooding, Thunderstorms</b>	
	<b>Action: Improve and enhance storm water draining capabilities to prevent flooding in flood prone areas. See list of potential storm water drainage projects below and associated costs for each project.</b>	
Participating Jurisdiction	City of Midlothian	

City of Midlothian Storm Water Utility Projects	
Stormwater System O&M and Project Improvement Costs	Cost
1. Contract street sweeping (yearly)	\$50,000
2. Household hazardous waste collection program (yearly)	\$35,000
3. MS4 storm water management program (yearly)	\$30,000
4. Navarro College	\$250,000
5. Creek Bend	\$800,000
6. Oak Tree Lane	\$250,000
7. Stevie Mike Drive and Mr. Bob Drive	\$750,000
8. Boardwalk Street and Short Line Boulevard	\$350,000
9. Melanie Trail and Walter Stephenson Road	\$750,000
10. Eastgate Drainage Improvements	\$350,000
11. Roundabout Drive	\$500,000
12. Lena Lane and Hillcrest Street	\$500,000
13. S. 14th Street (north of FM 875)	\$1,000,000
14. Onward Road	\$1,250,000
15. Mockingbird Lane (west of Park Place)	\$750,000
16. Oak Tree Lane within Lake Grove	\$100,000
17. N. Walnut Grove Road (north of Mockingbird Lane)	\$150,000
18. Hayes Road (north of FM 1387)	\$500,000
19. Hayes Road (west of Longbranch Road)	\$250,000
20. Francis Lane	\$250,000
21. Plainview Road (west of Keri Lane)	\$350,000
22. Plainview Road (west of Coldwater Court)	\$350,000
23. Plainview Road (south of Duvall Lane)	\$350,000
24. Sudlith Lane (south of Plum Creek)	\$350,000
25. Ashford Lane (west of Whispering Hills Drive)	\$250,000
26. Ashford Lane (east of S. 14th Street)	\$250,000
27. McAlpin Road (west of Shallow Creek)	\$350,000
28. Whitehead Road (south of Ashford Lane)	\$350,000
29. Waterworks Road	\$750,000
30. Belmont Lane (west of FM 663)	\$250,000
31. Creekbend	\$500,000
32. Mount Zion Road	\$550,000
33. South Midlothian Parkway	\$750,000
34. Kroger Detention Pond Storm Drain System	\$2,500,000
Priority:	4
Estimated Cost:	\$200,000 - \$2.5M
Estimated Benefit:	\$15M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement, Storm Water Impact Fees
Lead Agency/Department Responsible:	Engineering & Utilities Department
Implementation Schedule:	36 months

Sites and Location(s):

	<p><b>Hazard(s) Addressed:</b> Expansive Soils, Flooding, Thunderstorms</p>
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**Action: Improve and increase the capacity of storm water system by expanding creeks downstream channel to prevent flooding in flood prone areas to include structural stormwater management projects.**

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	<i>The major streams in the City of Midlothian, as defined in this Ordinance, are Armstrong Creek, Bedford Branch, Cottonwood Creek, Hollings Branch, Long Branch, Newton Branch, North Prong Creek, Sanders Branch, Soap Creek, South Prong Creek, and Waxahachie Creek.</i> City of Midlothian, Texas 76065
Priority:	5
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	Engineering Department
Implementation Schedule:	36 months



**Hazard(s) Addressed**  
**Expansive Soils, Flooding, Thunderstorms**

**Action: Conduct creek and stream bank erosion studies: conduct a study to identify vulnerability to stream bank erosion. Identify cost effective actions.** *The major streams in the City of Midlothian, as defined in the city ordinance, are Armstrong Creek, Bedford Branch, Cottonwood Creek, Hollings Branch, Long Branch, Newton Branch, North Prong Creek, Sanders Branch, Soap Creek, South Prong Creek, and Waxahachie Creek.*

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	<i>The major streams in the City of Midlothian, as defined in the city ordinance, are Armstrong Creek, Bedford Branch, Cottonwood Creek, Hollings Branch, Long Branch, Newton Branch, North Prong Creek, Sanders Branch, Soap Creek, South Prong Creek, and Waxahachie Creek.</i> City of Midlothian, Texas 76065
Priority:	6
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	Engineering Department
Implementation Schedule:	36 months





**Hazard(s) Addressed**  
**Thunderstorms**

**Action: Install lightning prediction and notification systems in Back Alley Plaza, Civic Center Park, Hawkins Spring Park, Heritage Park, Jaycee Park, Kimmel Park, Margie Webb Park, Midlothian Community Park, Midlothian Dog Park, Midlothian Sports Complex, Mockingbird Nature Park, Mountain Peak Park, Ridgeview Park, Triangle Park, Recreation Center and new city parks to provide early warning of the possibility of lightning in the immediate area and increase public safety during outdoor activities.**

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	Back Alley Plaza, Civic Center Park, Hawkins Spring Park, Heritage Park, Jaycee Park, Kimmel Park, Margie Webb Park, Midlothian Community Park, Midlothian Dog Park, Midlothian Sports Complex, Mockingbird Nature Park, Mountain Peak Park, Ridgeview Park, Triangle Park, Recreation Center and new city parks City of Midlothian, Texas 76065
Priority:	7
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible:	Parks and Recreation
Implementation Schedule:	18 months



**Hazard(s) Addressed**  
**All Hazards**

**Action: Develop and implement a comprehensive public education and outreach program for all-hazards that provides information on mitigation techniques.**

Participating Jurisdiction	City of Midlothian
Priority:	8
Estimated Cost:	\$50,000
Estimated Benefit:	\$300,000
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	Midlothian Fire Department, Midlothian Police Department, Emergency Management, Public Information Officer, Engineering & Utilities, Public Works
Implementation Schedule:	12 months



**Hazard(s) Addressed:  
Expansive Soils, Flooding, Thunderstorms**

**Action: Improve creek and stream bank stabilization measures with the use of hard / soft engineering techniques that combine low profile rock with vegetative plating to allow for a more natural condition of creeks located in Midlothian.**

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	<i>The major streams in the City of Midlothian, as defined in the city ordinance, are Armstrong Creek, Bedford Branch, Cottonwood Creek, Hollings Branch, Long Branch, Newton Branch, North Prong Creek, Sanders Branch, Soap Creek, South Prong Creek, and Waxahachie Creek.</i> City of Midlothian, Texas 76065
Priority:	9
Estimated Cost:	\$2M
Estimated Benefit:	\$12M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	Engineering Department & Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:  
Thunderstorms, Tornado**

**Action: Purchase hail and wind resistant windows or window coverings for new and existing city facilities.**

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	All city facilities located in the City of Midlothian, Texas 76065 Midlothian Public Safety Complex, 1150 N Highway 67, Midlothian, Texas 76065
Priority:	10
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	Engineering Department, Public Works, Police Department, Emergency Management, City Manager's Office
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Extreme Heat**

**Action: Reduce heat island effect by installing cool roof products for city facilities that reflect sunlight and heat away from buildings.**

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	All city facilities located in the City of Midlothian, Texas 76065 Midlothian Public Safety Complex, 1150 N Highway 67, Midlothian, Texas 76065  Midlothian Recreation Center Midlothian City Hall Midlothian Library
Priority:	11
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	Engineering Department, Public Works, Police Department, Emergency Management, City Manager's Office
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
**Drought, Extreme Heat, Wildfires**

**Action: Incorporate of drought tolerant, fire resistant, and xeriscaping practices and install water-saving equipment in new and existing city facilities.**

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	All city facilities and city owned right-of-way located in the City of Midlothian, Texas 76065
Priority:	12
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	Engineering & Utilities Department, Public Works, Parks and Recreation, Police Department, Emergency Management, City Manager's Office

Implementation Schedule:	18 months
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 <b>Hazard(s) Addressed: Extreme Heat, Winter Storms</b>	
<b>Action: Create a weatherization assistance program to assist the vulnerable population and protect them from extreme heat and cold.</b>	
Participating Jurisdiction	City of Midlothian
Sites and Location(s):	Provides qualified families with an energy audit and installation of weatherization measures to increase their home's energy efficiency.
Priority:	13
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	Public Works, Utility Billing, Police Department, MPD Community Services, Emergency Management
Implementation Schedule:	18 months

 <b>Hazard(s) Addressed: Thunderstorms</b>	
<b>Action: Install a combined technology of structural protection devices (lightning rods), arrestors, and grounding minimize lightning damage to critical facilities and emergency communications infrastructure.</b>	
Participating Jurisdiction	City of Midlothian
Sites and Location(s):	City of Midlothian city facilities to include communications infrastructure, 76065.
Priority:	14
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	IT Department, Police Department, Emergency Management
Implementation Schedule:	18 months



**Hazard(s) Addressed:  
Earthquakes, Expansive Soils**

**Action: Work with Ellis County and other jurisdictions in Ellis County and participate in an earthquake study to help determine the levels of risk and potential mitigation strategies. The study will not have any effect on buildings. However, the findings from the study may result in changes in the building and infrastructure building codes and ordinances.**

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	City of Midlothian, Texas 76065
Priority:	15
Estimated Cost:	\$250,000
Estimated Benefit:	\$1.5M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	Emergency Management
Implementation Schedule:	24 months



**Hazard(s) Addressed:  
Flooding, Thunderstorms**

**Action: Buyout structures that are in the floodplain. Land Acquisition and removal of old structures for repetitive loss. Residential structures located within the floodplain and may have repetitive losses due to flooding to return to green space or park land.**

Participating Jurisdiction	City of Midlothian
Sites and Location(s):	City of Midlothian, Texas 76065
Priority:	16
Estimated Cost:	\$5M
Estimated Benefit:	\$30M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund, Capital Improvement
Lead Agency/Department Responsible	City Manager's Office, Parks, Engineering
Implementation Schedule:	36 months




**Hazard(s) Addressed:  
Flooding**


**Action: Participate and adopt the National Flood Insurance Program.**

Participating Jurisdiction	City of Midlothian
Priority:	17
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	36 months


## City of Milford Mitigation Action Items


STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Develop and implement comprehensive public education program.
Deferred to 2022 HMP	Develop, implement, and enforce water conservation codes and ordinances.
Deferred to 2022 HMP	Purchase and distribute hail and wind resistant window coverings to vulnerable populations.
Deferred to 2022 HMP	Create and Implement Long-Term Stormwater Management Program
Deferred to 2022 HMP	Adopt, implement, and enforce stricter construction requirements through ordinances.
Deferred to 2022 HMP	Partner with the Texas Fire Service to establish Milford as a “Firewise” community.
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Conduct earthquake study to assess potential for earthquakes and their impacts
Deferred to 2022 HMP	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.

 <b>Hazard(s) Addressed:</b> All Hazards	
<b>Action: Develop and implement a comprehensive public education and outreach program for all-hazards.</b>	
Participating Jurisdiction	City of Milford
Priority:	1
Estimated Cost:	\$20,000.00
Estimated Benefit:	\$120,000.00
Potential Funding Source(s):	75% FEMA Grants, 25% General operating budget
Lead Agency/Department Responsible:	Emergency Management Coordinator
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> Flooding, Thunderstorms, Tornadoes, Winter Storm	
<b>Action: Purchase, install and support a Weather Radar System to provide the public more accurate</b>	

<b>weather data and geographically specific weather data culled from the most active levels of the atmosphere.</b>	
Participating Jurisdiction	City of Milford
Priority:	2
Estimated Cost:	\$300,000.00
Estimated Benefit:	\$1.8M
Potential Funding Source(s):	75% FEMA Grants, 25% General operating budget
Lead Agency/Department Responsible:	Emergency Management Coordinator
Implementation Schedule:	36 months

	<b>Hazard(s) Addressed:</b> <b>Extreme Heat, Winter Storm</b>
	<b>Action: Create a weatherization assistance program to assist the vulnerable population and protect them from extreme temperatures.</b>
Participating Jurisdiction	City of Milford
Priority:	3
Estimated Cost:	\$150,000.00
Estimated Benefit:	\$900,000.00
Potential Funding Source(s):	75% FEMA Grants, 25% General operating budget
Lead Agency/Department Responsible:	Emergency Management Coordinator
Implementation Schedule:	36 months

	<b>Hazard(s) Addressed:</b> <b>Drought, Earthquakes, Expansive Soils, Wildfires</b>
	<b>Action: Replace water lines with enhanced pipes &amp; assess access/improve fire hydrants and water delivery systems.</b>
Participating Jurisdiction	City of Milford
Priority:	4
Estimated Cost:	\$700,000.00
Estimated Benefit:	\$4.2M
Potential Funding Source(s):	75% FEMA Grants, 25% General operating budget
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
**Flooding**

**Action: Implement and promote the National Flood Insurance Program using an education campaign and staff training.**

Participating Jurisdiction	City of Milford
Priority:	5
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months




**Hazard(s) Addressed:**  
**Flooding**


**Action: Participate and adopt the National Flood Insurance Program.**

Participating Jurisdiction	City of Milford
Priority:	6
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administrator
Implementation Schedule:	36 months


## City of Oak Leaf Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Mitigate the Effects of Severe Weather to Citizens Through Outdoor Warning Systems.
Deferred to 2022 HMP	Mitigate the Effects of Hazards to Citizens Through Public Education Program
Deferred to 2022 HMP	Purchase Generator to Provide Power to City Municipal Buildings
Deferred to 2022 HMP	Installation of Community Saferoom
Deferred to 2022 HMP	Conduct earthquake study to assess potential for earthquakes and their impacts
Deferred to 2022 HMP	Develop, implement and enforce a water rationing plan
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Partner with the county and other jurisdictions to hire a consultant to complete inundation studies of all high and moderate hazard dams within the county.

 <b>Hazard(s) Addressed: Flooding</b>	
<b>Action: Limit or restrict development in floodplain areas by requiring that floodplains be kept as open space.</b>	
Participating Jurisdiction	City of Oak Leaf
Priority:	1
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	12 months

 <b>Hazard(s) Addressed: Thunderstorms</b>	
<b>Action: Posting warning signage at local parks, county fairs, and other outdoor venues.</b>	
Participating Jurisdiction	City of Oak Leaf
Priority:	2


Estimated Cost:	\$200
Estimated Benefit:	\$1,200
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	12 months



**Hazard(s) Addressed:**  
**Thunderstorms**

**Action: Protect critical facilities and infrastructure from lighting damage by installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities.**

Participating Jurisdiction	City of Oak Leaf
Priority:	3
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$30,000.00
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
**Wildfire**

**Action: Organize a local fire department tour to show local elected officials and planners the most vulnerable areas of the community's wildland-urban interface and increase their understanding of risks**

Participating Jurisdiction	City of Oak Leaf
Priority:	4
Estimated Cost:	\$1,000
Estimated Benefit:	\$6,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
**Wildfire**

**Action: Inform the public about proper wildfire evacuation procedures.**

Participating Jurisdiction	City of Oak Leaf
Priority:	5
Estimated Cost:	\$1,000
Estimated Benefit:	\$6,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	6 months



**Hazard(s) Addressed:  
Extreme Heat**

**Action: Reduce heat island effects by increasing tree plantings around buildings to shade parking lots and along public rights-of-way.**

Participating Jurisdiction	City of Oak Leaf
Priority:	6
Estimated Cost:	\$40,000
Estimated Benefit:	\$240,000
Potential Funding Source(s):	General Operating Fund, Grant
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	24 months



**Hazard(s) Addressed:  
Flooding**

**Action: Incorporate flood mitigation in local planning by passing and enforcing an ordinance that regulates dumping in streams and ditches**

Participating Jurisdiction	City of Oak Leaf
Priority:	7
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	12 months



**Hazard(s) Addressed:**  
**Earthquake, Thunderstorms**

**Action: Increase hail and lightening risk awareness and earthquake safety techniques to follow during and after an earthquake by mailing safety brochures with quarterly newsletters.**

Participating Jurisdiction	City of Oak Leaf
Priority:	8
Estimated Cost:	\$1,000
Estimated Benefit:	\$6,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	6 months



**Hazard(s) Addressed:**  
**Expansive Soils**

**Action: Use membrane to allow streets to stay intact.**

Participating Jurisdiction	City of Oak Leaf
Priority:	9
Estimated Cost:	\$2,200,000
Estimated Benefit:	\$13,200,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
**Earthquakes, Expansive Soils**


**Action: Install flex-pipes in new city building construction.**

Participating Jurisdiction	City of Oak Leaf
Priority:	10
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration


Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed:</b> <b>Winter Storms</b>	
<b>Action: Create a campaign to encourage homeowners to install carbon monoxide monitors and alarms.</b>	
Participating Jurisdiction	City of Oak Leaf
Priority:	11
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	12 months


 <b>Hazard(s) Addressed:</b> <b>Extreme Heat, Winter Storms</b>	
<b>Action: Assist vulnerable populations by establishing and promoting accessible heating or cooling centers in the community.</b>	
Participating Jurisdiction	City of Oak Leaf
Priority:	12
Estimated Cost:	\$500,000
Estimated Benefit:	\$3,000,000
Potential Funding Source(s):	Grant
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Drought</b>	
<b>Action: Educate residents regarding incorporating drought tolerant or xeriscape landscaping to reduce dependence on irrigation.</b>	
Participating Jurisdiction	City of Oak Leaf
Priority:	13
Estimated Cost:	\$500


Estimated Benefit:	\$3,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	1 to 2 years


 <b>Hazard(s) Addressed:</b> <b>Drought</b>	
<b>Action: Educate residents on water saving techniques regarding installation of low-flow water saving showerheads and toilets.</b>	
Participating Jurisdiction	City of Oak Leaf
Priority:	14
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	1 to 2 years

 <b>Hazard(s) Addressed:</b> <b>Tornado</b>	
<b>Action: Promote Severe Weather Awareness Week.</b>	
Participating Jurisdiction	City of Oak Leaf
Priority:	15
Estimated Cost:	\$100
Estimated Benefit:	\$600
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	12 months

 <b>Hazard(s) Addressed:</b> <b>Thunderstorms, Tornado</b>	
<b>Action: Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.</b>	
Participating Jurisdiction	City of Oak Leaf

Priority:	16
Estimated Cost:	\$100
Estimated Benefit:	\$600
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	12 months

 <b>Hazard(s) Addressed: Earthquake</b>	
<b>Action: Use Hazus to quantitatively estimate potential losses from an earthquake.</b>	
Participating Jurisdiction	City of Oak Leaf
Priority:	17
Estimated Cost:	\$100
Estimated Benefit:	\$600
Potential Funding Source(s):	General Operating Fund
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	1 to 2 years

 <b>Hazard(s) Addressed Flooding</b>	
<b>Action: Participate, implement and promote the National Flood Insurance Program using an education campaign and staff training.</b>	
Participating Jurisdiction	City of Oak Leaf
Priority:	18
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
**Drought, Earthquakes, Expansive Soils, Wildfires**

**Action: Replace water lines with enhanced pipes & assess access/improve fire hydrants and water delivery systems.**

Participating Jurisdiction	City of Oak Leaf
Priority:	19
Estimated Cost:	\$700,000.00
Estimated Benefit:	\$4.2M
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months




**Hazard(s) Addressed:**  
**Flooding, Thunderstorms, Tornadoes, Wildfire**


**Action: Purchase, install, and support an Outdoor Warning System across the City of Oak Leaf.**

Participating Jurisdiction	City of Oak Leaf
Priority:	20
Estimated Cost:	\$350,000
Estimated Benefit:	\$2.1M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	36 months


## City of Ovilla Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Mitigate the Effects of Hazards to Citizens Through Public Education
Deferred to 2022 HMP	Purchase and implement communication early warning system connected to NOAA Weather Service, such as Blackboard Connect
Deferred to 2022 HMP	Purchase and install an outdoor early warning system.
Deferred to 2022 HMP	Install covered parking areas
Deferred to 2022 HMP	Conduct earthquake study to assess potential for earthquakes and their impacts
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.

 <b>Hazard(s) Addressed:</b> All Hazards	
<b>Action: Assist homeowners with application and implementation of residential mitigation projects.</b>	
Participating Jurisdiction	City of Ovilla
Priority:	1
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> Flooding	
<b>Action: Participate in the National Flood Insurance Program (NFIP).</b>	
Participating Jurisdiction	City of Ovilla
Priority:	2
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000


Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Acquire and install generators, the generator connections/infrastructure, proper mounting system, security barriers, and fuel reservoir for existing and future critical facilities to prevent power failure in the event of a disaster and to continue essential duties.**


Participating Jurisdiction	City of Ovilla
Priority:	3
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Earthquakes, Flooding, Wildfires

**Action: Update land use planning, using zoning maps & regulations, to prevent future residential development in floodplains and other hazard-prone areas and place requirements on development methods.**


Participating Jurisdiction	City of Ovilla
Priority:	4
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Maintain fuel on-site or have multiple ways to obtain fuel for maintaining power during a power outage from an event.**


Participating Jurisdiction	City of Ovilla
Priority:	5
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Adopt and enforce most current building codes.**

Participating Jurisdiction	City of Ovilla
Priority:	6
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Update codes, policies, and regulations to address risks and vulnerabilities to hazards.**

Participating Jurisdiction	City of Ovilla
Priority:	7
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Retrofit existing and future government-owned facilities to withstand all hazards.**

Participating Jurisdiction	City of Ovilla
Priority:	8
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Educate the public on their risks to our hazards, and mitigation actions to take, using various outreach methods.**

Participating Jurisdiction	City of Ovilla
Priority:	9
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Flooding

**Action: Buyout or relocate SRL, RL, and other vulnerable structures within or near a floodplain or dam spillway.**

Participating Jurisdiction	City of Ovilla
Priority:	10
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Flooding**

**Action: Educate the public on NFIP policies and their flood risks from various flood sources (bodies of water, dams, flash flooding).**

Participating Jurisdiction	City of Ovilla
Priority:	11
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**All Hazards**

**Action: Incorporate nature-based, green infrastructure throughout the planning area, where applicable.**

Participating Jurisdiction	City of Ovilla
Priority:	12
Estimated Cost:	\$20,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
**Wildfires**

**Action: Create defensible space around existing and future development in the WUI.**

Participating Jurisdiction	City of Ovilla
Priority:	13
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works


Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Work with neighboring communities on multi-jurisdictional mitigation projects and studies.</b>	
Participating Jurisdiction	City of Ovilla
Priority:	14
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Conduct hazard studies in planning area and surrounding jurisdictions, to address data deficiencies and to update our risk assessment.</b>	
Participating Jurisdiction	City of Ovilla
Priority:	15
Estimated Cost:	\$70,000
Estimated Benefit:	\$420,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

## City of Palmer Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Develop and implement telephone warning program for residents and businesses to receive early warning from the National Weather Service and local agencies.
Deferred to 2022 HMP	Mitigate extreme weather by building covered patios in public parks
Deferred to 2022 HMP	Develop and implement a public education program
Deferred to 2022 HMP	Develop and implement a watering ordinance and enforcement capabilities
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Develop Expansive Soil Code and Enforcement
Deferred to 2022 HMP	Conduct earthquake study to assess potential for earthquakes and their impacts
Deferred to 2022 HMP	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Deferred to 2022 HMP	Develop, Adopt, and Enforce an Ordinance to Require Underground Power Lines for New Construction
Deferred to 2022 HMP	Develop, Adopt, and Enforce an Ordinance to Limit Debris on Private Properties

 <b>Hazard(s) Addressed:</b> Earthquakes, Extreme Heat, Flooding, Thunderstorms, Tornado, Wildfire, Winter Storms	
<b>Action: Purchase and install generator(s) in City facilities.</b>	
Participating Jurisdiction	City of Palmer
Priority:	1
Estimated Cost:	\$350,000
Estimated Benefit:	\$2.1M
Potential Funding Source(s):	CDBG grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary and Contractors
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
**Flooding**

**Action: Enhance drainage ditches to mitigate flooding.**

Participating Jurisdiction	City of Palmer
Priority:	2
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary and Contractors
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Thunderstorms, Tornadoes, Wildfire**

**Action: Purchase and install Outdoor Warning Sirens.**

Participating Jurisdiction	City of Palmer
Priority:	3
Estimated Cost:	\$350,000
Estimated Benefit:	\$2.1M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Mayor, City Administrator, City Secretary, Consulting Firm, and Public Works
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
**Thunderstorms**

**Action: Purchase and install lightning guard systems in public venues. Lightning Guard would be installed at places like our parks and sports complexes for City youth – warning when lightning is 30 minutes away to allow for advanced evacuation and notification for safety.**

Participating Jurisdiction	City of Palmer
Priority:	4
Estimated Cost:	\$100,000

Estimated Benefit:	\$600,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary and Contractors
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: Drought, Wildfires</b>	
<b>Action: Replace water lines with enhanced pipes and improve fire hydrants and water delivery systems to ensure water pressure to support a significant drought or wildfire.</b>	
Participating Jurisdiction	City of Palmer
Priority:	5
Estimated Cost:	\$1.5M
Estimated Benefit:	\$9M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary and Contractors
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: Extreme Heat, Winter Storms</b>	
<b>Action: Establish select city buildings and potentially the Palmer schools as cooling and warming centers to allow citizens, especially vulnerable populations, to seek refuge from extreme hot and cold temperatures.</b>	
Participating Jurisdiction	City of Palmer
Priority:	6
Estimated Cost:	\$30,000
Estimated Benefit:	\$180,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary, Maypearl ISD Superintendent and Contractors
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Extreme Heat, Flooding, Thunderstorms, Tornado, Winter Storms, Wildfire**

**Action: Purchasing and distributing NOAA Weather Radios to public facilities.**

Participating Jurisdiction	City of Palmer
Priority:	7
Estimated Cost:	\$3,000
Estimated Benefit:	\$18,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Thunderstorms, Tornadoes, Wildfire, Winter Storms**

**Action: Implement a tree trimming program that can be executed in the City.**

Participating Jurisdiction	City of Palmer
Priority:	8
Estimated Cost:	Staff & Equipment/Resources: \$45k annually
Estimated Benefit:	\$270,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator and City Secretary
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
**Winter Storm**


**Action: Develop and implement a plan for clearing roadways.**

Participating Jurisdiction	City of Palmer
Priority:	9
Estimated Cost:	\$50,000
Estimated Benefit:	\$300,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works


Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Develop a public education program that involves mitigation education for all hazards.</b>	
Participating Jurisdiction	City of Palmer
Priority:	10
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Mayor, City Administrator, City Secretary, Consulting Firm
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>Flooding</b>	
<b>Action: Adopt, implement, participate and promote the National Flood Insurance Program.</b>	
Participating Jurisdiction	City of Palmer
Priority:	11
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Mayor, City Administrator, City Secretary, Consulting Firm
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Enforce International Residential Code to mitigate against natural hazards.</b>	
Participating Jurisdiction	City of Palmer
Priority:	12
Estimated Cost:	\$5000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	FEMA grants


Lead Agency/Department Responsible:	Mayor, City Administrator, City Secretary, Consulting Firm, Planning & Zoning Commission
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>Earthquake</b>	
<b>Action: Conduct earthquake assessment study to determine potential for earthquakes to affect the City of Palmer.</b>	
Participating Jurisdiction	City of Palmer
Priority:	13
Estimated Cost:	\$40,000
Estimated Benefit:	\$240,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Mayor, City Administrator, City Secretary, Consulting Firm
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Drought, Extreme Heat, Flooding, Thunderstorms, Tornado, Wildfire, Winter Storms</b>	
<b>Action: Assist citizens with funding for purchase of NOAA weather alert radios.</b>	
Participating Jurisdiction	City of Palmer
Priority:	14
Estimated Cost:	\$4,000
Estimated Benefit:	\$24,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary, Consultants and Contractors
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Extreme Heat</b>	
<b>Action: Conduct a study extreme heat and its effects on vulnerable populations to determine and then execute a monitoring population program.</b>	
Participating Jurisdiction	City of Palmer

Priority:	15
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Fire Department, Public Works, Mayor, City Administrator, City Secretary, Consultants and Contractors
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Extreme Heat, Thunderstorms, Winter Storms</b>	
<b>Action: Mitigate extreme weather by building covered patios in public parks and other facilities in the City.</b>	
Participating Jurisdiction	City of Palmer
Priority:	16
Estimated Cost:	\$12,000 per patio
Estimated Benefit:	\$72,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary and Contractors
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Earthquakes, Flooding, Thunderstorms, Tornado, Wildfire, Winter Storms</b>	
<b>Action: Execute and Enforce an Ordinance to limit debris on private properties</b>	
Participating Jurisdiction	City of Palmer
Priority:	17
Estimated Cost:	\$50,000 (staffing)
Estimated Benefit:	\$300,000
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary and Contractors
Implementation Schedule:	36 months




**Hazard(s) Addressed:  
Drought**

**Action: Improve the water supply and delivery systems to save water by installing new water delivery systems.**

Participating Jurisdiction	City of Palmer
Priority:	18
Estimated Cost:	\$1.5M
Estimated Benefit:	\$9M
Potential Funding Source(s):	FEMA grants
Lead Agency/Department Responsible:	Public Works, Mayor, City Administrator, City Secretary and Contractors
Implementation Schedule:	36 months

## City of Red Oak Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Deferred to 2022 HMP	Purchase and Install a CASA-WX Radar
Deferred to 2022 HMP	Minimize loss of life and property from natural hazards through code adoption, implementation, and enforcement.
Deferred to 2022 HMP	Harden City Hall Against Severe Weather-related Natural Hazards
Deferred to 2022 HMP	Addition of 2 Early Warning Sirens
Deferred to 2022 HMP	Establish select city buildings as cooling centers and warming centers to allow citizens, especially vulnerable populations, to seek refuge from extreme hot and cold temperatures.
Deferred to 2022 HMP	Implement Individual Tornado Safe Room Rebate Program
Deferred to 2022 HMP	Create and implement ordinance detailing enforcement for water rationing
Deferred to 2022 HMP	Purchasing and distributing NOAA Weather Radios to public facilities
Deferred to 2022 HMP	Expansive Soil Code Enforcement Program
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Conduct earthquake study to assess potential for earthquakes and their impacts
Deferred to 2022 HMP	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Plan for and build Station 3 to better serve the community by having a less vulnerable fire station.</b>	
Participating Jurisdiction	City of Red Oak
Priority:	1
Estimated Cost:	\$6 M
Estimated Benefit:	\$36 M
Potential Funding Source(s):	Capital / Bond /Grant
Lead Agency/Department Responsible:	Fire Department
Implementation Schedule:	24 months





**Hazard(s) Addressed:**  
All Hazards

**Action: Add nine (9) fire personnel to ensure the city can save lives and prevent damages during disasters. These personnel will also be assisting in mitigation planning.**

Participating Jurisdiction	City of Red Oak
Priority:	2
Estimated Cost:	\$1.5 M
Estimated Benefit:	\$9 M
Potential Funding Source(s):	Safer Grant
Lead Agency/Department Responsible:	Fire Department
Implementation Schedule:	12 months



**Hazard(s) Addressed**  
Drought, Flooding

**Action: Install an elevated water storage tank 2.25MG.**

Participating Jurisdiction	City of Red Oak
Priority:	3
Estimated Cost:	\$5,720,000.00
Estimated Benefit:	\$34,320,000
Potential Funding Source(s):	Capital / Bond/ Grant
Lead Agency/Department Responsible:	Red Oak Public Works
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
Drought, Extreme Heat, Flooding

**Action: Add five (5) new 3.6 MGD pumps at Methodist Pump Station to ensure continuity of critical operations.**

Participating Jurisdiction	City of Red Oak
Priority:	4
Estimated Cost:	\$3,620,000.00
Estimated Benefit:	\$21,720,000
Potential Funding Source(s):	Capital/ Bond / Grant
Lead Agency/Department Responsible:	Red Oak Public Works
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
Drought, Earthquakes, Expansive Soils

**Action: Install and upgrade water lines in the City of Red Oak.**

Participating Jurisdiction	City of Red Oak
Priority:	5
Estimated Cost:	\$1,610,000.00
Estimated Benefit:	\$9,660,000
Potential Funding Source(s):	Capital / Bond / Grant
Lead Agency/Department Responsible:	Red Oak Public Works
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
Extreme Heat, Flooding, Thunderstorms, Tornado, Wildfire, Winter Storms

**Action: Purchase and install generator(s) in City facilities.**

Participating Jurisdiction	City of Red Oak
Priority:	6
Estimated Cost:	\$350,000
Estimated Benefit:	\$2.1M
Potential Funding Source(s):	CDBG grants
Lead Agency/Department Responsible:	Red Oak Public Works
Implementation Schedule:	36 months





**Hazard(s) Addressed:**  
Thunderstorms


**Action: Acquire and install lightning guard systems in public venues.**

Participating Jurisdiction	City of Red Oak
Priority:	7
Estimated Cost:	\$90,000
Estimated Benefit:	\$540,000


Potential Funding Source(s):	Capital / Bond / Grant
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Flooding, Thunderstorms, Tornadoes, Wildfire</b>	
<b>Action: Purchase, install, and support an Outdoor Warning System across the City of Red Oak.</b>	
Participating Jurisdiction	City of Red Oak
Priority:	8
Estimated Cost:	\$350,000
Estimated Benefit:	\$2.1M
Potential Funding Source(s):	Capital / Bond / Grant
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Winter Storm</b>	
<b>Action: Develop and implement a plan for ice prevention and clearing roadways.</b>	
Participating Jurisdiction	City of Red Oak
Priority:	9
Estimated Cost:	\$50,000
Estimated Benefit:	\$300,000
Potential Funding Source(s):	Capital / Bond / Grant
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Flooding</b>	
<b>Action: Adopt, implement, participate, and promote the National Flood Insurance Program.</b>	
Participating Jurisdiction	City of Red Oak
Priority:	10


Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administrator
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Drought, Expansive Soils, Wildfires

**Action: Replace water lines with enhanced pipes & assess access/improve fire hydrants and water delivery systems. This will allow access to water in extreme weather conditions and prevent water leaks during a disaster, helping to maintain essential services and prevent secondary damage.**

Participating Jurisdiction	City of Red Oak
Priority:	11
Estimated Cost:	\$700,000.00
Estimated Benefit:	\$4.2M
Potential Funding Source(s):	Grants
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Drought, Expansive Soils, Extreme Heat, Flooding

**Action: Use Smartscape in existing and new developments landscapes; implement landscape techniques to stabilize soil; plant trees to create shaded areas for public**

Participating Jurisdiction	City of Red Oak
Priority:	12
Estimated Cost:	\$100,000
Estimated Benefit:	\$600,000
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
**Earthquakes, Expansive Soils**

**Action: Install seismic shutoff valves on critical gas lines to automatically shut off gas supply during earthquakes and expansive soils related disasters, reducing the risk of fire and gas leaks. Conduct regular maintenance and testing of these valves to ensure they are functioning properly.**

Participating Jurisdiction	City of Red Oak
Priority:	13
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**Drought, Earthquakes, Expansive Soils, Extreme Heat, Flooding, Winter Storms**

**Action: Ensure new and existing utilities are strengthened and reinforced with insulation and flex piping to prevent disruption in services during disasters.**

Participating Jurisdiction	City of Red Oak
Priority:	14
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
**All Hazards**

**Action: Incorporate nature-based, green infrastructure throughout the planning area, where applicable.**

Participating Jurisdiction	City of Red Oak
Priority:	15
Estimated Cost:	\$20,000

Estimated Benefit:	\$1.2M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

## City of Waxahachie Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
<b>Deferred to 2022 HMP</b>	Develop and implement a comprehensive public education program
<b>Deferred to 2022 HMP</b>	Purchase and implement telephone-based notification system
<b>Deferred to 2022 HMP</b>	Expand outdoor warning systems to new developments
<b>Deferred to 2022 HMP</b>	Apply for grants to install safe rooms to reduce the injuries and deaths to citizens associated with high winds and debris from a tornado or severe weather event.
<b>Deferred to 2022 HMP</b>	Install public accessible safe rooms in new construction city facilities to reduce the injuries and deaths to citizens associated with high winds and debris from a tornado or severe weather event.
<b>Deferred to 2022 HMP</b>	Assist citizens with funding for purchase of Weather Alert Radios.
<b>Deferred to 2022 HMP</b>	Develop public education campaign to encourage “hail resistant” roofing in new construction and roof replacements.
<b>Deferred to 2022 HMP</b>	Develop public education concerning winter storm mitigation.
<b>Deferred to 2022 HMP</b>	Determine how the community and its water sources have been impacted by droughts in the past.
<b>Deferred to 2022 HMP</b>	Improve water supply and delivery systems to save water by installing new water delivery system to eliminate breaks and leaks.
<b>Deferred to 2022 HMP</b>	Design and implement specific water conservation public education efforts to complement existing programs.
<b>Deferred to 2022 HMP</b>	Development and implement wildfire mitigation public education program
<b>Deferred to 2022 HMP</b>	Conduct earthquake study to assess potential for earthquakes and their impacts
<b>Deferred to 2022 HMP</b>	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
<b>Deferred to 2022 HMP</b>	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
<b>Deferred to 2022 HMP</b>	Mitigate hazard of dam failure at South Prong Dam and emergency spillway



**Hazard(s) Addressed:**  
All Hazards

**Action: Assist homeowners with application and implementation of residential mitigation projects.**

Participating Jurisdiction	City of Waxahachie
Priority:	1
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Flooding

**Action: Participate in the National Flood Insurance Program (NFIP).**

Participating Jurisdiction	City of Waxahachie
Priority:	2
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months




**Hazard(s) Addressed:**  
All Hazards


**Action: Acquire and install generators, the generator connections/infrastructure, proper mounting system, security barriers, and fuel reservoir for existing and future critical facilities to prevent power failure in the event of a disaster and to continue essential duties.**


Participating Jurisdiction	City of Waxahachie
Priority:	3
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	Grants, general fund




Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>Earthquakes, Flooding, Wildfires</b>	
<b>Action: Update land use planning, using zoning maps &amp; regulations, to prevent future residential development in floodplains and other hazard-prone areas and place requirements on development methods.</b>	
Participating Jurisdiction	City of Waxahachie
Priority:	4
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Maintain fuel on-site or have multiple ways to obtain fuel for maintaining power during a power outage from an event.</b>	
Participating Jurisdiction	City of Waxahachie
Priority:	5
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Adopt and enforce most current building codes.</b>	
Participating Jurisdiction	City of Waxahachie
Priority:	6


Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Update codes, policies, and regulations to address risks and vulnerabilities to hazards.</b>	
Participating Jurisdiction	City of Waxahachie
Priority:	7
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Retrofit existing and future government-owned facilities to withstand all hazards.</b>	
Participating Jurisdiction	City of Waxahachie
Priority:	8
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Educate the public on their risks to our hazards, and mitigation actions to take, using various outreach methods.</b>	

Participating Jurisdiction	City of Waxahachie
Priority:	9
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: Flooding</b>	
<b>Action: Buyout or relocate SRL, RL, and other vulnerable structures within or near a floodplain or dam spillway.</b>	
Participating Jurisdiction	City of Waxahachie
Priority:	10
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed: Flooding</b>	
<b>Action: Educate the public on NFIP policies and their flood risks from various flood sources (bodies of water, dams, flash flooding).</b>	
Participating Jurisdiction	City of Waxahachie
Priority:	11
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Incorporate nature-based, green infrastructure throughout the planning area, where applicable.**

Participating Jurisdiction	City of Waxahachie
Priority:	12
Estimated Cost:	\$20,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
Wildfires

**Action: Create defensible space around existing and future development in the WUI.**

Participating Jurisdiction	City of Waxahachie
Priority:	13
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months




**Hazard(s) Addressed:**  
All Hazards

**Action: Work with neighboring communities on multi-jurisdictional mitigation projects and studies.**


Participating Jurisdiction	City of Waxahachie
Priority:	14
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works

Implementation Schedule:	36 months
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 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Conduct hazard studies in planning area and surrounding jurisdictions, to address data deficiencies and to update our risk assessment.</b>	
Participating Jurisdiction	City of Waxahachie
Priority:	15
Estimated Cost:	\$70,000
Estimated Benefit:	\$420,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months

## Ellis County Unincorporated Mitigation Action Items

STATUS	2015 MITIGATION ACTIONS
Ongoing	Develop and implement a comprehensive public education program
Deferred to 2022 HMP	Develop and implement a drought mitigation plan
Deleted – no longer a priority	Purchase and distribute hail and wind resistant window coverings to vulnerable populations.
Deferred to 2022 HMP	Develop and implement storm water drainage system for new development
Deferred to 2022 HMP	Equip and implement county facilities as “warming and cooling centers” for affected populations.
Deferred to 2022 HMP	Partner with the Texas Fire Service in creating “Firewise” Communities in Ellis County.
Deleted – No longer a priority	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Deferred to 2022 HMP	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Deferred to 2022 HMP	Protect Critical Infrastructure by Installing Lightning Rods
Ongoing	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.

 <b>Hazard(s) Addressed: All Hazards</b>	
<b>Action: Install back-up emergency generators and automatic transfer switches (UPS systems) in new and existing county facilities that house critical infrastructure, personnel, and equipment to include existing and new county facilities. (Emergency generator, electrician costs, transfer switches, status monitors, wiring for facilities).</b>	
Participating Jurisdiction	Ellis County Unincorporated
Priority:	1
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund
Lead Agency/Department Responsible:	County Commissioners, Emergency Management
Implementation Schedule:	12 months



**Hazard(s) Addressed:**  
**All Hazards**

**Action: Retrofit existing and future county buildings with community safe rooms.**

Participating Jurisdiction	Ellis County Unincorporated
Priority:	2
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2 M
Potential Funding Source(s):	Community Development Block Grant, FEMA Hazard Mitigation Grant Program, General Funds
Lead Agency/Department Responsible:	Emergency Management, County Engineer, County Commissioners
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
**All Hazards**

**Action: Add grant management/mitigation staff to ensure all Hazard Mitigation Actions are carried out and fulfilled.**

Participating Jurisdiction	Ellis County Unincorporated
Priority:	3
Estimated Cost:	\$65,000
Estimated Benefit:	\$390,000
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program, General Funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	6 months





**Hazard(s) Addressed:**  
**All Hazards**

**Action: Incorporate elevated water storage in underserved areas.**

Participating Jurisdiction	Ellis County Unincorporated
Priority:	4
Estimated Cost:	\$2M
Estimated Benefit:	\$12M

Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program, General Funds
Lead Agency/Department Responsible:	County Engineer, Emergency Management, County Commissioners
Implementation Schedule:	24 months


 <b>Hazard(s) Addressed:</b> <b>Expansive Soils</b>	
<b>Action: Road improvements to county roads that would combat the effects of expansive soils.</b>	
Participating Jurisdiction	Ellis County Unincorporated
Priority:	5
Estimated Cost:	\$8M
Estimated Benefit:	\$48M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program
Lead Agency/Department Responsible:	County Commissioners, County Engineer
Implementation Schedule:	36 months


 <b>Hazard(s) Addressed:</b> <b>Winter Storms</b>	
<b>Action: Have deicing equipment and supplies readily available to precincts in the event of winter weather.</b>	
Participating Jurisdiction	Ellis County Unincorporated
Priority:	6
Estimated Cost:	\$500,000
Estimated Benefit:	\$3,000,000
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund
Lead Agency/Department Responsible:	County Commissioners, Emergency Management
Implementation Schedule:	36 months

 <b>Hazard(s) Addressed:</b> <b>Flooding</b>	
<b>Action: Clean ditches and remove obstructions from culverts to provide unobstructed flow of runoff</b>	



<b>water.</b>	
Participating Jurisdiction	Ellis County Unincorporated
Priority:	7
Estimated Cost:	\$350,000
Estimated Benefit:	\$2,100,000
Potential Funding Source(s):	County General Fund
Lead Agency/Department Responsible:	County Commissioners
Implementation Schedule:	24 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Incorporate nature-based, green infrastructure throughout the planning area, where applicable.</b>	
Participating Jurisdiction	Ellis County Unincorporated
Priority:	8
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program, General Funds
Lead Agency/Department Responsible:	County Commissioners, County Engineer
Implementation Schedule:	24 months

 <b>Hazard(s) Addressed:</b> <b>All Hazards</b>	
<b>Action: Conduct hazard studies in planning area and surrounding jurisdictions, to address data deficiencies and to update our risk assessment.</b>	
Participating Jurisdiction	Ellis County Unincorporated
Priority:	9
Estimated Cost:	\$100,000
Estimated Benefit:	\$600,000
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program, General Funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	12 months



**Hazard(s) Addressed:**  
Wildfires

**Action: Address fire mitigation through access, signage, fire hydrants, water availability, vegetation management, and special building construction standards in new communities.**

Participating Jurisdiction	Ellis County Unincorporated
Priority:	10
Estimated Cost:	\$800,000
Estimated Benefit:	\$4.8 M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program, General Funds
Lead Agency/Department Responsible:	Emergency Management, County Commissioners, County Fire Marshal
Implementation Schedule:	36 months



**Hazard(s) Addressed:**  
All Hazards

**Action: Installing quick-connect emergency generator hook-ups for critical facilities**

Participating Jurisdiction	Ellis County Unincorporated
Priority:	11
Estimated Cost:	\$300,000
Estimated Benefit:	\$1.8M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program, General Funds
Lead Agency/Department Responsible:	County Engineer, Emergency Management, County Commissioners
Implementation Schedule:	24 months




**Hazard(s) Addressed:**  
Drought, Expansive Soils, Extreme Heat, Flooding

**Action: Use Smartscape in existing and new developments landscapes; implement landscape techniques to stabilize soil; plant trees to create shaded areas for public**

Participating Jurisdiction	Ellis County Unincorporated
Priority:	12
Estimated Cost:	\$100,000
Estimated Benefit:	\$600,000


Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program, General Funds, Property Owners
Lead Agency/Department Responsible:	County Engineer, Department of Development, County Commissioners
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
Drought, Earthquakes, Expansive Soils, Extreme Heat, Flooding, Winter Storms

**Action: Ensure new and existing utilities are strengthened and reinforced with insulation and flex piping to prevent disruption in services.**

Participating Jurisdiction	Ellis County Unincorporated
Priority:	13
Estimated Cost:	\$500,000
Estimated Benefit:	\$3M
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program, General Funds, Property Owners
Lead Agency/Department Responsible:	County Engineer, Department of Development, County Commissioners
Implementation Schedule:	24 months



**Hazard(s) Addressed:**  
All Hazards


**Action: Work with neighboring communities on multi-jurisdictional mitigation projects and studies.**

Participating Jurisdiction	Ellis County Unincorporated
Priority:	14
Estimated Cost:	\$100,000
Estimated Benefit:	\$600,000
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program, General Funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	12 months



**Hazard(s) Addressed:**  
All Hazards

<b>Action: Educate the public on their risks to our hazards, and mitigation actions to take, using various outreach methods.</b>	
Participating Jurisdiction	Ellis County Unincorporated
Priority:	15
Estimated Cost:	\$50,000
Estimated Benefit:	\$300,000
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund
Lead Agency/Department Responsible:	Emergency Management, Public Information Officer
Implementation Schedule:	12 months

 <b>Hazard(s) Addressed: Flooding</b>	
<b>Action: Adopt, implement, participate, and promote the National Flood Insurance Program.</b>	
Participating Jurisdiction	City of Palmer
Priority:	16
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	FEMA Hazard Mitigation Grant Program (HMGP), General Fund
Lead Agency/Department Responsible:	Emergency Management, Public Information Officer
Implementation Schedule:	36 months

## 4.5 Incorporation into Existing Planning Mechanisms

Based on Requirement 201.6(c)(4(ii) and the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for the town were carefully reviewed and considered when developing the mitigation actions for this plan. The Local Planning Team (LPT) will establish a process in which the mitigation strategy, goals, objectives, and actions outlined in this plan will be incorporated into the existing local planning strategies. At this time, the HMP has not been formally integrated into existing planning mechanisms.

Once the plan is adopted, the LPT will coordinate implementation with the responsible parties in the town, as well as external stakeholders as needed.

The following steps will be taken in implementing this HMP into local plans:

1. Change is proposed by an elected official or other interested party.
2. Proposal is placed on the local agenda of the governing body.

3. Agenda is published at least 10 days in advance of the meeting at which it will be discussed, so members of the public have an opportunity to attend the discussion meeting. Publication may be made by posting the agenda on the city’s website, in the city newsletter, or on a public bulletin board.
4. Proposal is discussed at the planning meeting, including any comments by members of the public attendance.
5. Proposal is voted on by the governing body.
6. If the proposal is passed, the change is implemented by the appropriate party.

Planning mechanisms in which the HMP will be integrated are listed below.

Jurisdiction	Type of Plan or Activity	Department Responsible	Update Schedule	Actions to be Integrated
Alma	Ellis County Emergency Management Plan	Emergency Management	Every 5 Years	Hazard Identification and Risk Assessment, Mitigation Strategies
Bardwell	Comprehensive Plan	City Administration	Annually	Reference this HMP when developing the plan.
Ennis	Comprehensive Plan	City Administration	Annually	Reference this HMP when developing the plan.
Ennis	Emergency Operations Plan	Office of Emergency Management	Annually	
Ferris	Capital Improvement Plan	City Administration	Annually	Reference this HMP when developing the plan.
Ferris	Comprehensive Plan	Planning, Zoning, and Public Works Departments	Annually	Reference this HMP when developing the plans for critical infrastructure and resources.
Ferris	Operational Plan	Fire Department	Annually	Reference this HMP and incorporate actions as City of Ferris continues to grow.
Ferris	Master Plan	Building Department, Planning & Zoning, Public Works	Annually	Reference this HMP.
Garrett	Comprehensive Plan	City Administration	Annually	Reference this HMP when developing the plan.
Italy	Comprehensive Plan	Planning, Zoning, and Public Works Departments	Annually	
Italy	Emergency Operations Plan	City Administration		

Jurisdiction	Type of Plan or Activity	Department Responsible	Update Schedule	Actions to be Integrated
Maypearl	Comprehensive Development Plan	City Administration	As needed	
Midlothian	Comprehensive Plan	City Administration	Annually	Reference this HMP when developing the plan.
Milford	Comprehensive Plan	City Administration	Annually	Reference this HMP when developing the plan.
Oak Leaf	Comprehensive Plan	City Administration	Annually	Reference this HMP when developing the plan.
Palmer	Comprehensive Plan	City Administration	Annually	Reference this HMP when developing the plan.
Red Oak	Comprehensive Plan	City Administration	Annually	Reference this HMP when developing the plan.
Waxahachie	Comprehensive Plan	City Administration	Annually	Reference this HMP when developing the plan.
Unincorporated Ellis	Emergency Operations Plan	Emergency Management	Annually	The HMP will be referenced when updating annexes to the EOP.

Although it is recognized that there are many possible benefits to integrating components of this Hazard Mitigation Plan (HMP) into other planning mechanisms, the participating jurisdictions consider this HMP, including development and maintenance, to be the primary vehicle to ensure implementation of local hazard mitigation actions.

# Chapter 5: Conclusion

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Through the development of this plan, Ellis County has developed a thorough hazard history, an inventory of critical facilities, and an assessment of their current capabilities. This data, when used in conjunction with the updated information about hazard threats and vulnerabilities, will prove to be invaluable to Ellis County and its participating jurisdictions.

Natural hazards have been identified county-wide and technological hazards have been listed for selected jurisdictions that opted to include these hazards. Mitigation projects that could reduce the risk of lives and property due to the identified threats have been compiled and prioritized.

The creation of the Ellis County Hazard Mitigation Planning Team (HMPT) brought together stakeholders from communities and organizations onto one planning team. This group has been able to work together effectively and efficiently to produce this document and establish a greater awareness of risks and mitigation strategies.

In addition to the HMPT, the creation of the Local Planning Team (LPT) in each jurisdiction brought together stakeholders and departments within the jurisdiction onto one planning team. This group was able to work together effectively and efficiently to produce jurisdictional data for this document and establish a greater awareness of risks and mitigation strategies.

This plan will continue to evolve as necessary to properly represent the threats and vulnerabilities affecting Ellis County. Continued public participation is encouraged and will continue through the ongoing multijurisdictional hazard mitigation process. The plan, in its entirety (not limited to but including development, public participation, hazard identification, and mitigation actions), will continue to be monitored and evaluated.

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# Appendix A: Maps & Tables

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This appendix contains each participating jurisdiction's maps and Critical/Vulnerable Facilities & Infrastructure tables.

## City of Alma

At Risk To: (X for Yes)									City of Alma Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
	x	x	x	x	x	x	x	x	Alma Community Center City of Alma Municipal Administrative Offices – City Hall 469-881-1405	104 Interurban Rd.
	x	x	x	x	x	x	X	x	Alma Volunteer Fire Department 972-875-6832	104 B Interurban Rd.
	x	x	x	x	x	x	x	x	Alma Police Department 469-881-1406	104 Interurban Rd.
	X	x	X	X	X	X	x	x	Alma Lift Station	121 Main St.
	X	x	X	X	X	X	x	x	Alma Municipal Court 469-456-0403	104 Interurban Rd.
X	X	X	X	X	X	X	x	x	Interstate 45 (owned by TxDOT)	

## City of Bardwell

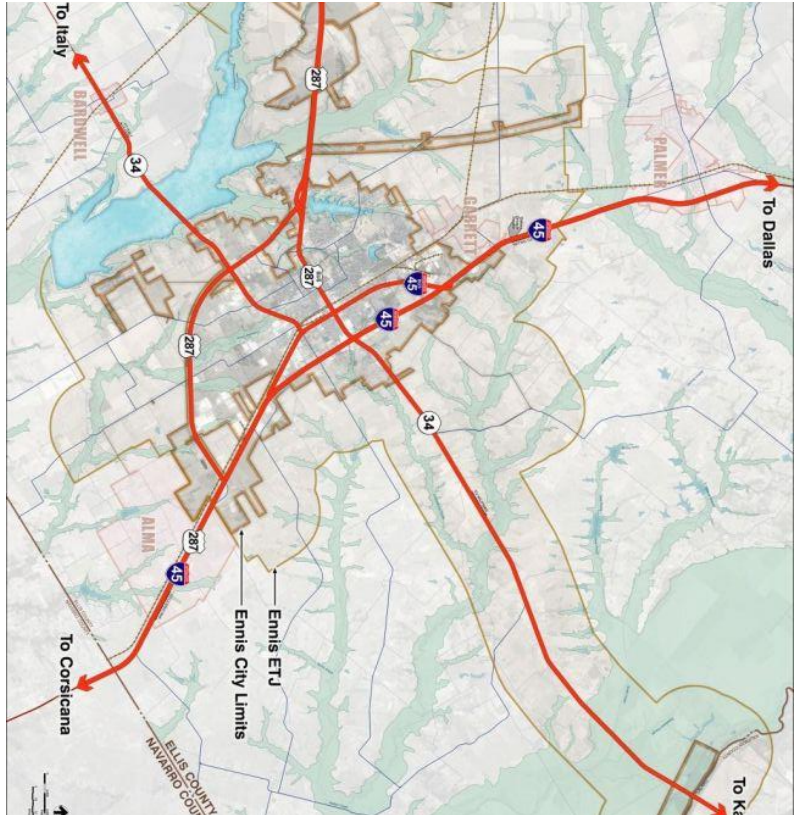
At Risk To: (X for Yes)									City of Alma Critical and Vulnerable Facility and Infrastructure Table	

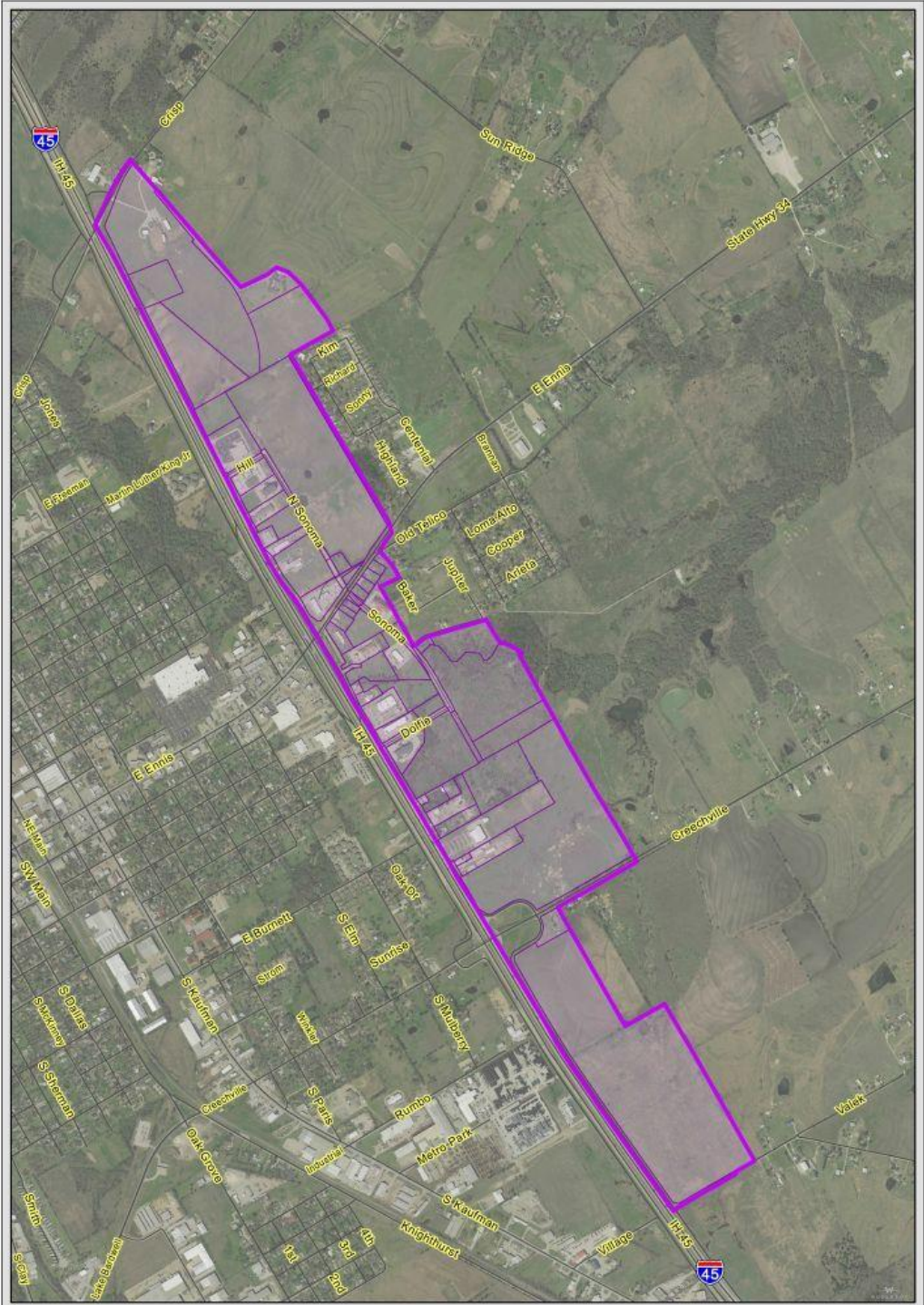
										<b>Name or Description</b>	<b>Address</b>
	X	X	X	X	X	X	X	X	X	Bardwell Food Market	400 Sycamore
	X	X	X	X	X	X	X	X	X	Helena Chemical Co	
	X	X	X	X	X	X	X	X	X	Scrappy's Recycling Center	5545 TX-34
	X	X	X	X	X	X	X	X	X	DCI Sanitation	101 Planter Gin Rd.
	X	X	X	X	X	X	X	X	X	Ashcraft Beef	101 Front St
	X	X	X	X	X	X	X	X	X	First Baptist Church of Bardwell	204 Beulah St.

## City of Ennis

At Risk To: (X for Yes)									<b>City of Ennis Critical and Vulnerable Facility and Infrastructure Table</b>		
										<b>Name or Description</b>	<b>Address</b>
									X	Fire Station #2	901 MLK
									X	Library	501 W Ennis Ave
									X	Bluebonnet Rehab	2300 Oak Grove
									X	Ennis Care Center	1200 Hall
									X	Legend Oaks	1400 Medical Center
									X	Brookdale Living	2500

At Risk To: (X for Yes)								City of Ennis Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
										Yorkstown
						X			Bluebonnet Mobile Home Park	101 Lilac
						X			La Casa Mobile Home Park	1100 Smith
						X		X	Waste Water Plant	401 Plant Road
						X		X	Water Treatment Plant	4100 Beach
				X		X			Jeff's RV Park	401 North IH45
						X		X	City Hall	115 West Brown
						X		X	Welcome Center	201 NW Main
						X		X	Ennis Regional	2203 West Lampasas
						X		X	Ennis High School	1405 Lake Bardwell
						X		X	Ennis Junior High School	3101 Ensign
						X		X	Elementary Schools	1501 Austin
						X		X	Pre K – Kindergarten Schools	600 MLK
						X		X	Intermediate Schools	501 North Clay





### City of Ennis - TIRZ #2 (East IH-45)



SCALE IN FEET



TIRZ #2 Boundary

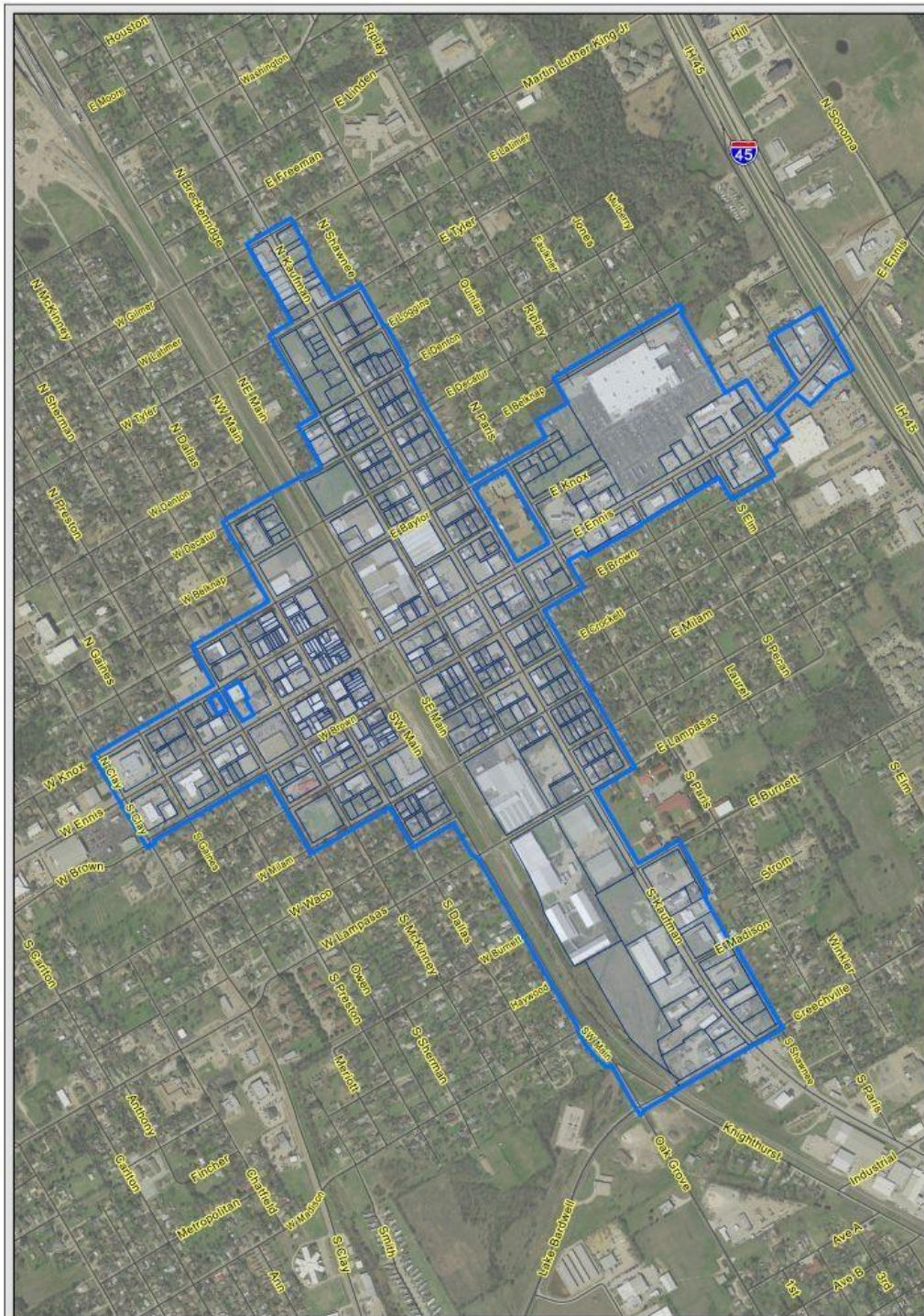


TIRZ #2 Parcels



Aerial Imagery Source: Woolpert/2017

Exhibit Creation Date: 10/24/2017



**City of Ennis - TIRZ #1 (Downtown)**



TIRZ #1 Boundary

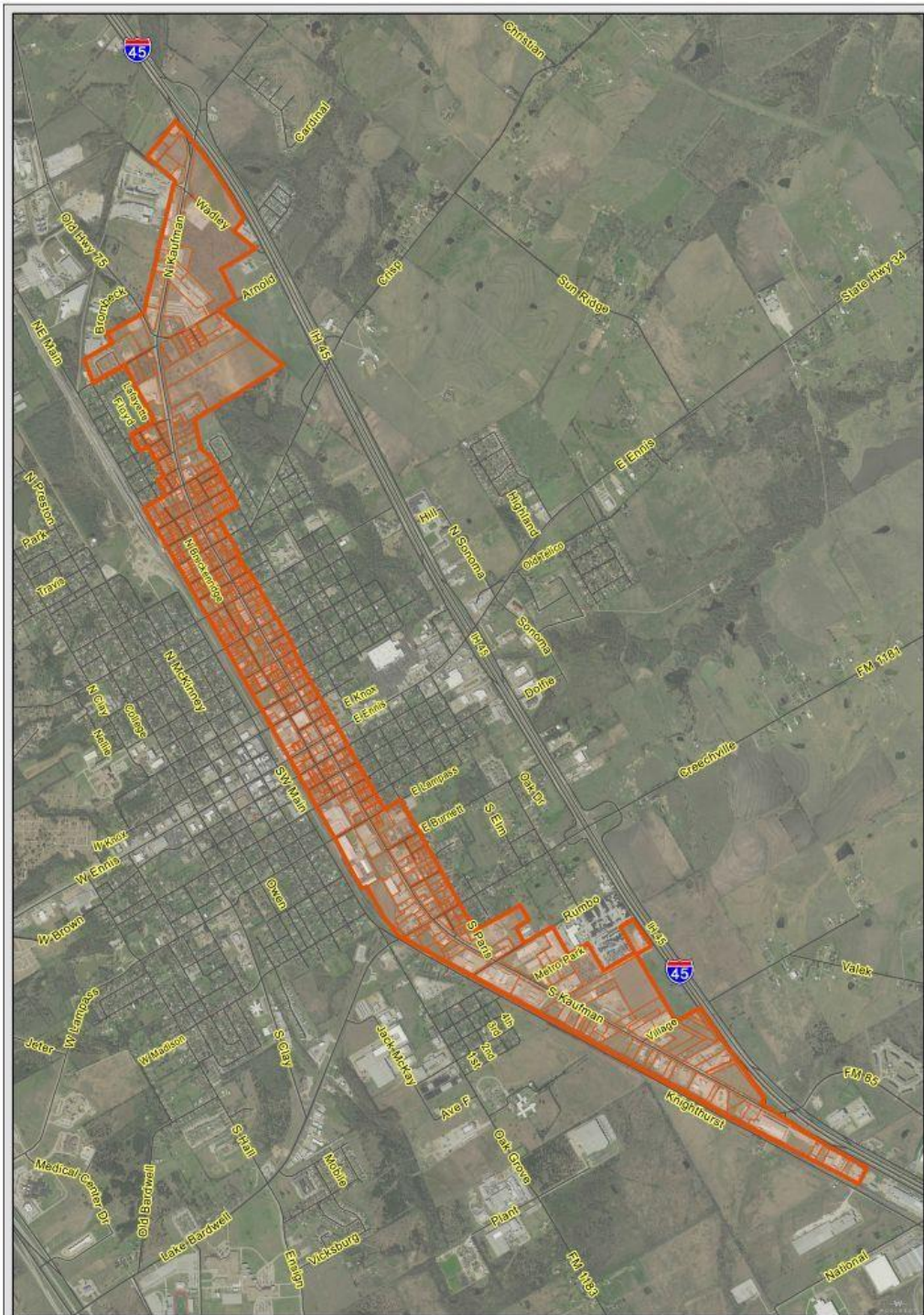


TIRZ #1 Parcels

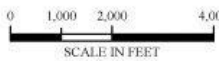


Aerial Imagery Source: Woolpert/2017

Exhibit Creation Date: 10/24/2017



### City of Ennis - Kaufman Development District



Kaufman Development District Boundary



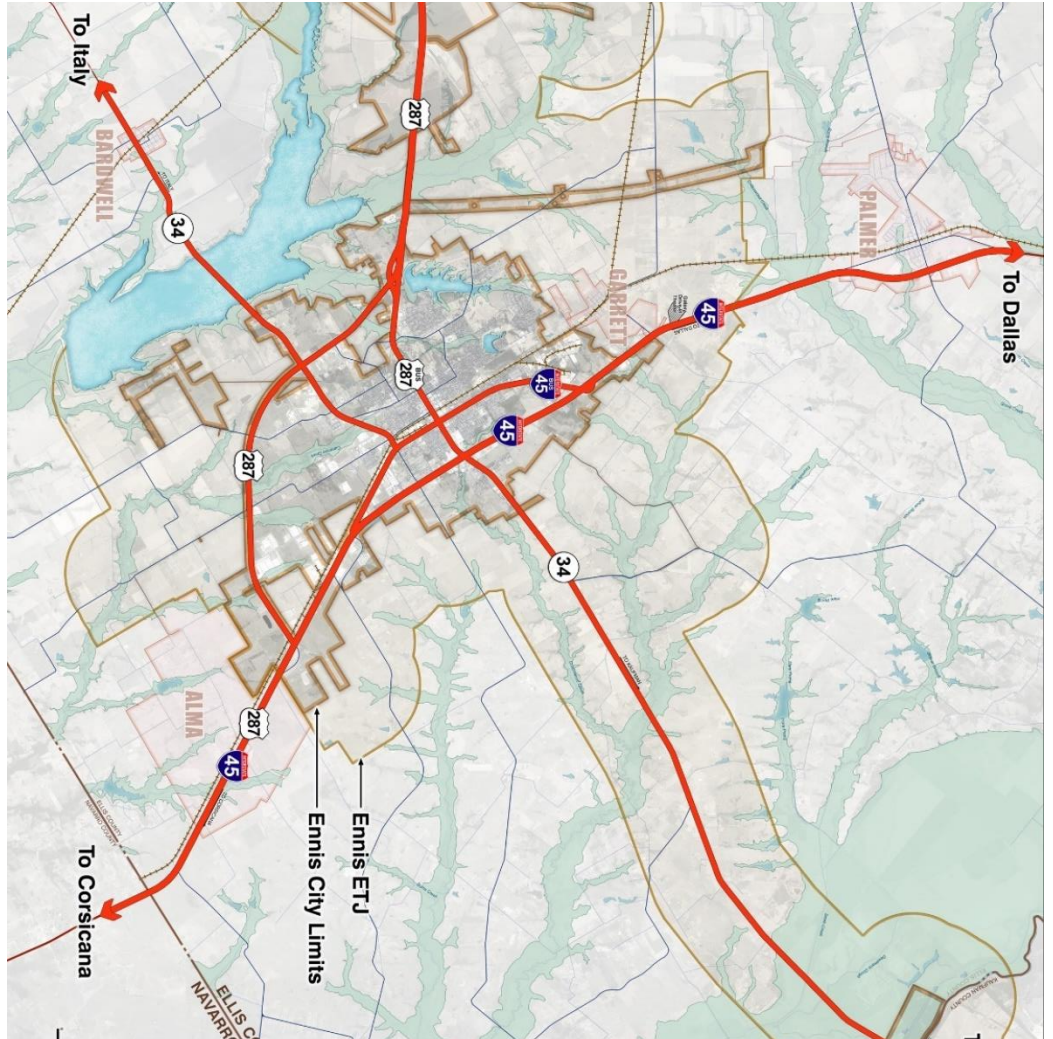
Kaufman Development District Parcels



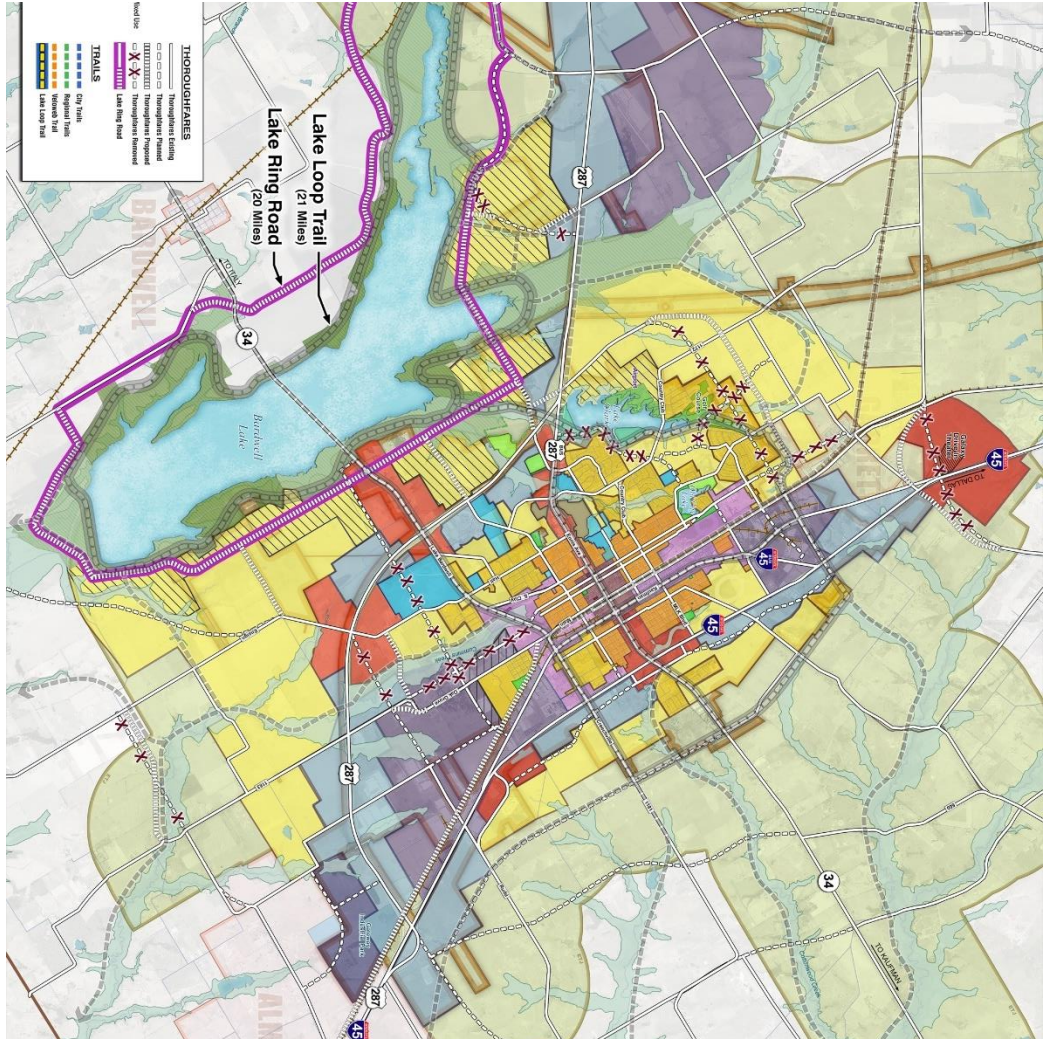
Aerial Imagery Source: Woolpert/2017

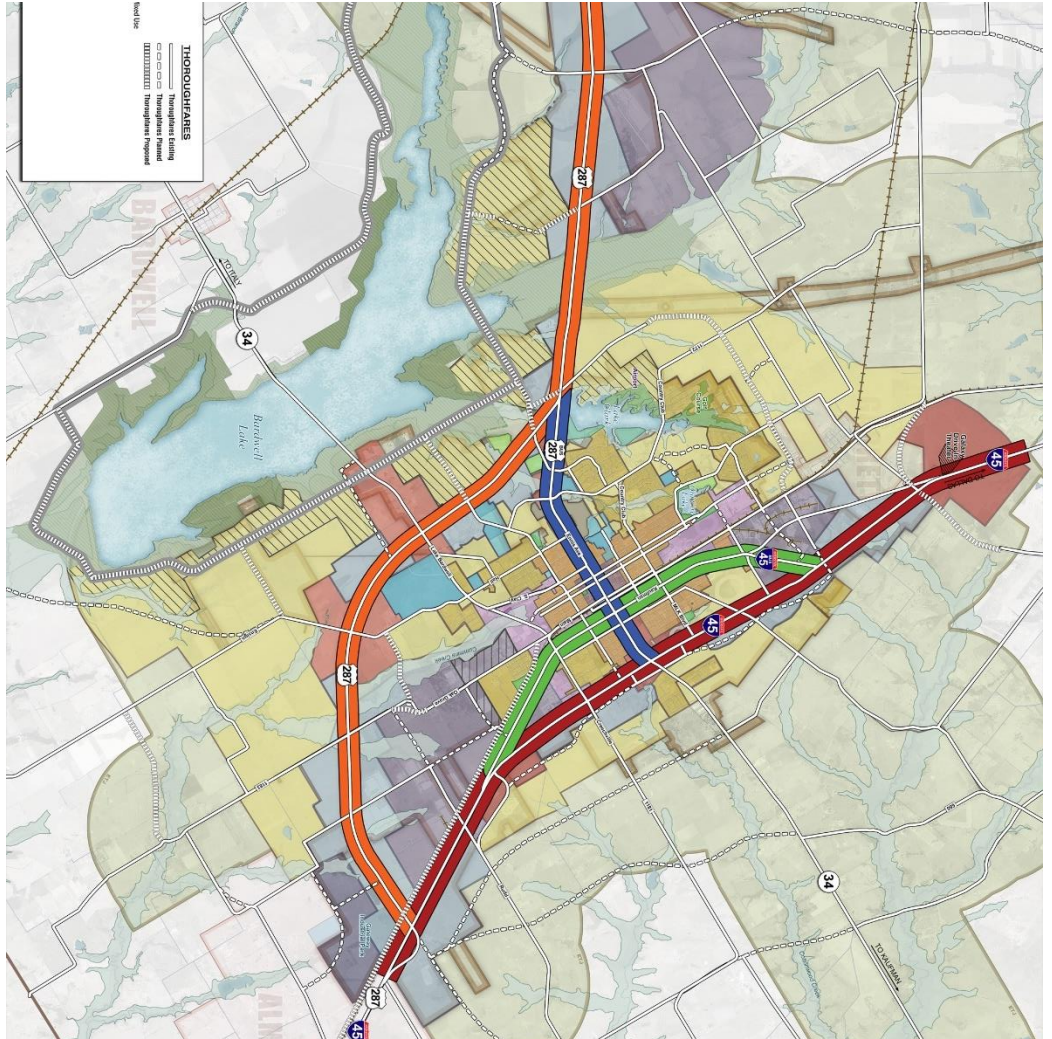
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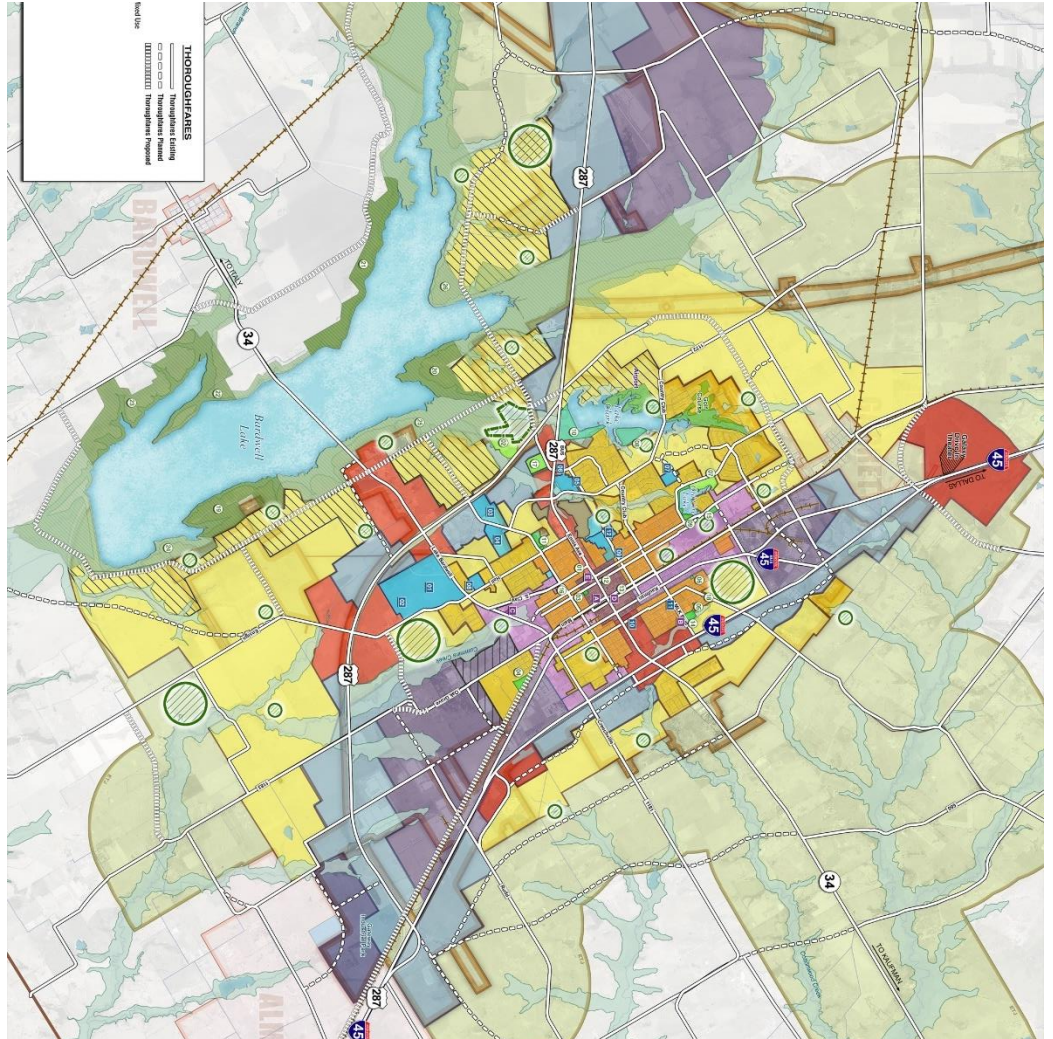


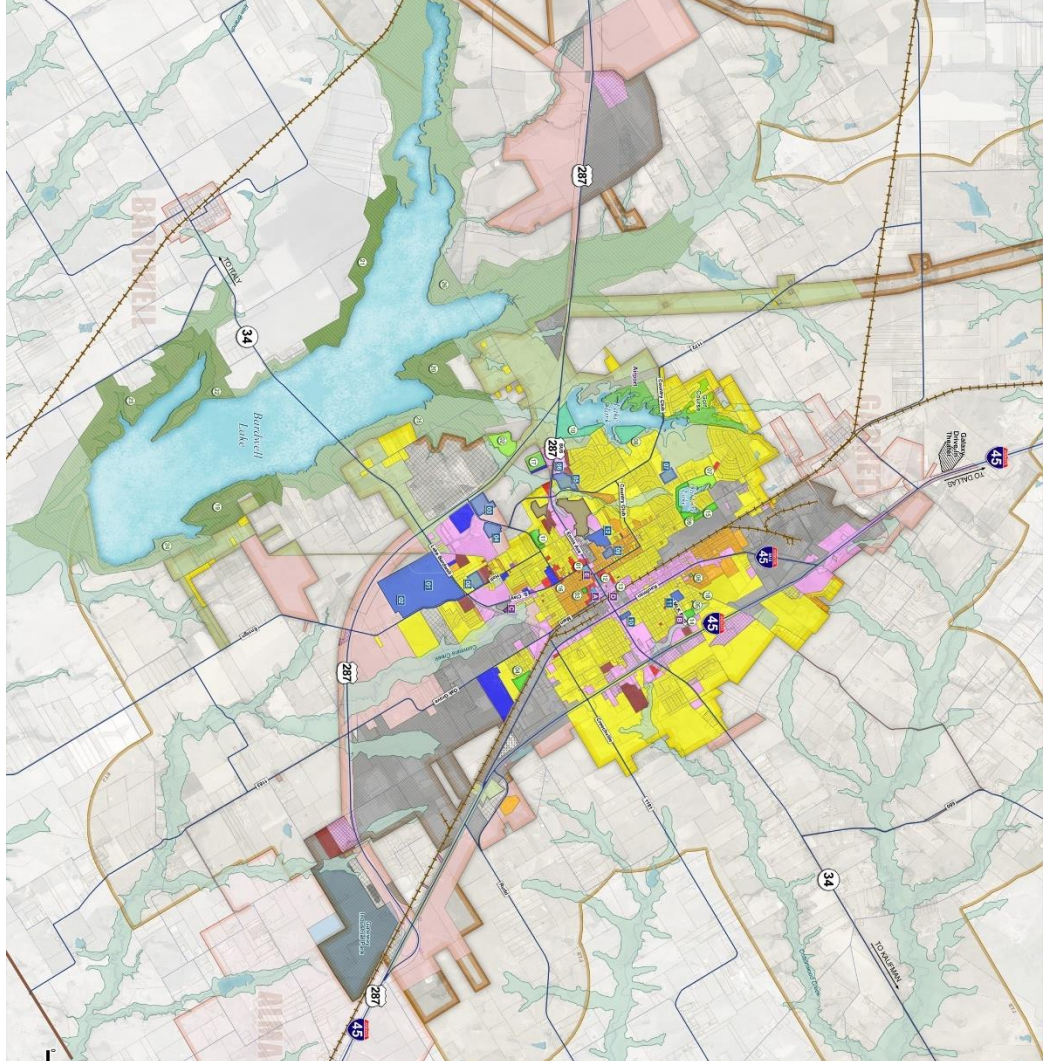












## City of Ferris

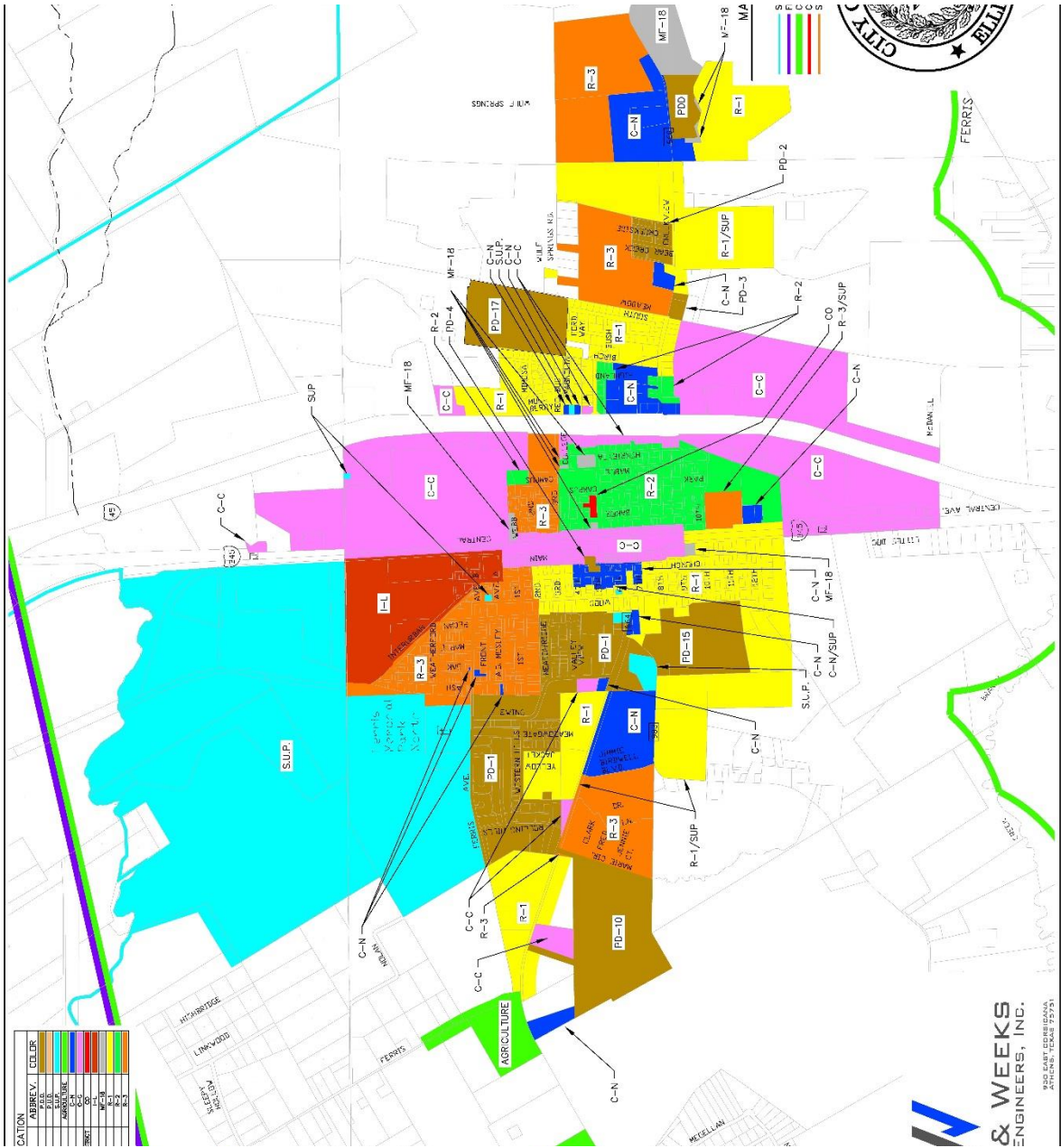
At Risk To: (X for Yes)							City of Ferris Critical and Vulnerable Facility and Infrastructure Table			
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
			X		X	X	X	X	Ferris Fire Department	111 Ewing Blvd.
			X		X	X	X	X	Ferris Police Department	111 Ewing Blvd.
			X		X	X	X	X	Ferris ESD Building (Houses	101 Ewing Blvd.

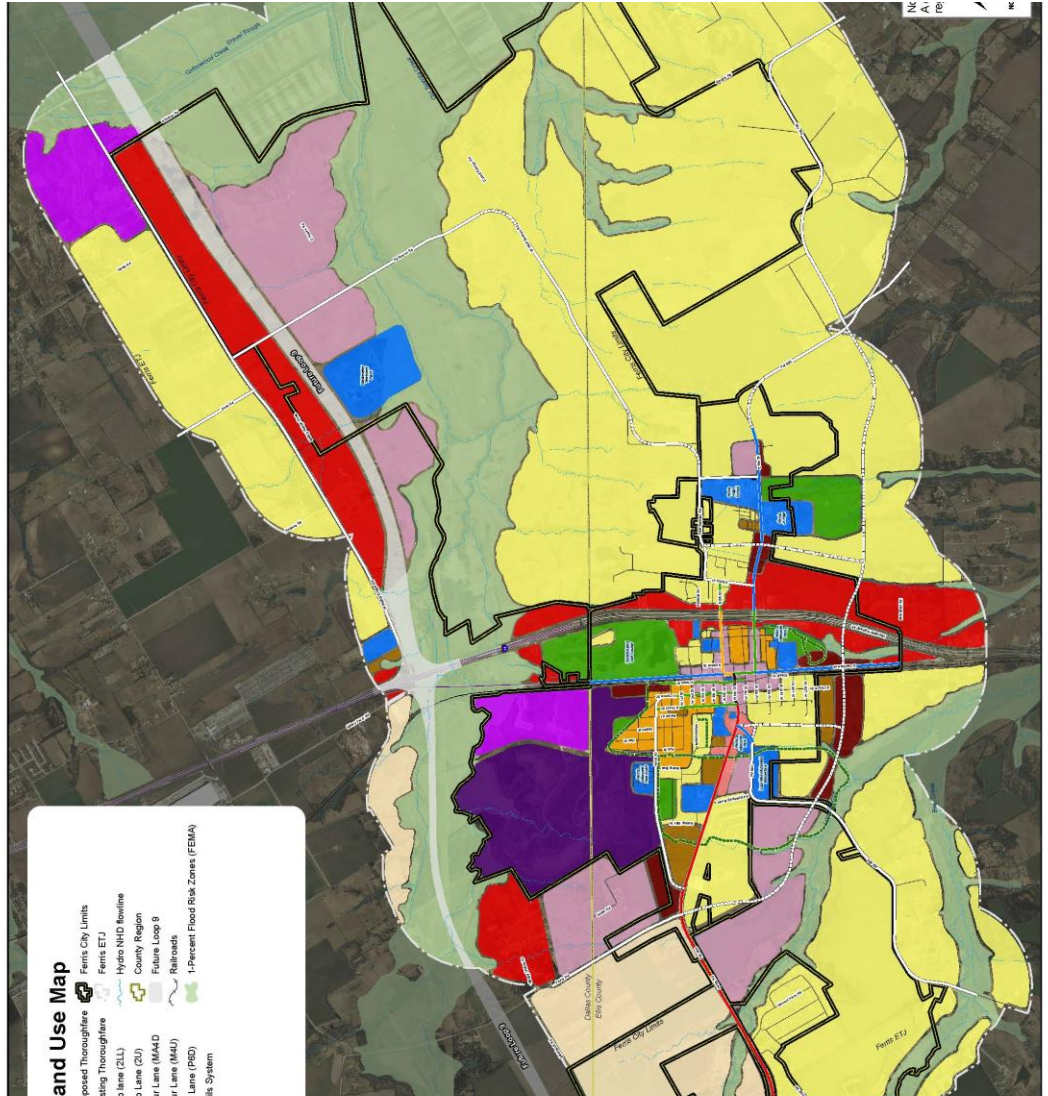
At Risk To: (X for Yes)								City of Ferris Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
									department equipment and Careflite)	
			x		x	x		x	Old Ferris Fire Station (Houses department equipment)	203 S. Church
			x		x	x		x	Commercial State Bank	200 N. I.45
			x		x	x		x	EZ Mart	100 N. Central
			x		x	x		x	Valero	1050 N. I-45
			x		x	x		x	City Hall	101 S. Main
			x		x	x		x	Council Chambers/Courts	215 W. 6 <sup>th</sup> St.
			x		x	x		x	Waste Management	1201 N. Central
			x		x	x		x	ATCO	601 S. I-45
			x		x	x		x	Ferris Family Medicine	207 W. 5 <sup>th</sup>
			x		x	x		x	Cardio Vascular Health Solutions	201 W. 5th
			x		x	x		x	U.S. Drug Mart	103. S. Main
			x		x	x		x	Wester Hills Water Tower	1082 Western Hills
			x		x	x		x	I-45 Water Tower	N I-45 Service Road
			x		x	x		x	Danny's Automotive	110 N. Central
			x		x	x		x	R&W Automotive	401. S. Main
			x		x	x		x	Western Hills Apartments	100 Ewing Blvd.
			x		x	x		x	Bear Creek Apartments	311 Bear Creek Dr.

At Risk To: (X for Yes)									City of Ferris Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
			X		X	X		X	Ferris Christian Academy	425 W. 6 <sup>th</sup> St.
			X		X	X		X	Country School	100 N I-45
			X		X	X		X	Ferris Street Church of Christ	509 Ferris Rd.
			X		X	X		X	Methodist Church	109 Church St.
			X		X	X		X	First Baptist Church	304 W. 5 <sup>th</sup>
			X		X	X		X	Covenant Church	959 FM 664
			X		X	X		X	The Church at Texas	2475 S I-45
			X		X	X		X	God's Kingdom United Methodist Church	701 A D Mosely Church
			X		X	X		X	First United Methodist Church	101 Redbud St.
			X		X	X		X	Iglesia Bautista La Fe	201 E. 8th
			X		X	X		X	Centro De Avivamiento Christian El Libano	209 S. Church
			X		X	X		X	Lighthouse Church of God	708 N. Wood
			X		X	X		X	Greater Mt. Rose Primitive Baptist	708 Ferris Rd.
			X		X	X		X	Corpus Christi Catholic Parish	111 N. Wood
			X		X	X		X	Ferris Baptist Fellowship	809 E. 8 <sup>th</sup>
			X		X	X		X	First Presbyterian Church of Ferris	205 N. Church
			X		X	X		X	Scout House	514 Mable St.
			X		X	X		X	Ferris Senior Citizens Center	603 N. Church St.



At Risk To: (X for Yes)									City of Ferris Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
			X		X	X		X	Ferris Public Library	301 E. 10th
			X		X	X		X	Ferris ISD Administration Building.	301 E. 5 <sup>th</sup>
			X		X	X		X	Ingram Elementary School	600 S. Central
			X		X	X		X	Ferris Intermediate School	601 FM664
			X		X	X		X	Luce Mae McDonald Elementary School	500 FM 983
			X		X	X		X	Ferris High School	1025 E. 8th
			X		X	X		X	Ferris Junior High	1002 E. 8 <sup>th</sup>
			X		X	X		X	Training Academy 4 U	213A W. 6 <sup>th</sup> Street
			X		X	X		X	5 <sup>th</sup> Street I-45 Bridge	5 <sup>th</sup> & I-45
			X		X	X		X	8 <sup>th</sup> Street I-45	8 <sup>th</sup> & I-45
			X		X	X		X	Park USA	1200 N. I-45
			X		X	X		X	Brookshire Brothers	610 S. Central St.
			X		X	X		X	Mi Tienda Carniceria & Café	507 S. Main St.
			X		X	X		X	Ferris Food Mart	1050 N. I-45
			X		X	X		X	Family Dollar	460 FM664
			X		X	X		X	Dollar General	620 S. Central
			X		X	X		X	Frontier Communications	306 W. 6th
			X		X	X		X	Union Pacific Railroad	Parallel to Central St.

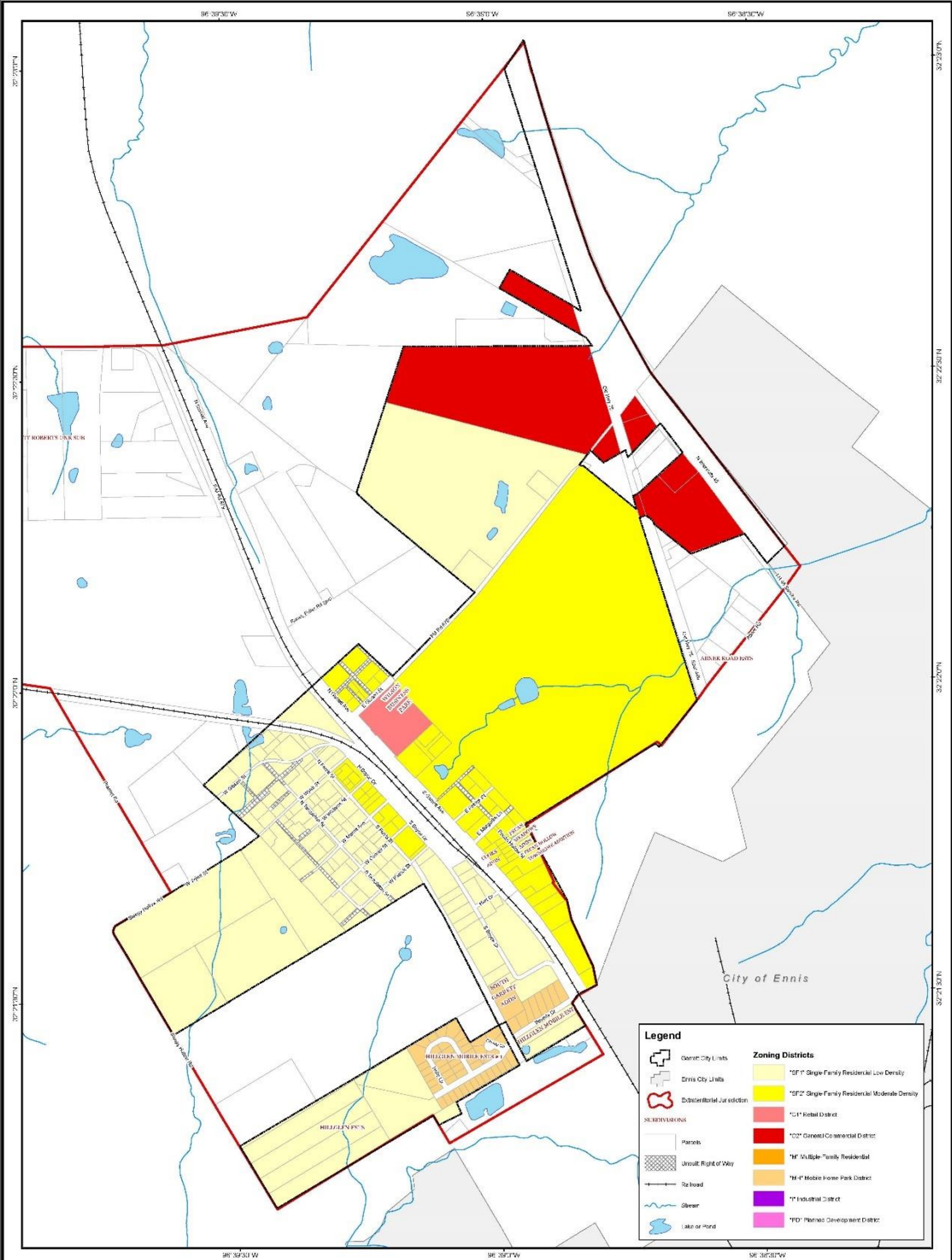




## City of Garrett

At Risk To: (X for Yes)		City of Garrett Critical and Vulnerable Facility and Infrastructure Table									
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
					X	X		X	Government Offices	208 N. Ferris	8
					X	X		X	Police Station	208 N. Ferris	4

At Risk To: (X for Yes)								City of Garrett Critical and Vulnerable Facility and Infrastructure Table			
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
					X	X		X	Lift Station	W. Wyatt	N/A
					X	X		X	Lift Station	Pecan Hollow	N/A
					X	X		X	Lift Station	Gibson	N/A
					X	X		X	Garrett Baptist Church	403 S. Templeton	200



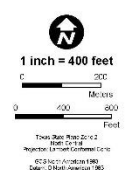
**Legend**

	Garrett City Limits		<b>Zoning Districts</b>
	Ennis City Limits		"R1" Single Family Residential Low Density
	Jurisdictional Jurisdiction		"R2" Single Family Residential Moderate Density
	SUBDIVISIONS		"R3" Single Family Residential High Density
	Plat		"M1" Mobile Home Park District
	Easement		"I1" Industrial District
	Right of Way		"PD" Planned Development District
	Road		
	Stream		
	Water		

**GrantWorks, Inc.**  
 3201 Northwest Drive, Austin, TX 78799  
 Phone (512) 452-0000 Fax (512) 452-0002

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 Boundary locations, utility, jurisdictional and other data  
 are not guaranteed.



**City of Garrett**  
 Ellis County, Texas  
**Zoning Map**

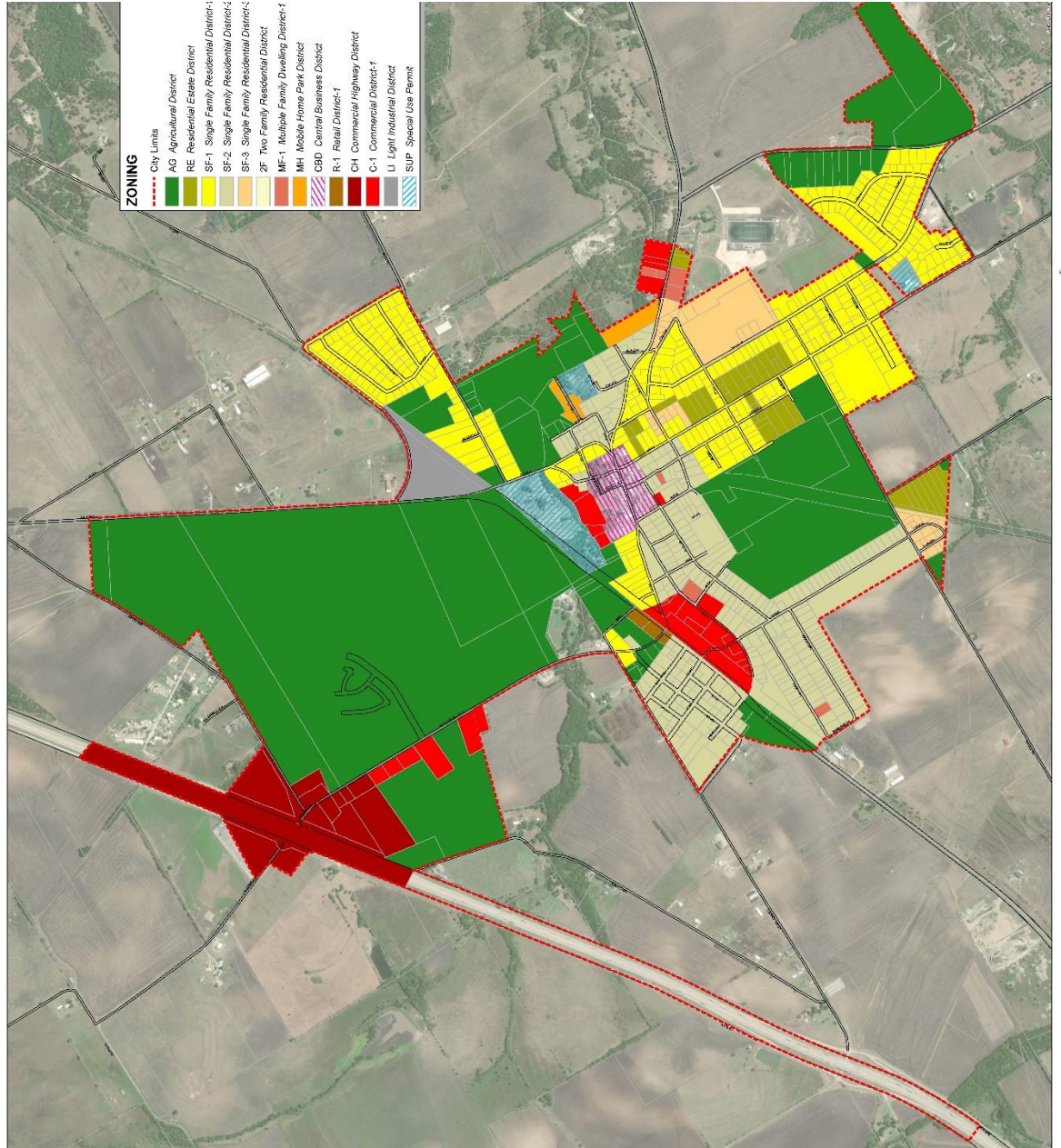


**Disclaimer**  
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## City of Italy

At Risk To: (X for Yes)									City of Italy Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
X	X	X	X	X	X	X	X	X	Trinity Nursing and Rehabilitation	220 Davenport St.
	X	X	X	X	X	X	X	X	Italy High School	300 College St.
	X	X	X	X	X	X	X	X	Stafford Elementary School	301 Harris St.
	X	X	X	X	X	X	X	X	Italy Fire Station	301 TX 34
	X	X	X	X	X	X	X	X	Italy Police Station	101 W. Main St.
	X	X	X	X	X	X	X	X	Italy Public Works Building	413 Clark St.
	X	X	X	X	X	X	X	X	Italy Ground Storage	108 N. Simms St.
	X	X	X	X	X	X	X	X	Italy Elevated Storage	105 S. Ward St.
	X	X	X	X	X	X	X	X	Waste Water Treatment Plant	1100 Hwy 667
	X	X	X	X	X	X	X	X	Well #1	291 Houston St.
	X	X	X	X	X	X	X	X	Well #2	609 Clark St.
	X	X	X	X	X	X	X	X	Well #3	615 Clark St.
	X	X	X	X	X	X	X	X	Lift station #1	601 Dale Evans Pump
	X	X	X	X	X	X	X	X	Lift station #2	13428 Mosley St.
	X	X	X	X	X	X	X	X	Lift station #3	517 SW State Hwy 34
	X	X	X	X	X	X	X	X	Lift station #4	419 Taylor St.

At Risk To: (X for Yes)									City of Italy Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
	X	X	X	X	X	X	X	X	Lift station #5	225 N. Ward St.
	X	X	X	X	X	X	X	X	Lift station #6	191 Kinfolk Ln.
	X	X	X	X	X	X	X	X	Water Clerk Office	124 E. Main St.



## City of Maypearl

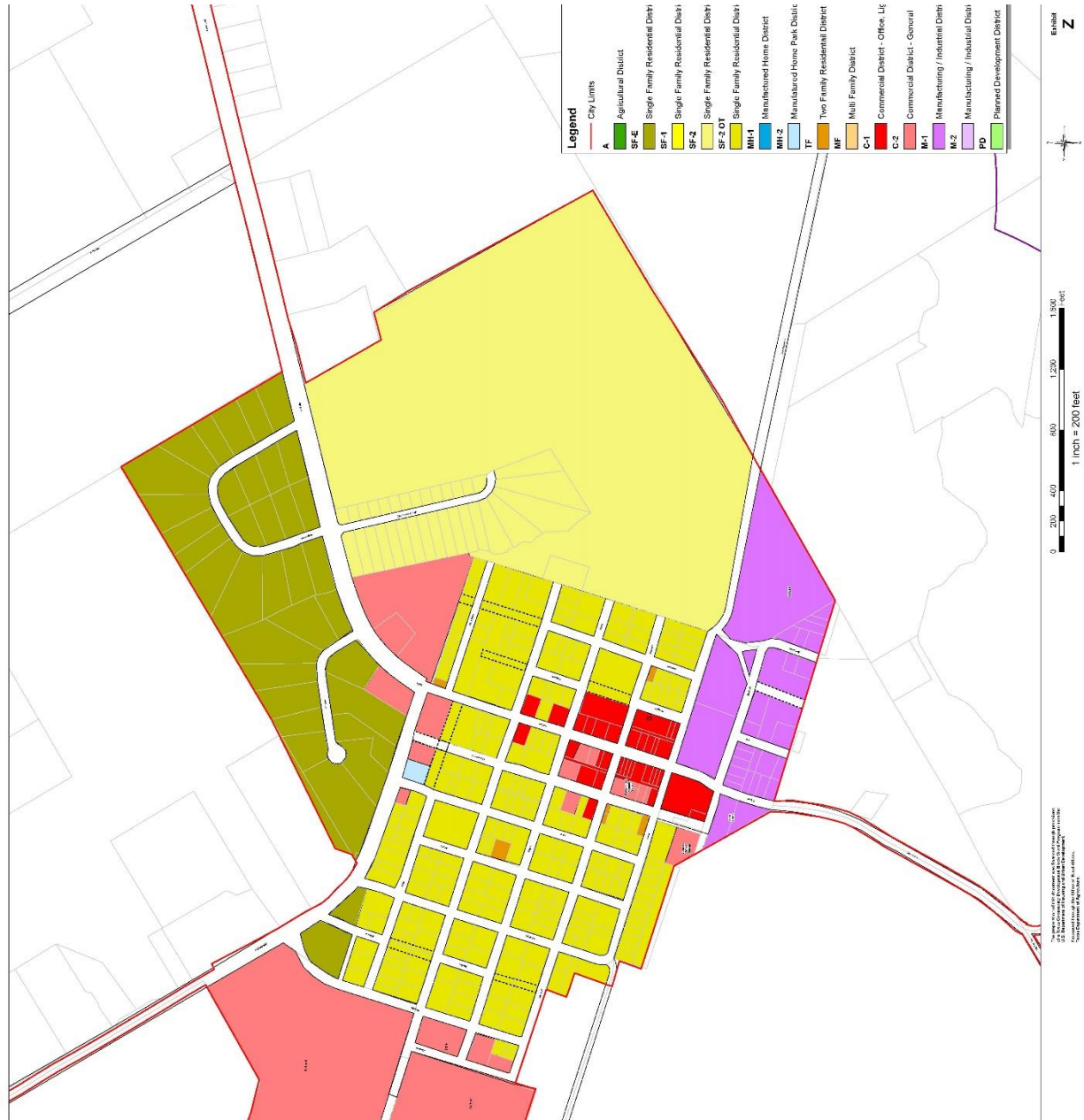
At Risk To: (X for Yes)		City of Maypearl Critical and Vulnerable Facility and Infrastructure Table	
		Name or Description	Address
Winter Storms			
Wildfires			
Tornadoes			
Thunderstorms			
Flooding			
Extreme Heat			
Expansive Soils			
Drought			
Dam Failure			

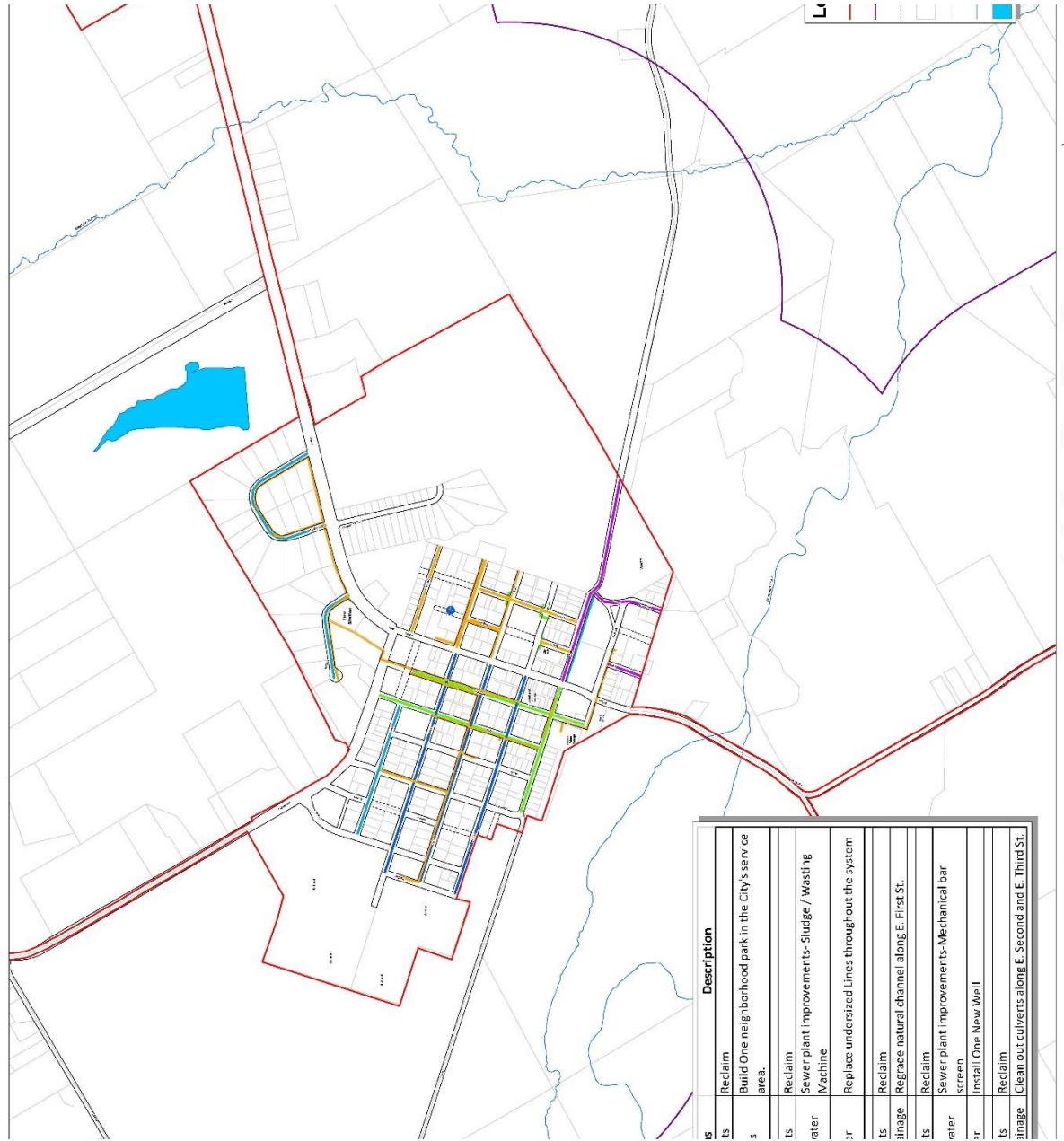


At Risk To: (X for Yes)									City of Maypearl Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
		X	X	X	X	X	X	X	Maypearl ISD – 4 facilities	600 Phillips, 301 3 <sup>rd</sup> St, 301 Panther St, 1025 4 <sup>th</sup> St
		X	X	X	X	X	X	X	Maypearl City Hall	104 2 <sup>nd</sup> St
		X	X	X	X	X	X	X	Police Department	104 2 <sup>nd</sup> St
		X	X	X	X	X	X	X	Cowboy Bank	100 S Main St
		X	X	X	X	X	X	X	Maypearl Post Office	80 S Main St
		X	X	X	X	X	X	X	Brookshire Brothers	109 S Main St
		X	X	X	X	X	X	X	Exxon	2 Hillridge Ln
		X	X	X	X	X	X	X	Dollar General	755 N Main St
		X	X	X	X	X	X	X	Ellis County ESD 1 Fire Department	750 N Main St
		X	X	X	X	X	X	X	Maypearl Church of Christ	6091 FM 66
		X	X	X	X	X	X	X	Brookshire Brother Fueling Station	109 S Main St
		X	X	X	X	X	X	X	Maypearl ISD Administrative Offices	3 <sup>rd</sup> St
		X	X	X	X	X	X	X	Maypearl First Assembly of God	505 Noble St
		X	X	X	X	X	X	X	Maypearl Historical Museum	W Martin Luther King Blvd
		X	X	X	X	X	X	X	Big Wheel and Tire Auto Shop	201 N Main St
		X	X	X	X	X	X	X	Triple T Amusements – owners of the fair w/ amusement	201 N Main St

At Risk To: (X for Yes)									City of Maypearl Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
									equipment locally	
		X	X	X	X	X	X	X	Little Angels Childcare	221 S Main St
		X	X	X	X	X	X	X	Maypearl First United Methodist Church	301 3 <sup>rd</sup> St
		X	X	X	X	X	X	X	First Baptist Church of Maypearl	5744 FM 66
		X	X	X	X	X	X	X	Ranchhouse Cowboy Church	7205 FM 66
	X	X	X	X	X	X	X	X	WG Roesler Stadium	600 Phillips St
	X	X	X	X	X	X	X	X	Maypearl Sports Park	5720 FM 66
		X	X	X	X	X	X	X	Cell Towers	W Martin Luther King Blvd & Commerce Street
		X	X	X	X	X	X	X	Internet Towers	W Martin Luther King Blvd & Commerce Street
		X	X	X	X	X	X	X	Bridges	FM 66 before Chambers Creek & Creekview Circle
		X	X	X	X	X	X	X	Sewer Lines	Throughout city
		X	X	X	X	X	X	X	Utility Lines	Throughout city

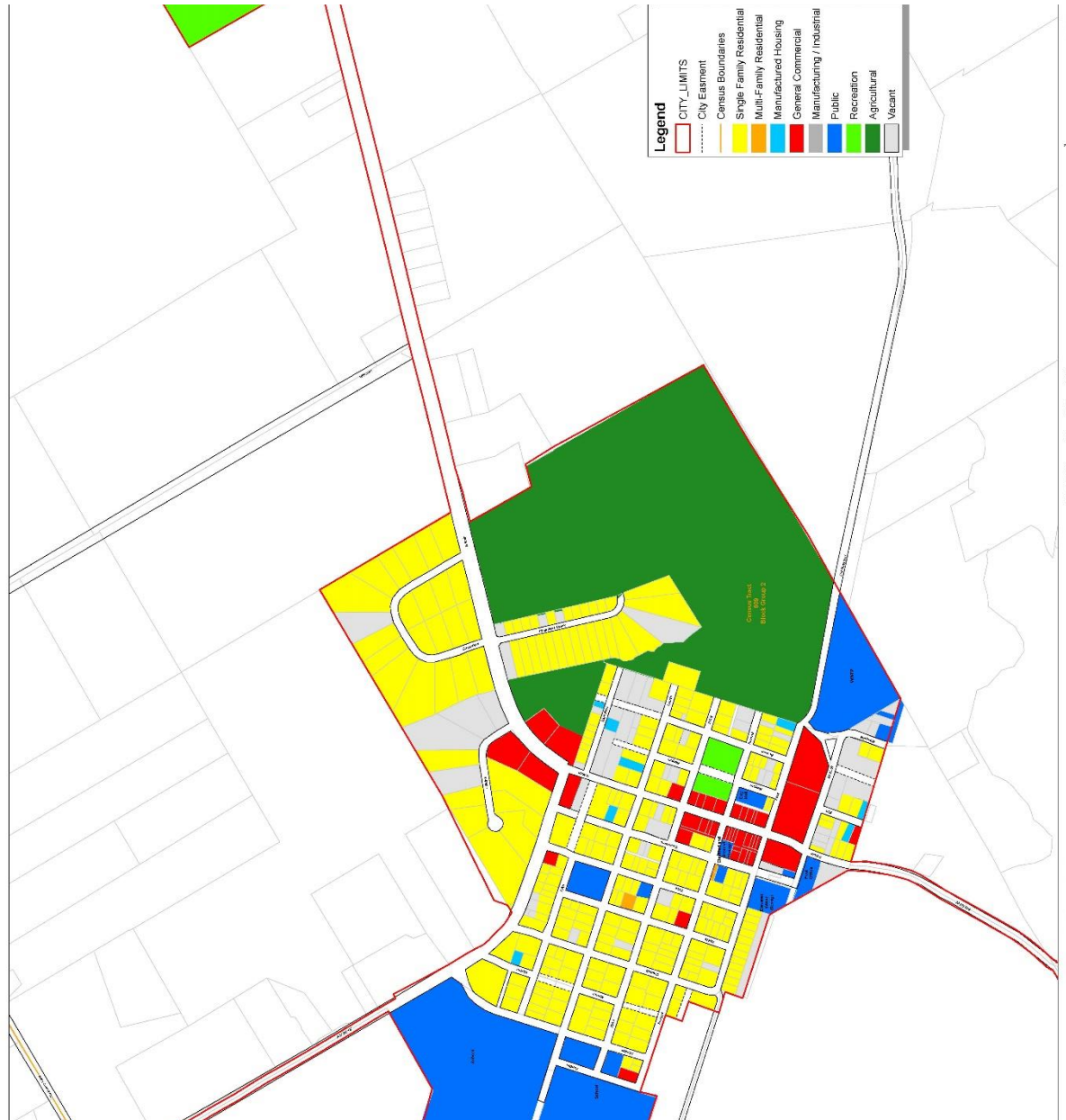
At Risk To: (X for Yes)									City of Maypearl Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
		X	X	X	X	X	X	X	Wastewater Treatment Plant	3611-3838 Old Maypearl RD
		X	X	X	X	X	X	X	Water lines	Throughout city
		X	X	X	X	X	X	X	Major Roadway	Main Street, 287, 66 are the majors
		X	X	X	X	X	X	X	Water tower(s)	W. Martin Luther King Blvd & Commerce St / W. 2 <sup>nd</sup> St & Commerce St
		X	X	X	X	X	X	X	Water storage	W. 2 <sup>nd</sup> St & Commerce St



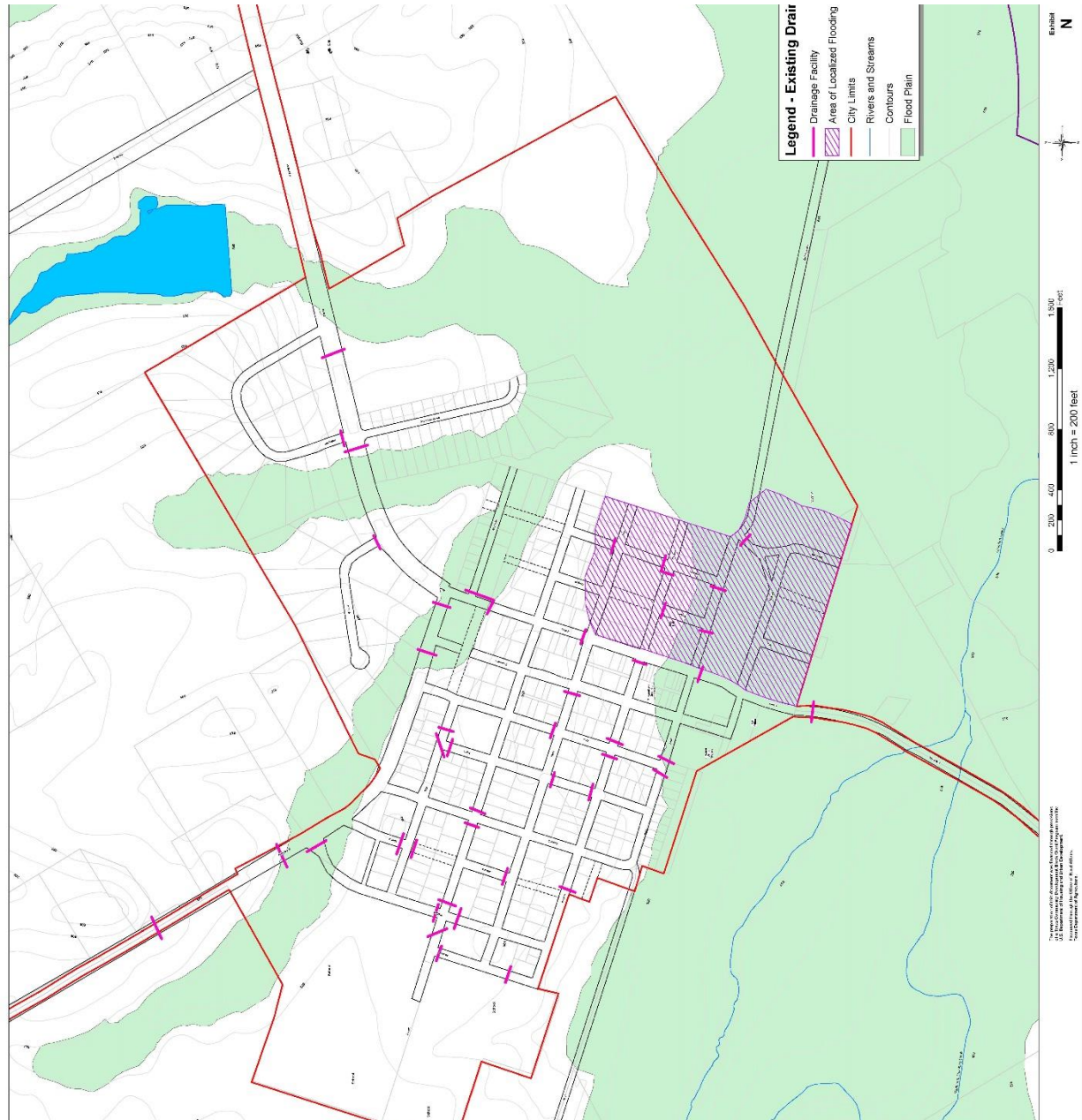


ID	Description
1S	Reclaim
1S	Build One neighborhood park in the City's service area.
1S	Reclaim
1S	Sewer plant improvements- Sludge / Wasting Machine
1R	Replace undersized Lines throughout the system
1S	Reclaim
1S	Regrade natural channel along E. First St.
1S	Reclaim
1S	Sewer plant improvements-Mechanical bar screen
1R	Install One New Well
1S	Reclaim
1S	Clean out culverts along E. Second and E. Third St.

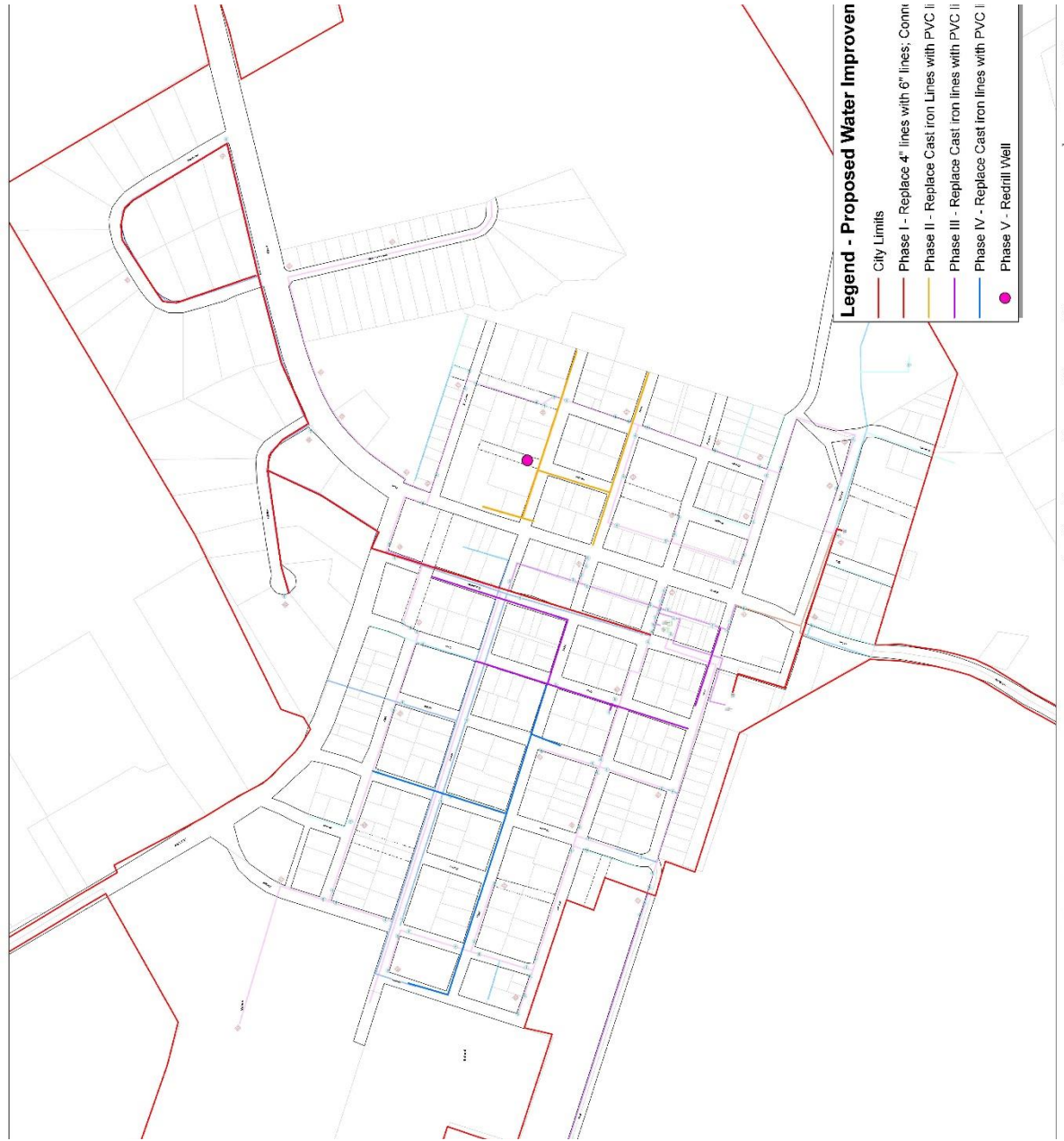
City of Dallas  
 Department of Public Works  
 Sewer Division  
 2015 Sewer System Rehabilitation and Upgrade  
 Exhibit R

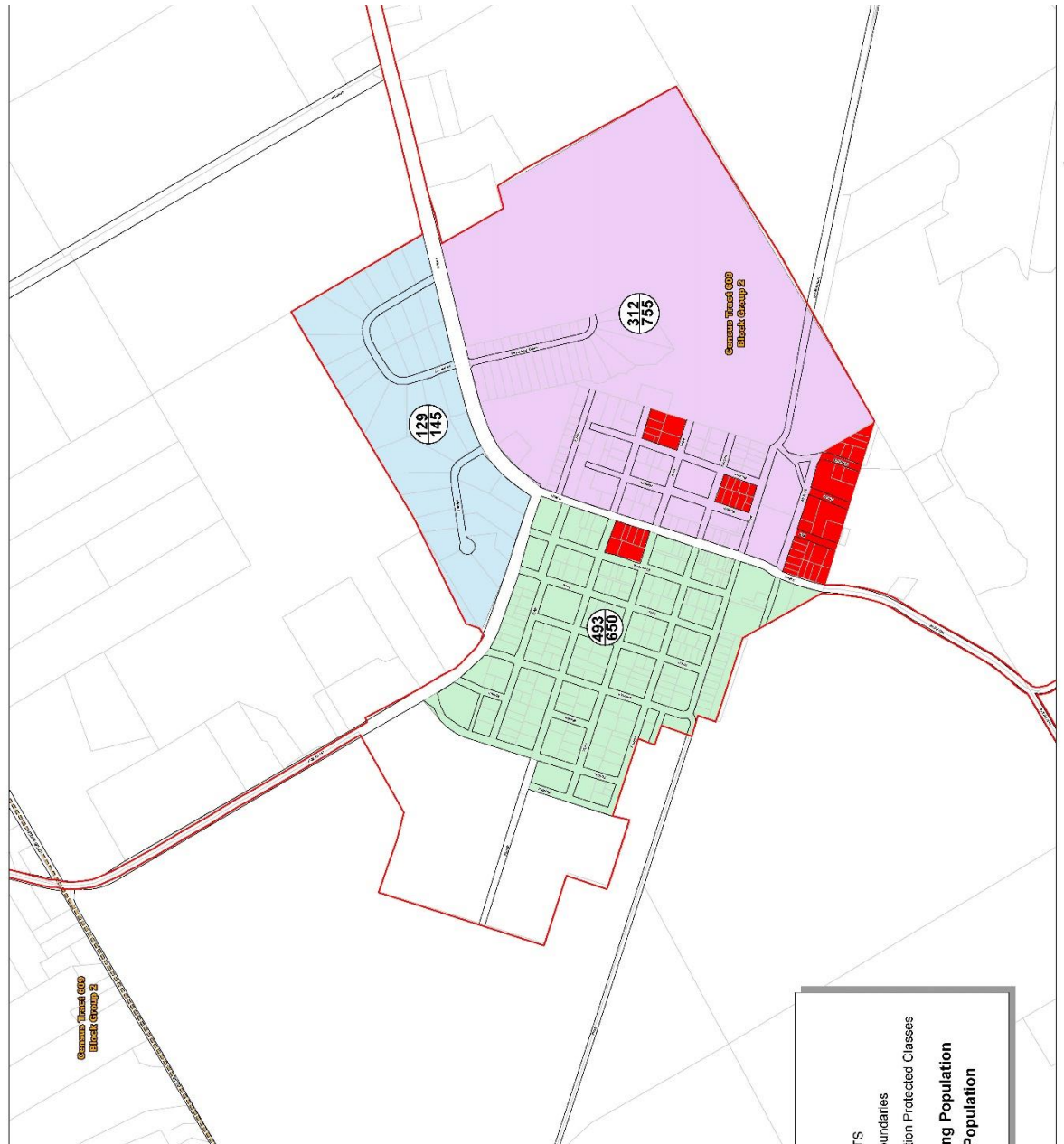












## City of Midlothian

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
X	X	X	X	X	X	X	X	X	Midlothian	3601 S 14 <sup>th</sup> St	105 acres

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
									Community Park	Midlothian, Tx 76065	
X	X	X	X	X	X	X	X	X	Kimmel Park	124 N 1 <sup>st</sup> St, Midlothian, Tx 76065	2.1 acres
X	X	X	X	X	X	X	X	X	Jaycee Park (baseball complex)	1711 Meadow Lane, Midlothian, Tx 76065	10 acres
X	X	X	X	X	X	X	X	X	Heritage Park & Site of the Larkin Newton Log Cabin which was built in 1848.	234 N 8 <sup>th</sup> St, Midlothian. Tx 76065	Downtown Park
X	X	X	X	X	X	X	X	X	Hawkins Spring Park	1498 FM 1387, Midlothian, Tx 76065	21.7 acres
X	X	X	X	X	X	X	X	X	Band Stand at Kimmel Park	124 N 1 <sup>st</sup> St, Midlothian, Tx 76065	2.1 acres
X	X	X	X	X	X	X	X	X	Midlothian Law Enforcement Gun Range and Training Room	4521 Wiley St, Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	Midlothian Fire Department – Fire Training Center	Auger Rd, Midlothian, Texas 76065	5 acres
X	X	X	X	X	X	X	X	X	Water Treatment Plant #1	440 Tayman Dr, Midlothian, Tx 76065	-

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
X	X	X	X	X	X	X	X	X	Water Treatment Plant #2	1762 Auger Rd, Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	Midlothian Animal Shelter	1050 Highway 67, Midlothian, Tx 76065	37 dogs, 8 cats, 4 outdoors 4 kennels
X	X	X	X	X	X	X	X	X	Northern Ellis Emergency Dispatch (NEED) 9-1-1 Dispatch for Midlothian, Ovilla, Red Oak	1150 N Highway 67, Midlothian, Tx 76065	10
X	X	X	X	X	X	X	X	X	Midlothian Police Department (Law Enforcement Center & Jail)	1150 N Highway 67, Midlothian, Tx 76065	250
X	X	X	X	X	X	X	X	X	Midlothian Fire Station #3	770 Tower Rd, Midlothian, Tx 76065	5-10
X	X	X	X	X	X	X	X	X	Public Safety Radio Tower	770 Tower Rd, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Midlothian Fire Station #2	33661 FM 1387, Midlothian, Tx 76065	5-10
X	X	X	X	X	X	X	X	X	Midlothian Fire Station #1	1900 W Main St, Midlothian, Tx 76065	5-10
X	X	X	X	X	X	X	X	X	Midlothian Fire	100 W Avenue F,	10

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
									Administration	Midlothian, Tx 76065	
X	X	X	X	X	X	X	X	X	Building Inspections	101 W Avenue F, Midlothian, Tx 76065	4
X	X	X	X	X	X	X	X	X	Municipal Court	1150 Highway 67, Midlothian, Tx 76065	7-8 employees, 150 people in courtroom
X	X	X	X	X	X	X	X	X	Parks and Recreation Department	101 W Avenue E, Midlothian, Tx 76065	4
X	X	X	X	X	X	X	X	X	Public Works Department	1050 N Highway 67, Midlothian, Tx 76065	25
X	X	X	X	X	X	X	X	X	City Hall	104 W Avenue E, Midlothian, Tx 76065	50-100
X	X	X	X	X	X	X	X	X	Ridgeview Park	750 Walter Stephenson Rd, Midlothian, Tx 76065	8.6 acres
X	X	X	X	X	X	X	X	X	Pavilion at Kimmel Park	124 N 1 <sup>st</sup> St, Midlothian, Tx 76065	2.1 acres
X	X	X	X	X	X	X	X	X	Mountain Peak Community Park	6440 Hill Drive, Midlothian, Tx 76065	10 acres

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
X	X	X	X	X	X	X	X	X	Mockingbird Nature Park	1361 Onward Rd, Midlothian, Tx 76065	62 acres
X	X	X	X	X	X	X	X	X	Midlothian Dog Park	1111 Walter Stephenson Rd, Midlothian, Tx 76065	4 acres
X	X	X	X	X	X	X	X	X	Midlothian Sports Complex (volleyball, softball, tennis)	1400 S 14 <sup>th</sup> St, Midlothian, Tx 76065	25 acres
X	X	X	X	X	X	X	X	X	Midlothian Conference Center	1 Community Circle Drive, Midlothian, Tx 76065	Over 1,000 people
X	X	X	X	X	X	X	X	X	Midlothian Senior Activity Center	4 Community Circle Drive, Midlothian, Texas 76065	100 people
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #1	1711 Meadow Lane, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #2	1050 Park Place Blvd, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #3	990 N Walnut Grove Rd, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #4	6631 FM 1387, Midlothian, Tx 76065	-

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #5	4 <sup>th</sup> St & Avenue I, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #6	Murray St & E Main St, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #7	Clancey & S Walnut Grove Rd, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #8	Byrd Ranch Rd & FM 663, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #9	2800 Sudith Lane, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #10	Monroe Drive (Crystal Forest Estates), Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #11	5201 FM 663, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #12	1601 Mc Alpin Rd, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #13	8401 Singleton Rd, (Indian Creek), Midlothian, Tx	-

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
										76065	
X	X	X	X	X	X	X	X	X	Outdoor Warning Siren #14	4601 Brookhollow Drive, Midlothian, Tx 76065 (Luminant Energy)	-
X	X	X	X	X	X	X	X	X	Methodist Medical Center	1201 W US 287, Midlothian, Tx 76065	46 Beds
X	X	X	X	X	X	X	X	X	Legacy Oaks of Midlothian	614 S 14 <sup>th</sup> St, Midlothian, Tx 76065	200 residents
X	X	X	X	X	X	X	X	X	Midlothian Healthcare Center	900 George Hopper Rd, Midlothian, Tx 76065	120 residents
X	X	X	X	X	X	X	X	X	Midtowne Assisted Living and Memory Care	910 S 9 <sup>th</sup> St, Midlothian, Tx 76065	75 residents
X	X	X	X	X	X	X	X	X	Tarleton State University – Midlothian Campus	899 Mount Zio Rd, Midlothian, Texas 76065	Varies by semester
X	X	X	X	X	X	X	X	X	Navarro Collee – Midlothian Campus	899 Mount Zion Rd, Midlothian, Texas 76065	Varies by semester
X	X	X	X	X	X	X	X	X	MISD Transportation Facility	601 E Avenue E, Midlothian, Texas 76065	60 bus drivers
X	X	X	X	X	X	X	X	X	MISD Randall Hill Support Center	315 E Avenue E, Midlothian, Texas 76065	TBD



At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
X	X	X	X	X	X	X	X	X	Mills Administrative Building (MISD)	100 Walter Stephenson Rd, Midlothian, Tx 76065	250
X	X	X	X	X	X	X	X	X	Midlothian ISD FFA Agricultural Building	1851 Mockingbird Lane, Midlothian, Texas 76065	40 acres
X	X	X	X	X	X	X	X	X	Midlothian ISD Multi-Purpose Stadium	1800 S 14 <sup>th</sup> St, Midlothian, Tx 76065	7,669
X	X	X	X	X	X	X	X	X	Don Floyd Memorial Stadium (baseball fields)	923 S 9 <sup>th</sup> St, Midlothian, Tx 76065	8,005 seats
X	X	X	X	X	X	X	X	X	Midlothian High School Athletic Complex	923 S 9 <sup>th</sup> St, Midlothian, Tx 76065	38,000 SF Athletic Complex with locker rooms for track & field, football, golf, and soccer; as well as, a new 7,400 SF weight room and 1,340 SF Training facility.
X	X	X	X	X	X	X	X	X	Roesler Field House at Midlothian High School	923 S 9 <sup>th</sup> St, Midlothian, Tx 76065	
X	X	X	X	X	X	X	X	X	Midlothian High School	923 S 9 <sup>th</sup> St, Midlothian, Tx	1,829

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
										76065	
X	X	X	X	X	X	X	X	X	Midlothian Heritage High School	4000 FM 1387, Midlothian, Tx 76065	1,040
X	X	X	X	X	X	X	X	X	Walnut Grove Middle School	990 N Walnut Grove Rd, Midlothian, Texas 76065	1,120
X	X	X	X	X	X	X	X	X	Frank Seale Middle School	700 George Hopper Rd, Midlothian, Texas 76065	1,168
X	X	X	X	X	X	X	X	X	Dieterich Middle School	2881 Ledgestone Lane, Midlothian, Tx 76065	751
X	X	X	X	X	X	X	X	X	J.A. Vitosvsky Elementary School	333 Church St, Midlothian, Tx 76065	654
X	X	X	X	X	X	X	X	X	Mt Peak Elementary School	5201 FM 663, Midlothian, Tx 76065	690
X	X	X	X	X	X	X	X	X	LaRue Miller Elementary School	2800 Sudith Lane, Midlothian, Tx 76065	632
X	X	X	X	X	X	X	X	X	McClatchey Elementary School	6631 Shiloh Rd, Midlothian, Tx 76065 (Ovilla)	635
X	X	X	X	X	X	X	X	X	Longbranch Elementary School	6631 FM 1387, Midlothian, Texas 76065	623

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
X	X	X	X	X	X	X	X	X	J.R. Irvin Elementary School	600 S Fifth St, Midlothian, Tx 76065	591
X	X	X	X	X	X	X	X	X	MISD Midlothian Innovative Learning Experience	W Avenue I and 4 <sup>th</sup> Street, Midlothian, Texas 76065	878
X	X	X	X	X	X	X	X	X	Jenkins Child Care Center (Early Child Care Center)	W Avenue I and 4 <sup>th</sup> Street, Midlothian, Texas 76065	125
X	X	X	X	X	X	X	X	X	T.E. Baxter Elementary School	1050 Park Place Blvd, Midlothian, Tx 76065	564
X	X	X	X	X	X	X	X	X	Mid-Way Regional Airport	131 Airport Drive, Midlothian, Texas 76065	Midlothian / Waxahachie
X	X	X	X	X	X	X	X	X	Mt Peak Water Special Utility District	5671 Waterworks Rd, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Sardis-Lone Elm Water Supply Corp.	1941 Bryson Lane, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	TRA Mountain Creek Regional Waste Water Treatment Plant	1717 Auger Rd, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	South Midlothian Parkway Lift Station	1821 S Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	East Lift Station	800 E Avenue E, Midlothian, Texas	-

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
										76065	
X	X	X	X	X	X	X	X	X	Fox Run Lift Station	1798 Vista Ridge Drive West, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Hillcrest Lift Station	5649 FM 663, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Hill Drive Lift Station	6499 Hill Drive, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Jaycee Park Lift Station	1801 Meadows Lane, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Coventry Crossing Lift Station	6050 Toley Drive, Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	Lawson Farms Lift Station	3042 S 14 <sup>th</sup> St, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Meadows at Long Branch Lift Station	901 Mill Pond Dr, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Padera Lake Lift Station	4101 W Highway 287, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Niagra Steel Lift Station	1273 US Highway 67, Midlothian, Tx 76065	-

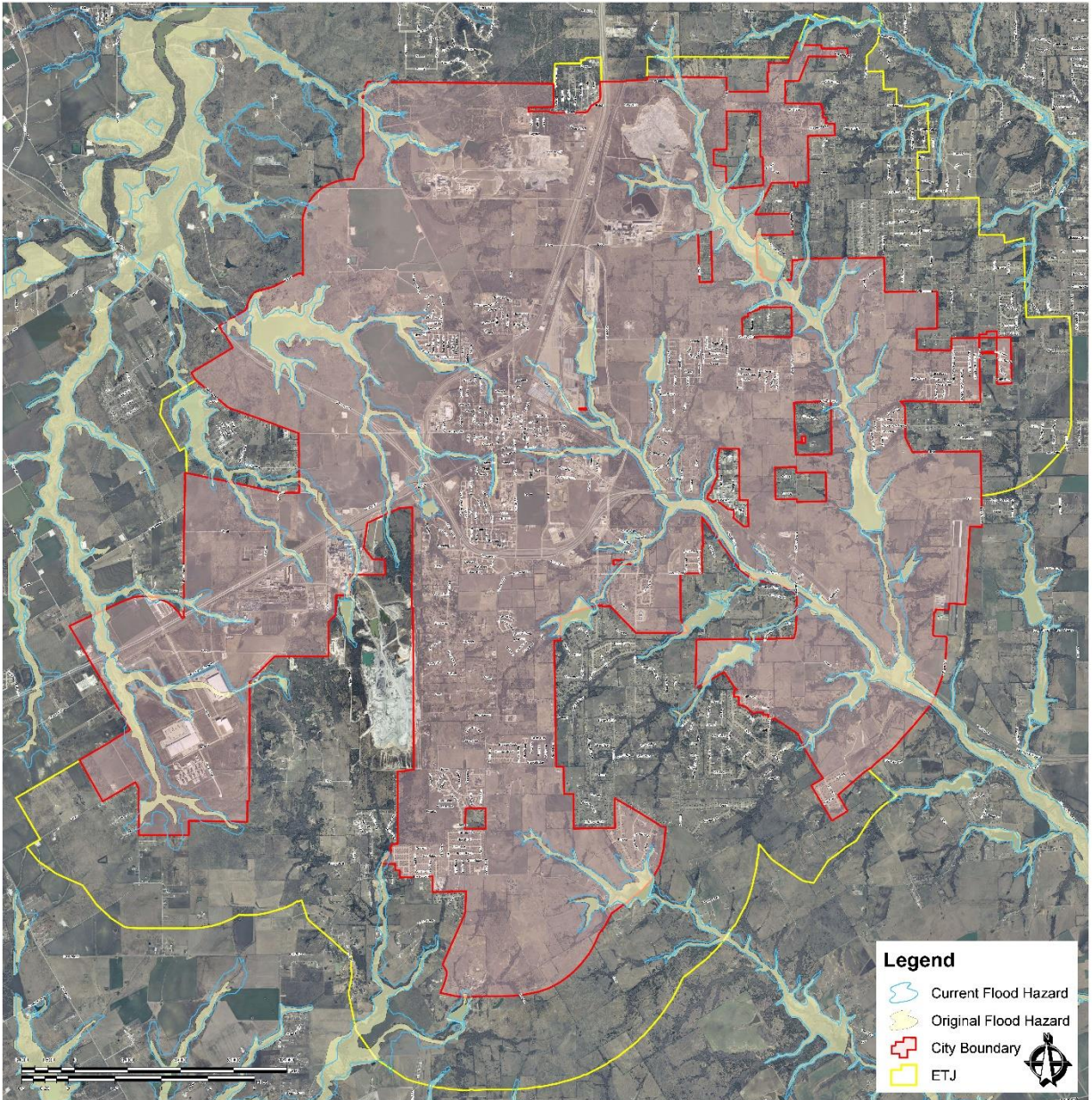
At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
X	X	X	X	X	X	X	X	X	Pebble Creek Lift Station	306 Westview Terrace, Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	Southeast Lift Station	5078 E Highway 287, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Valley View Lift Station	1799 WFM 875, Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	Mountain Peak Vault I	2022 S 9 <sup>th</sup> St, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Mountain Peak Vault II	2401 S Highway 67, Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	Rockett Meter Vault	6649 FM 1387, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Venus Meter Vault / Station,	3690 VV Jones Rd	-
X	X	X	X	X	X	X	X	X	Grand Prairie Vault I	4542 W Highway 287, Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	Grand Prairie Vault II	440 Tayman Drive, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Saris Vault I	2820 Oak Tree Lane, Midlothian, Tx 76065	-

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy
X	X	X	X	X	X	X	X	X	Sardis Vault II	3231 Mockingbird Ln, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Midlothian Fuel Pumps – Public Works	1050 N Highway 67, Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	Utility Barn / Kennel	1070 N Highway 67, Midlothian, Tx 76065	25
X	X	X	X	X	X	X	X	X	Public Works / Streets Barn	1070 N Highway 67, Midlothian, Tx 76065	25
X	X	X	X	X	X	X	X	X	Parks and Recreation Barn	1070 N Highway 67, Midlothian, Tx 76065	25
X	X	X	X	X	X	X	X	X	Elevated Water Tank, Midlothian Water Tower 1	1510 S 9 <sup>th</sup> St, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	Elevated Water Tank, Midlothian Water Tower 2	3231 Mockingbird Lane, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	5 <sup>th</sup> Street Well, Midlothian	407 N 5 <sup>th</sup> St, Midlothian, Tx 76065	-
X	X	X	X	X	X	X	X	X	US 287 Bridges & Overpasses	Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	Highway 67 Bridges & Overpasses	Midlothian, Texas 76065	-
X	X	X	X	X	X	X	X	X	8 <sup>th</sup> Street Bridge	Midlothian, Texas	-

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table			
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address	Occupancy	
									over Railroad Tracks	76065		
X	X	X	X	X	X	X	X	X	BNSF Railroad Tracks	Midlothian, Texas 76065	-	
X	X	X	X	X	X	X	X	X	Churches	Midlothian, Texas 76065	Varies	
X	X	X	X	X	X	X	X	X	Daycares	Midlothian, Texas 76065	Varies	
X	X	X	X	X	X	X	X	X	Pecan Acres Mobile Home Park	41 Pecan Acres, Midlothian, Texas 76065	12.5 acres	
X	X	X	X	X	X	X	X	X	Village South Mobile Home Park	19 Village South MHP, Midlothian, Texas 76065; 8 Lancer Drive, Midlothian, Tx 76065	200 units	
X	X	X	X	X	X	X	X	X	MidTex RV Park	4391 Miller Rd, Midlothian, Texas 76065	Varies	
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 16 DAM	-96.97   32.4099	-	
X	X	X	X	X	X	X	X	X	MOUNTAIN CREEK WS SCS SITE 10 DAM	-97.042   32.498	-	
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 2A DAM	-96.93   32.4874	-	
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK	-96.927   32.4659	-	

At Risk To: (X for Yes)									City of Midlothian Critical and Vulnerable Facility and Infrastructure Table			
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address		Occupancy
									WS SCS SITE 2F DAM			
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 3 DAM	-96.98	32.4907	-
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 4 DAM	-96.968	32.4895	-
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 5 DAM	-96.981	32.4552	-
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 6 DAM	-96.956	32.4551	-
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 7 DAM	-96.951	32.4483	-
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 2B DAM	-96.937	32.5005	-
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 1 DAM	-96.945	32.5049	-
X	X	X	X	X	X	X	X	X	CHAMBERS CREEK WS SCS SITE 8 DAM	-96.93	32.4425	-





**City of Midlothian**  
Flood Hazard

Scale: 1 inch = 1,500 feet

Date: 5/3/2013

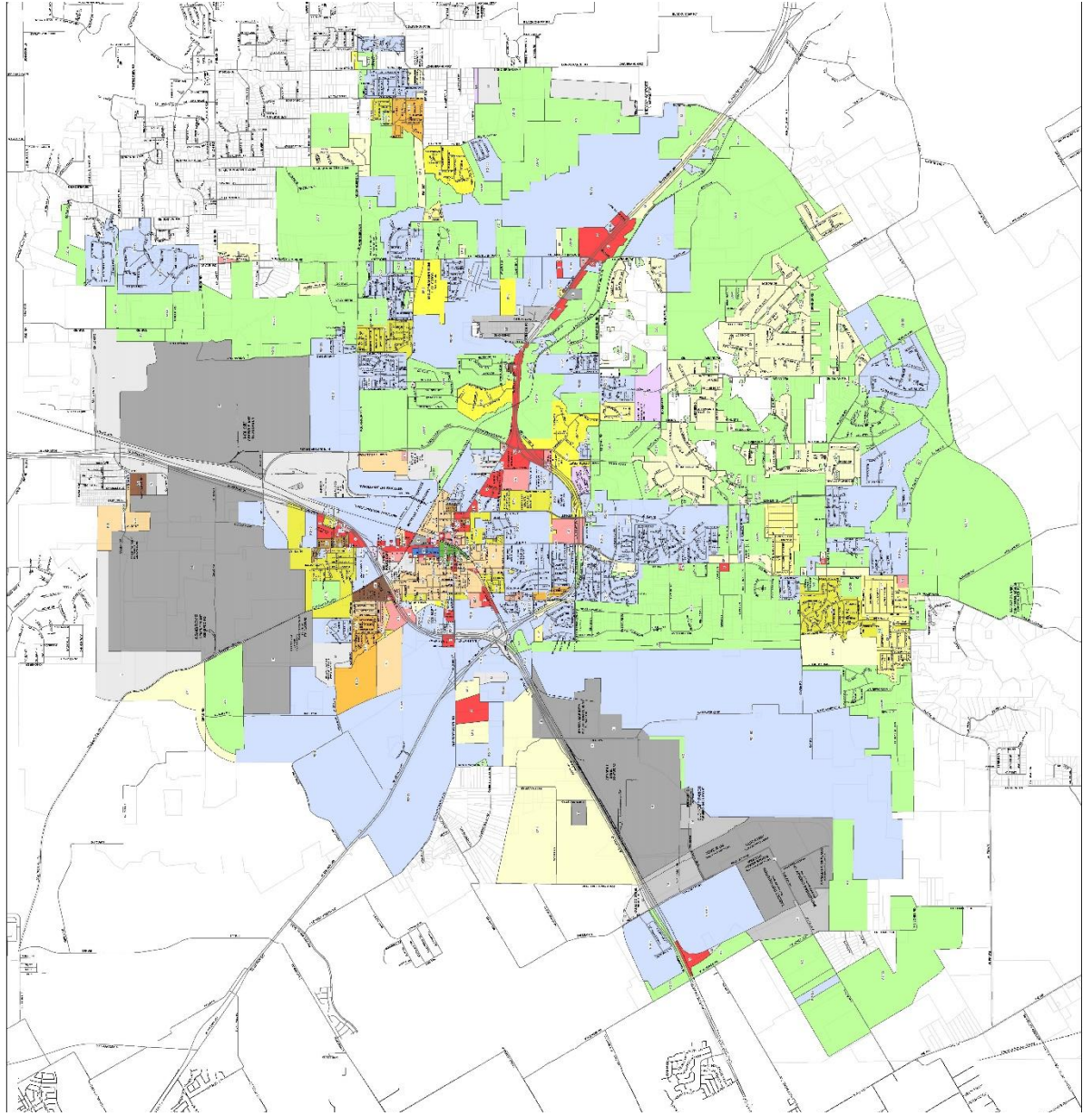
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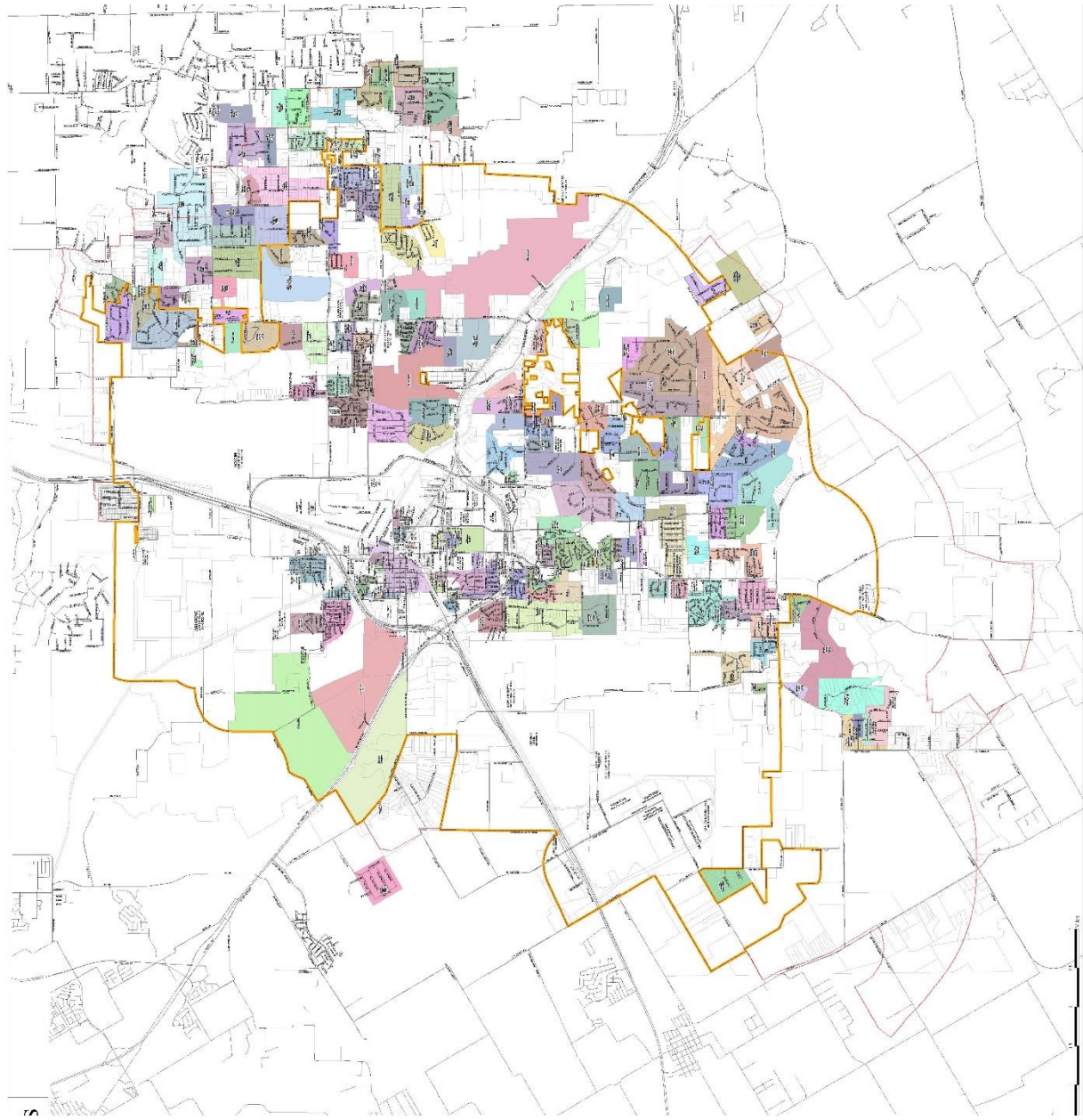
**Legend**

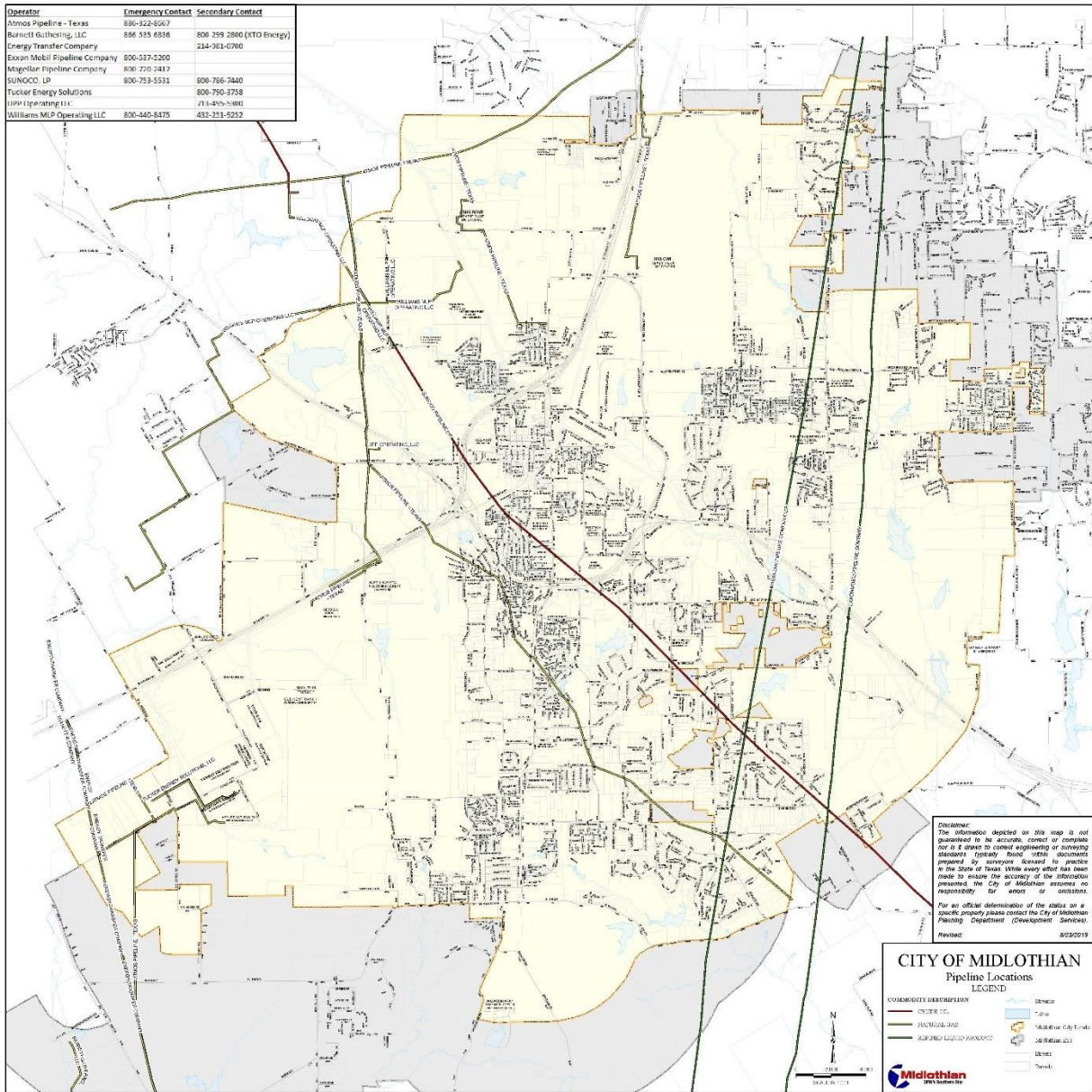
-  Current Flood Hazard
-  Original Flood Hazard
-  City Boundary
-  ETJ



Disclaimer: This map is a graphic illustration and is not intended to establish precise dimensions. The City of Midlothian assumes no liability for the accuracy of this map.







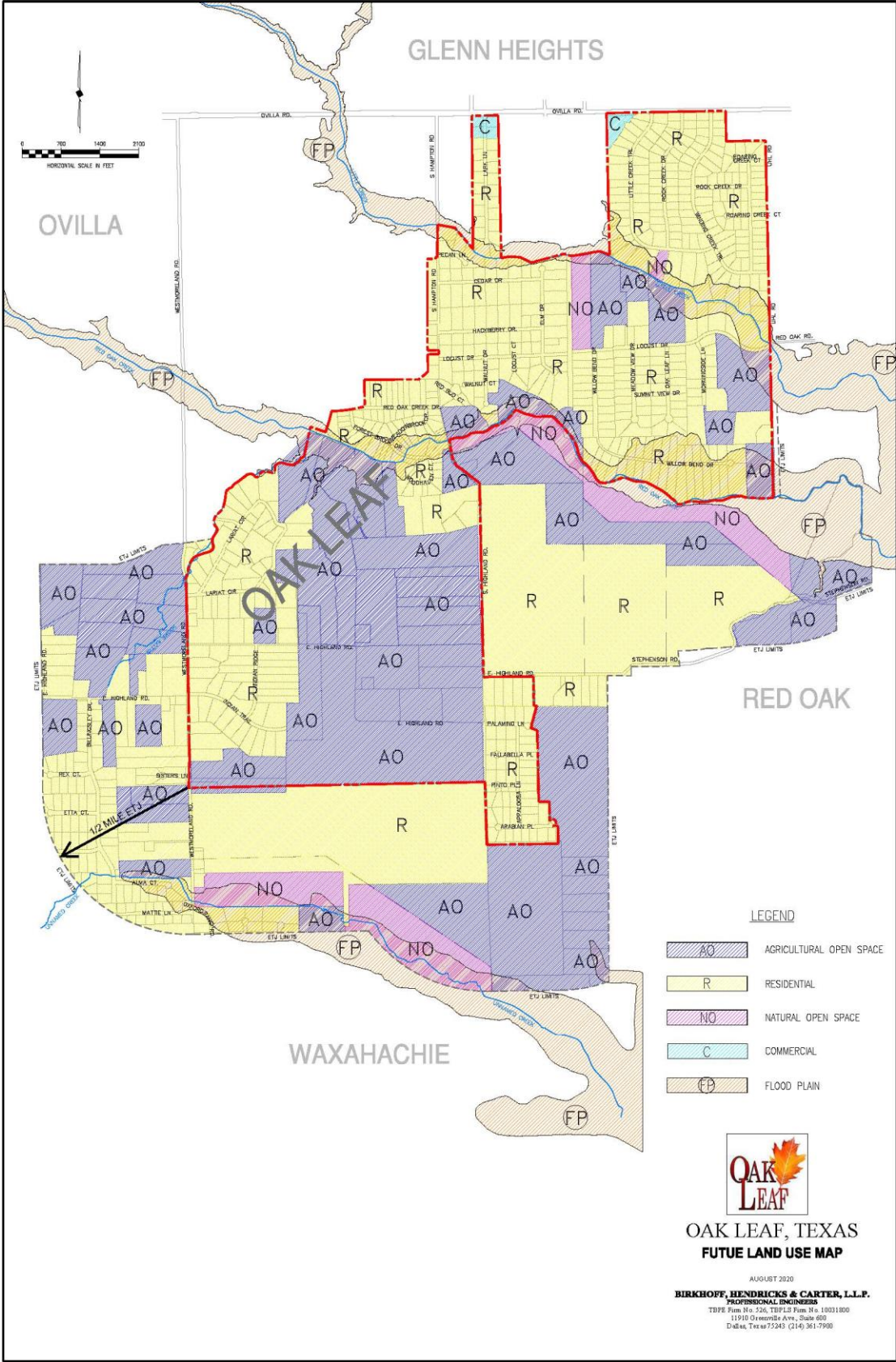
## City of Milford

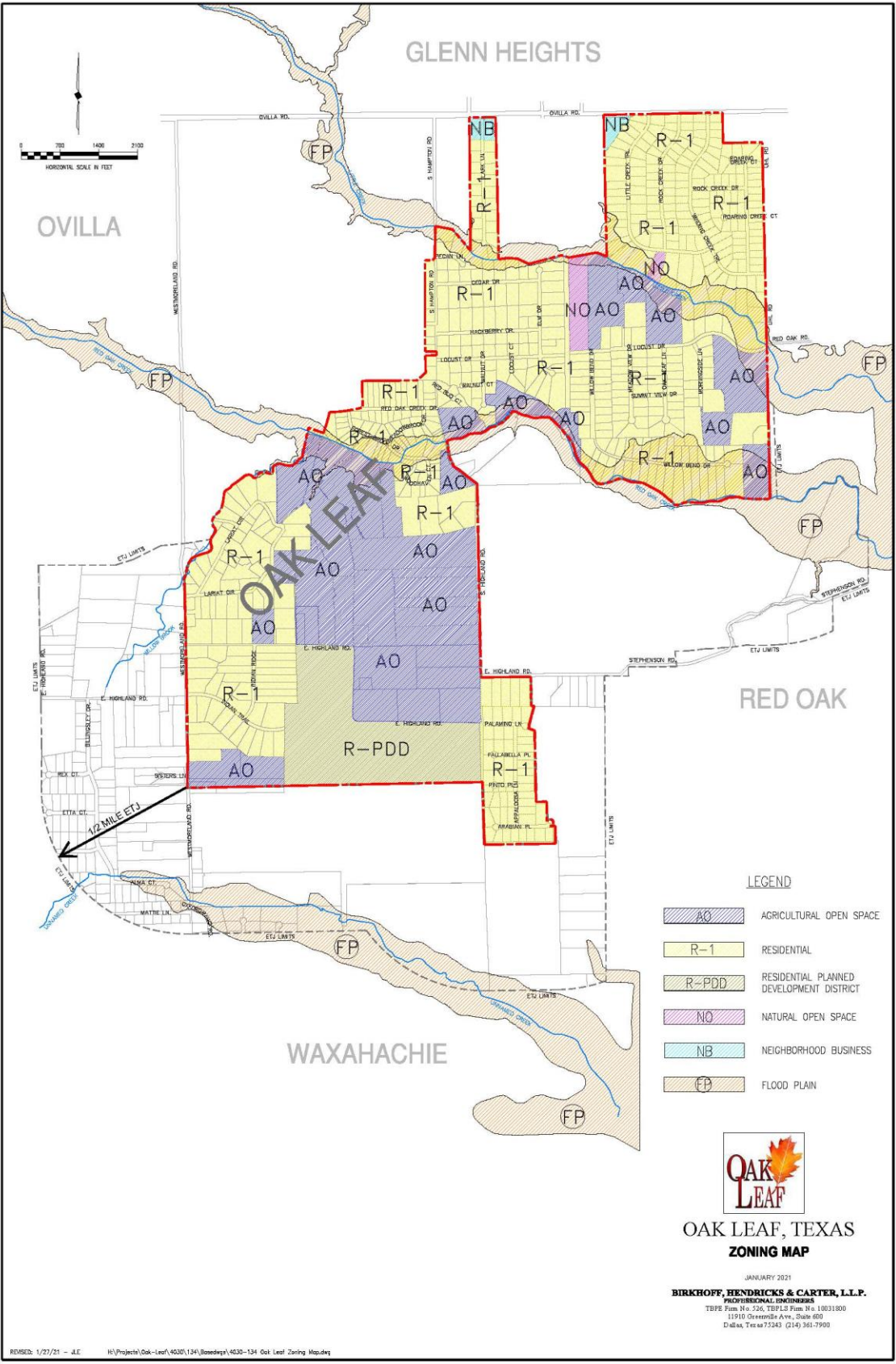
At Risk To: (X for Yes)							City of Milford Critical and Vulnerable Facility and Infrastructure Table			
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address

At Risk To: (X for Yes)									City of Milford Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
	x	x	x	x	x	x	x	x	City of Milford Municipal Building	107 S. Main
	x	x	x	x	x	x	x	x	City of Milford Senior Center	109 S. Main
	x	x	x	x	x	x	x	x	Milford VFD	104 Pecan St
	x	x	x	x	x	x	x	x	Milford Post Office	200 N Main

## City of Oak Leaf

At Risk To: (X for Yes)									City of Oak Leaf Critical and Vulnerable Facility and Infrastructure Table	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
				x	x	x	x	x	City Hall/ Government Offices	301 Locust Drive
				x	x	x		x	Locust Drive Bridge	725 Locust Drive
				x	x	x		x	Forest Brook Drive Bridge	112 Forest Brook Drive
				x	x	x		x	Cell Tower	301 Locust Drive





## City of Ovilla

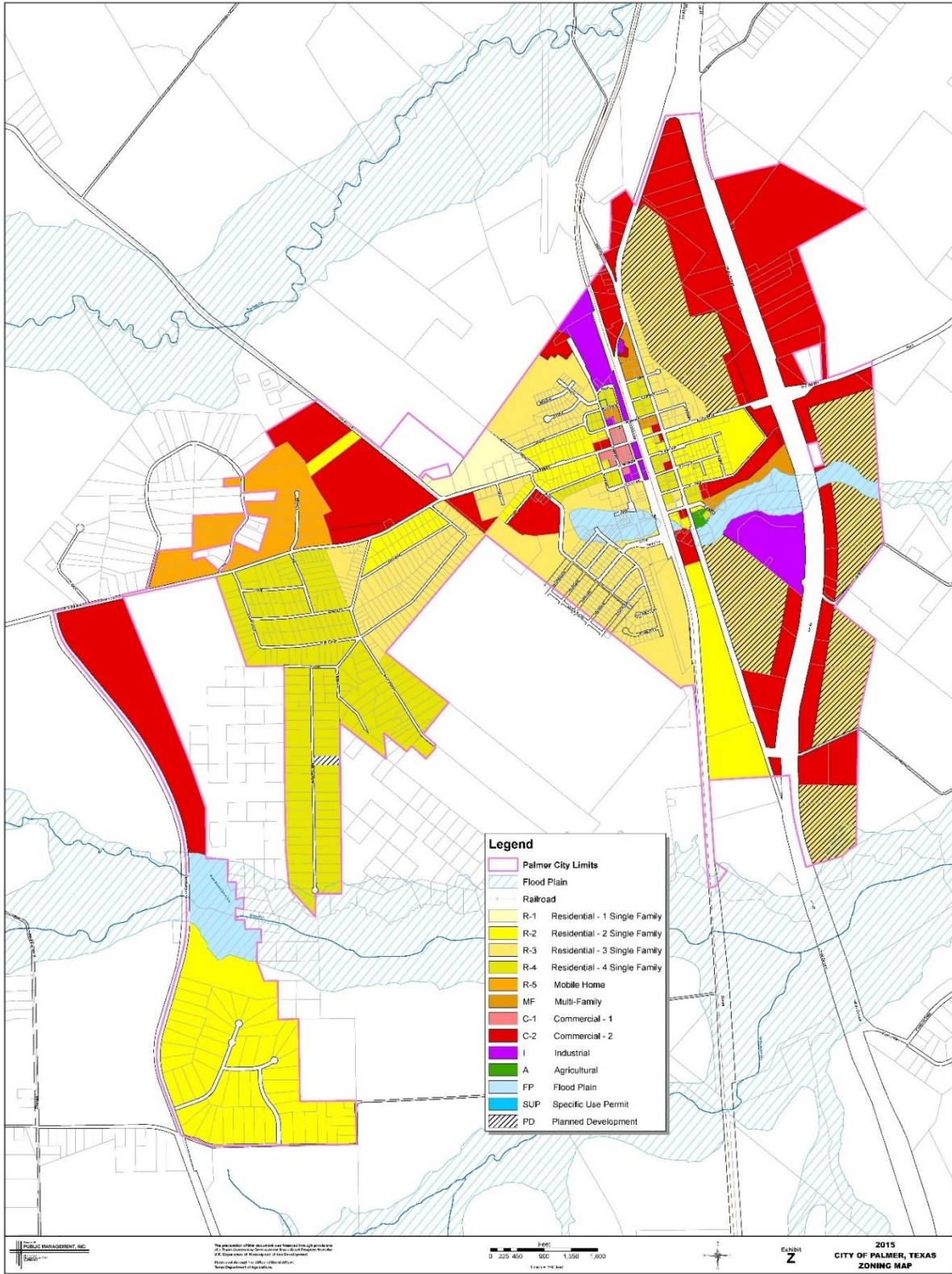
At Risk To: (X for Yes)								City of Ovilla Critical and Vulnerable Facility and Infrastructure		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address

## City of Palmer

At Risk To: (X for Yes)								City of Palmer Critical and Vulnerable Facility and Infrastructure		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address



At Risk To: (X for Yes)								City of Palmer Critical and Vulnerable Facility and Infrastructure		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address

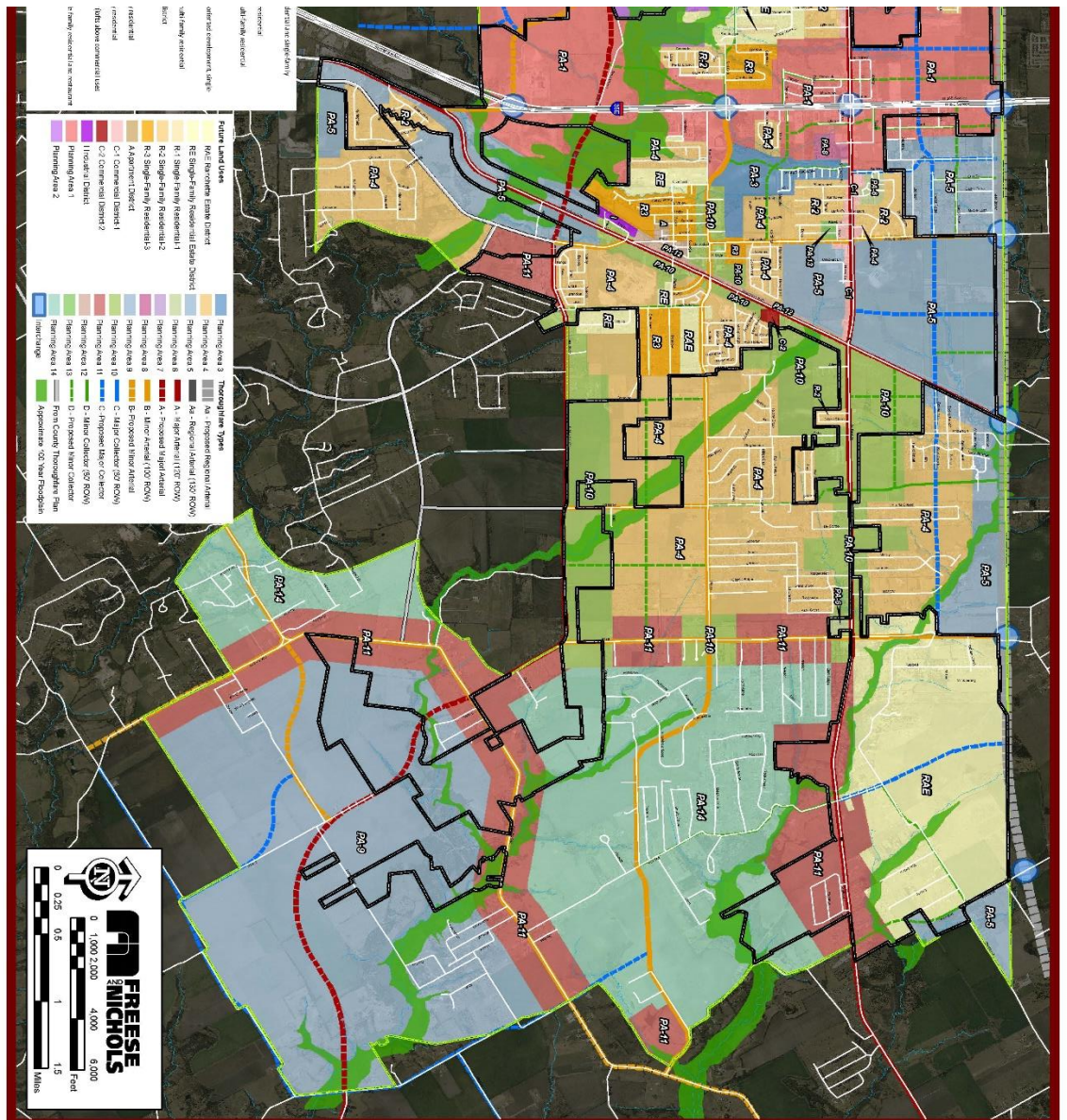


## City of Red Oak

At Risk To: (X for Yes)								City of Red Oak Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
					X	x		x	Red Oak 6 <sup>th</sup> Grade Center	154 FM 2377
					X	X		x	Red Oak ISD Bus Barn	154 FM 2377
					X	X		x	Red Oak ISD Maintenance	154 FM 2377
					X	X		x	Wooden Elementary	200 FM 2377
					X	X		x	Eastridge Elementary	725 E Ovilla Rd
					X	X		x	Red Oak Elementary	200 Valley Ridge
					X	X		X	Red Oak High School	220 Hwy 342 Building 1
					X	X		X	Red Oak High Field House	220 Hwy 342 Building 2
					X	X		x	Red Oak ISD Admin Bld.	109 Red Oak Rd.
					X	x		X	Life School	777 I-35E Bld.1
					X	X		X	Life School Admin Bld.	132 Ovilla Rd. A
					X	X		X	Red Oak Health Rehab	101 Reese Dr.

At Risk To: (X for Yes)								City of Red Oak Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
					X	X		X	Arabella Assisted Living	200 Washington St.
					X	X		X	Legacy Oak Independent Living	240 Washington St
					X	X		X	Carson Street Apartments	320 Carson
					X	X		X	Emerson Apartments	351 Hickory Creek Dr.
					X	X		X	Hawk Ave Senior Living	300 Hawk Ave
					x	x		x	Red Oak Career Tech	156 FM 2377
					x	x		x	Red Oak Middle School Complex	154 FM 2377
					x	x		x	Red Oak ISD Ag. Building	351 Bell Chapel RD
					X	X		X	Legacy Square Apartments	241 Overlook Dr.
					X	X		X	Living Oak Apartment	200 Brothers BLVD
					X	X		X	Red Oak Apartments	507 W Red Rd.
					X	X		X	Red Oak Town Village	200 Ryan Dr.

At Risk To: (X for Yes)								City of Red Oak Critical and Vulnerable Facility and Infrastructure Table		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
					X	X		X	South Meadow Apartments	110 Sierra Grande
					X	X		X	Summit Place Apartments	112 S Summit St.
					X	X		X	The Oaks	777 S Interstate 35E
					X	X		X	Life Point Community Church	201 FM 2377
					X	X		X	Landmark Baptist Church	982 E Ovilla RD
					x	X		x	Iglesia Fuego De Dios	211 N Main ST
					X	X		X	First United Methodist Church	600 Daubitz RD
					X	X		X	Eastridge Baptist	732 E Ovilla RD
					X	X		X	Refugee Temple	620 Daubitz RD
					X	X		X	First Baptist Church	320 E Ovilla RD

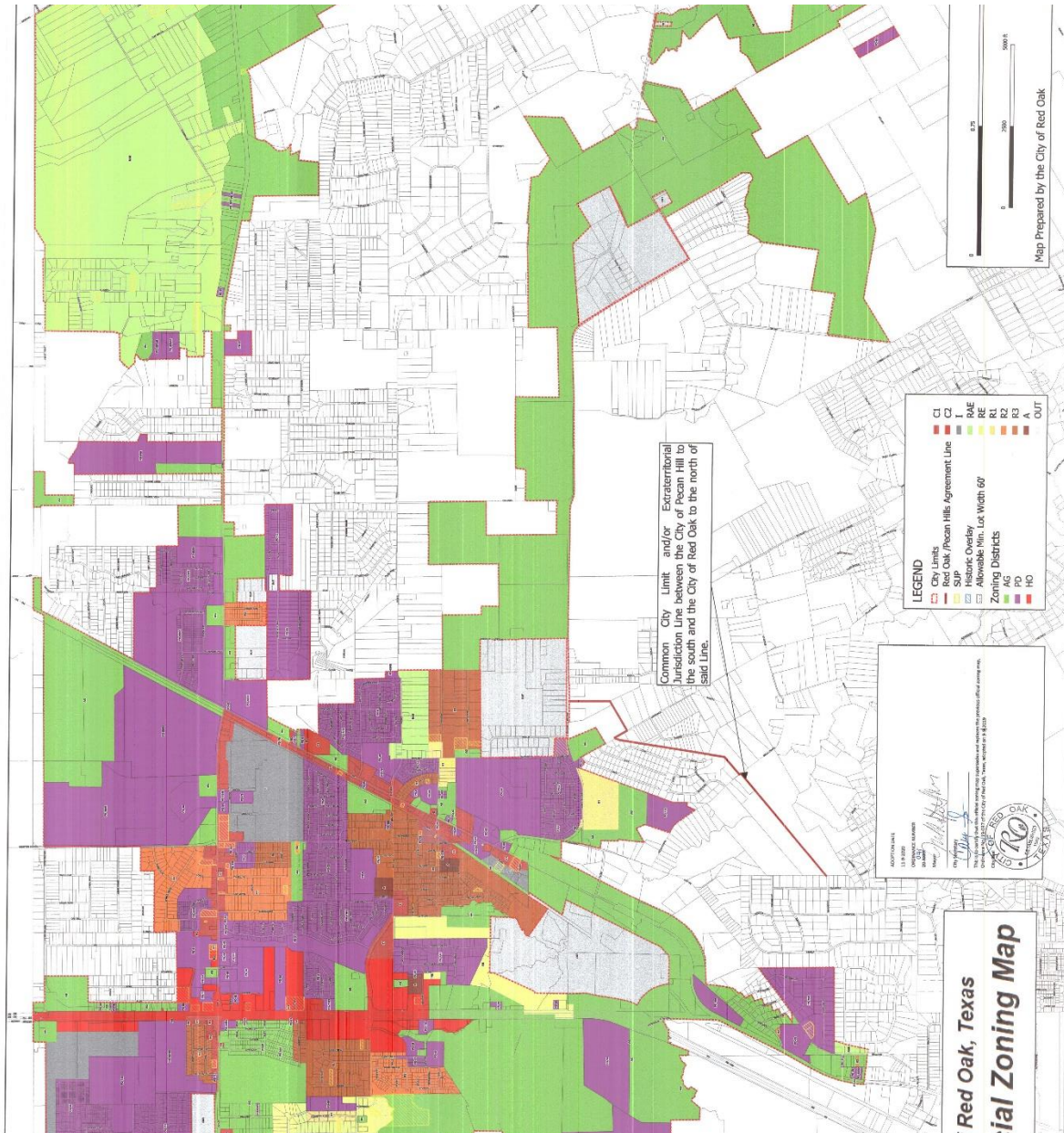


- Future Land Uses**
- W/E Recreational Estate District
  - NE Single-Family Residential Subdiv. District
  - K-1 Single-Family Residential 1
  - R-2 Single-Family Residential 2
  - R-3 Single-Family Residential 3
  - A-Adapted District
  - C-1 Commercial District 1
  - C-2 Commercial District 2
  - I-Industrial District
  - P-1 Planning Area 1
  - P-2 Planning Area 2
- Thoroughfare Types**
- Planning Area 3
  - Planning Area 4
  - Planning Area 5
  - Planning Area 6
  - Planning Area 7
  - Planning Area 8
  - Planning Area 9
  - Planning Area 10
  - Planning Area 11
  - Planning Area 12
  - Planning Area 13
  - Planning Area 14
  - Interchange
- Proposed System/Plan**
- Ad - Regional Arterial (150' ROW)
  - A - Major Arterial (115' ROW)
  - B - Minor Arterial (100' ROW)
  - C - Major Collector (90' ROW)
  - D - Minor Collector (60' ROW)
  - E - Proposed Major Collector
  - F - Proposed Minor Collector
  - G - Proposed 50' New Roadway
- Other Landmarks**
- Waterway
  - Utility
  - Right-of-Way
  - Other

0 0.25 0.5 1 1.5 Miles

0 1000 2000 4000 6000 Feet

**FREESSE & MICHOLS**



## City of Waxahachie

At Risk To: (X for Yes)		City of Waxahachie Critical and Vulnerable Facility and Infrastructure	
		Name or Description	Address
Winter Storms			
Wildfires			
Tornadoes			
Thunderstorms			
Flooding			
Extreme Heat			
Expansive Soils			
Drought			
Dam Failure			

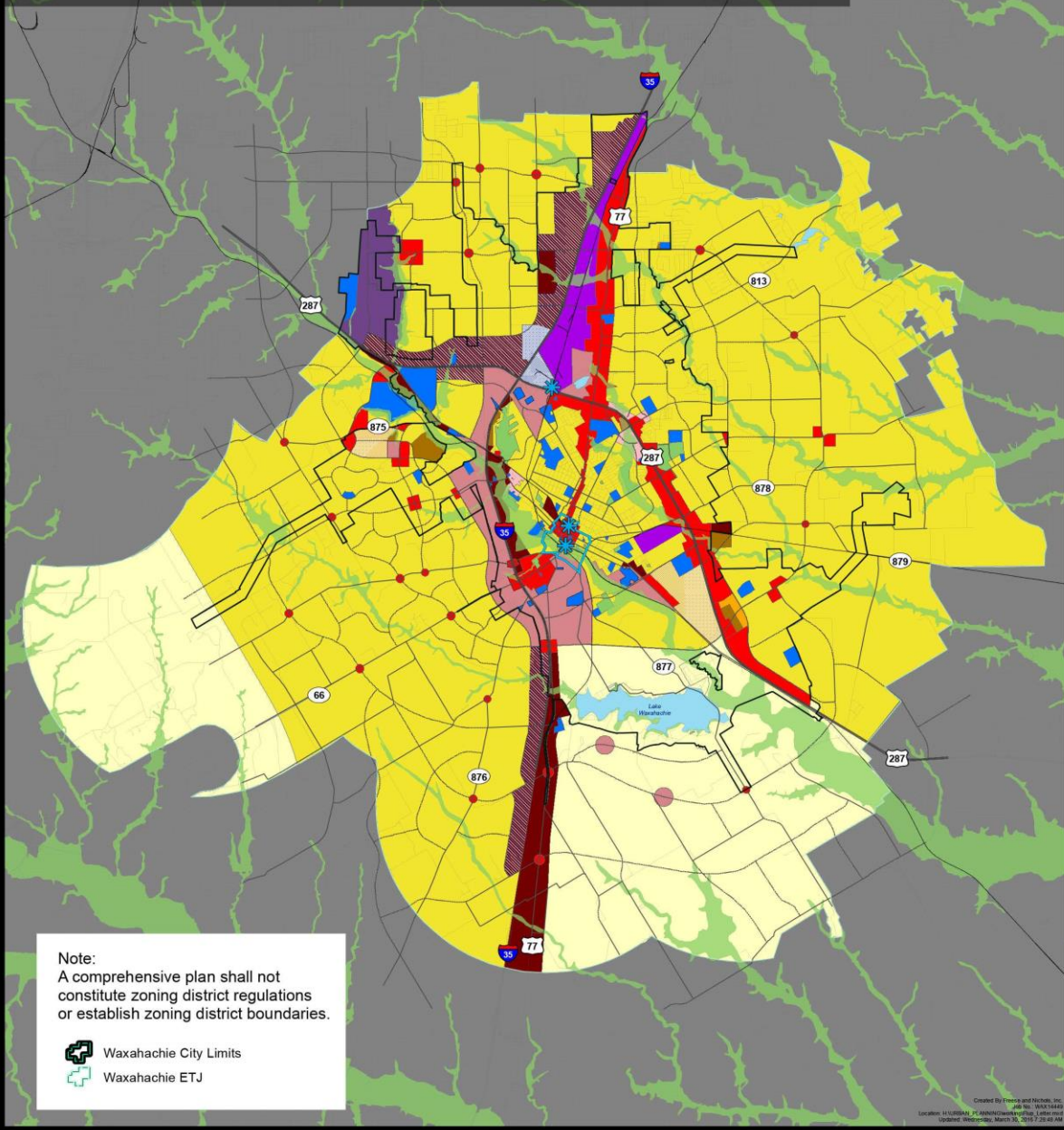
At Risk To: (X for Yes)								City of Waxahachie Critical and Vulnerable Facility and Infrastructure		
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address





# Figure 10. Future Land Use Plan Map

January 2016  
 0 0.5 1 2 Miles



Note:  
 A comprehensive plan shall not constitute zoning district regulations or establish zoning district boundaries.

Waxahachie City Limits  
 Waxahachie ETJ



## City of Waxahachie 2016 Comprehensive Plan Future Land Use Plan

- |                            |                           |                                   |
|----------------------------|---------------------------|-----------------------------------|
| Proposed Rail Stations     | High Density Residential  | Airport Industrial                |
| Downtown Area              | Mixed Use Residential     | Commercial                        |
| <b>Land Uses</b>           | Mixed Use Non-Residential | Highway Commercial                |
| Estate Residential         | Medical District          | Industrial                        |
| Low Density Residential    | Office                    | Parks and Open Space              |
| Medium Density Residential | Retail                    | Public/Semi-Public                |
|                            |                           | 1-Percent Flood Risk Zones (FEMA) |

Created By Freese and Nichols, Inc. 6600 W. 14th St. Suite 100 Dallas, TX 75244  
 Location: 13.107826N, -97.900470W (Central Time Zone) - Lattitude: 33.074  
 Longitude: -97.900470W, March 20, 2017, 7:22:45 AM

## Ellis County Unincorporated

At Risk To: (X for Yes)									Ellis County Critical and Vulnerable Facility and Infrastructure	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
X	X	X	X	X	X	X	X	X	CENTRAL HIGH VFD	3929 FM 1183
X	X	X	X	X	X	X	X	X	TELICO VFD	8527 FM1181, Ennis, TX 75119
X	X	X	X	X	X	X	X	X	BRISTOL VFD	101 S Old Walnut, Ennis, TX 75119
X	X	X	X	X	X	X	X	X	ESD 6 VFD STATION 1	1816 FM 66, Waxahachie, TX 75167
X	X	X	X	X	X	X	X	X	AVALON VFD	101 S FM 55 Italy, Tx 76651
X	X	X	X	X	X	X	X	X	GARRETT RURAL VFD	6116 FM 879, Ennis, TX 75119
X	X	X	X	X	X	X	X	X	RED OAK FIRE STATION 2	1201 Pierce Rd, Red Oak, TX 75154
X	X	X	X	X	X	X	X	X	FORRESTON VFD	114 Forreston Rd, Waxahachie, TX 75165
X	X	X	X	X	X	X	X	X	BAYLOR SCOTT AND WHITE MEDICAL CENTER – WAXAHACHIE	2400 I-35E, Waxahachie, TX 75165
X	X	X	X	X	X	X	X	X	ENNIS REGIONAL HOSPITAL	2201 W Lampasas Ennis, TX 75119
X	X	X	X	X	X	X	X	X	METHODIST MIDLOTHIAN	1201 E, US-287, Midlothian, TX 76065

At Risk To: (X for Yes)									Ellis County Critical and Vulnerable Facility and Infrastructure	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
X	X	X	X	X	X	X	X	X	FERRIS POLICE DEPT	201 S Church St, Ferris, TX 75125
X	X	X	X	X	X	X	X	X	ELLIS COUNTY SHERIFFS' OFFICE AND JAIL	300 S Jackson St, Waxahachie, TX 75165
X	X	X	X	X	X	X	X	X	PALMER PD AND MUNICIPAL COURT	114 W Jefferson St, Palmer, TX 75152
X	X	X	X	X	X	X	X	X	GARRETT PD	208 N Ferris St Ennis, TX 75119
X	X	X	X	X	X	X	X	X	CITY OF OVILLA	105 S Cockrell Hill Rd, Red Oak, TX 75154
X	X	X	X	X	X	X	X	X	ECISO LAW ENFORCEMENT CENTER (LEC)	2272 Farm to Market Rd 878, Waxahachie, TX 75165
X	X	X	X	X	X	X	X	X	ITALY POLICE DEPT	101 W Main St, Italy, TX 76651
X	X	X	X	X	X	X	X	X	AMR ELLIS COUNTY EMS	2250 US-287 BUS Suite B, Waxahachie, TX 75167
X	X	X	X	X	X	X	X	X	ELLIS COUNTY HISTORIC COURTHOUSE	101 W. Main St. Waxahachie Tx, 75165
X	X	X	X	X	X	X	X	X	MID-WAY REGIONAL	131 Airport Dr, Midlothian, TX

At Risk To: (X for Yes)									Ellis County Critical and Vulnerable Facility and Infrastructure	
Dam Failure	Drought	Expansive Soils	Extreme Heat	Flooding	Thunderstorms	Tornadoes	Wildfires	Winter Storms	Name or Description	Address
									AIRPORT	76065
X	X	X	X	X	X	X	X	X	MOONBOW AIRPORT	1520 E Highland Rd, Waxahachie, TX 75167
X	X	X	X	X	X	X	X	X	HURN AIRPORT	Farm to Market Rd 878, Waxahachie, TX 75165

Map A.1

# Ellis County

## FEMA DFIRM FLOOD ZONES 2012

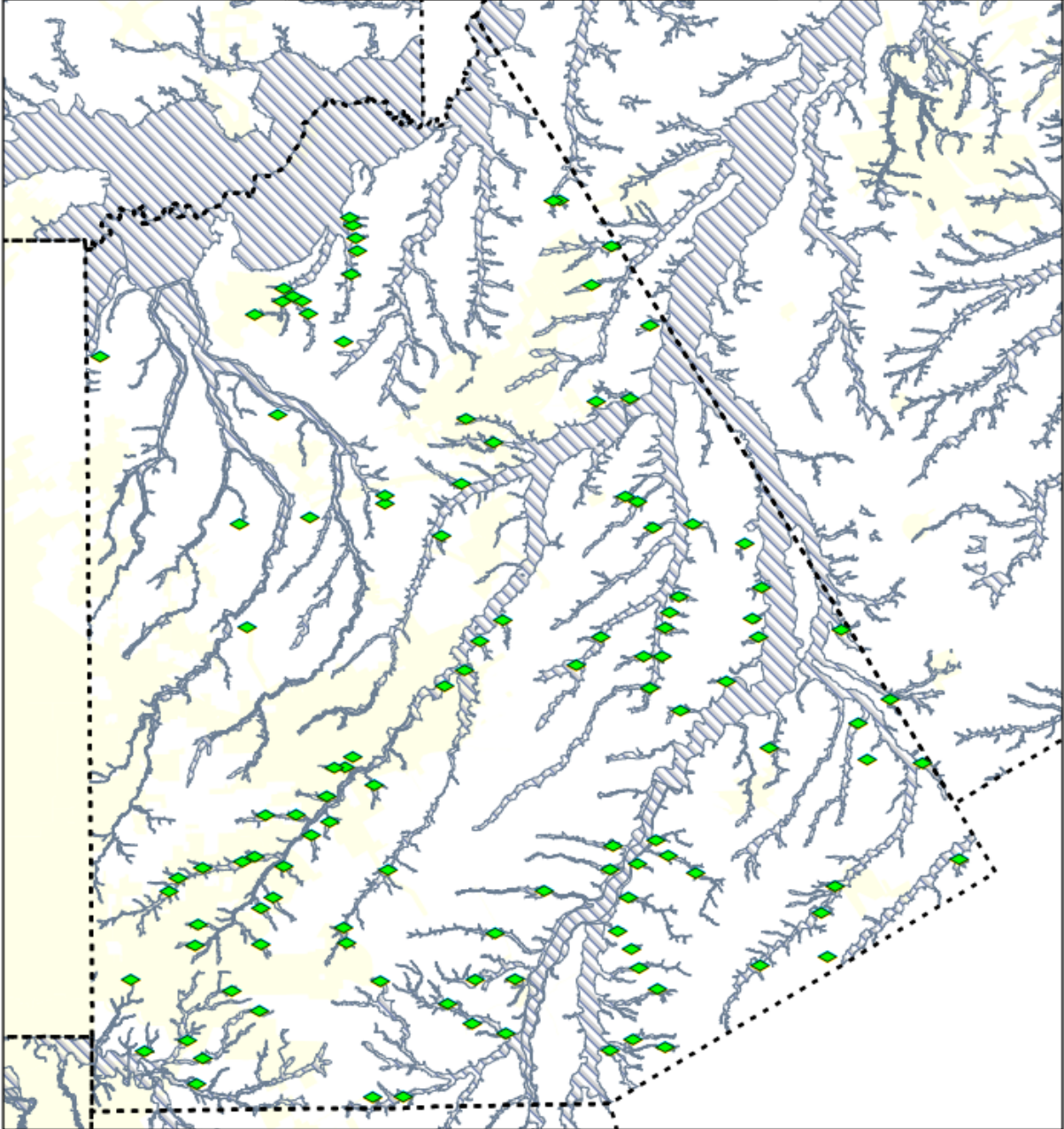
- ZONE**
-  100 Year
  -  100 Year (Detail)
  -  500 Year
  -  Dams

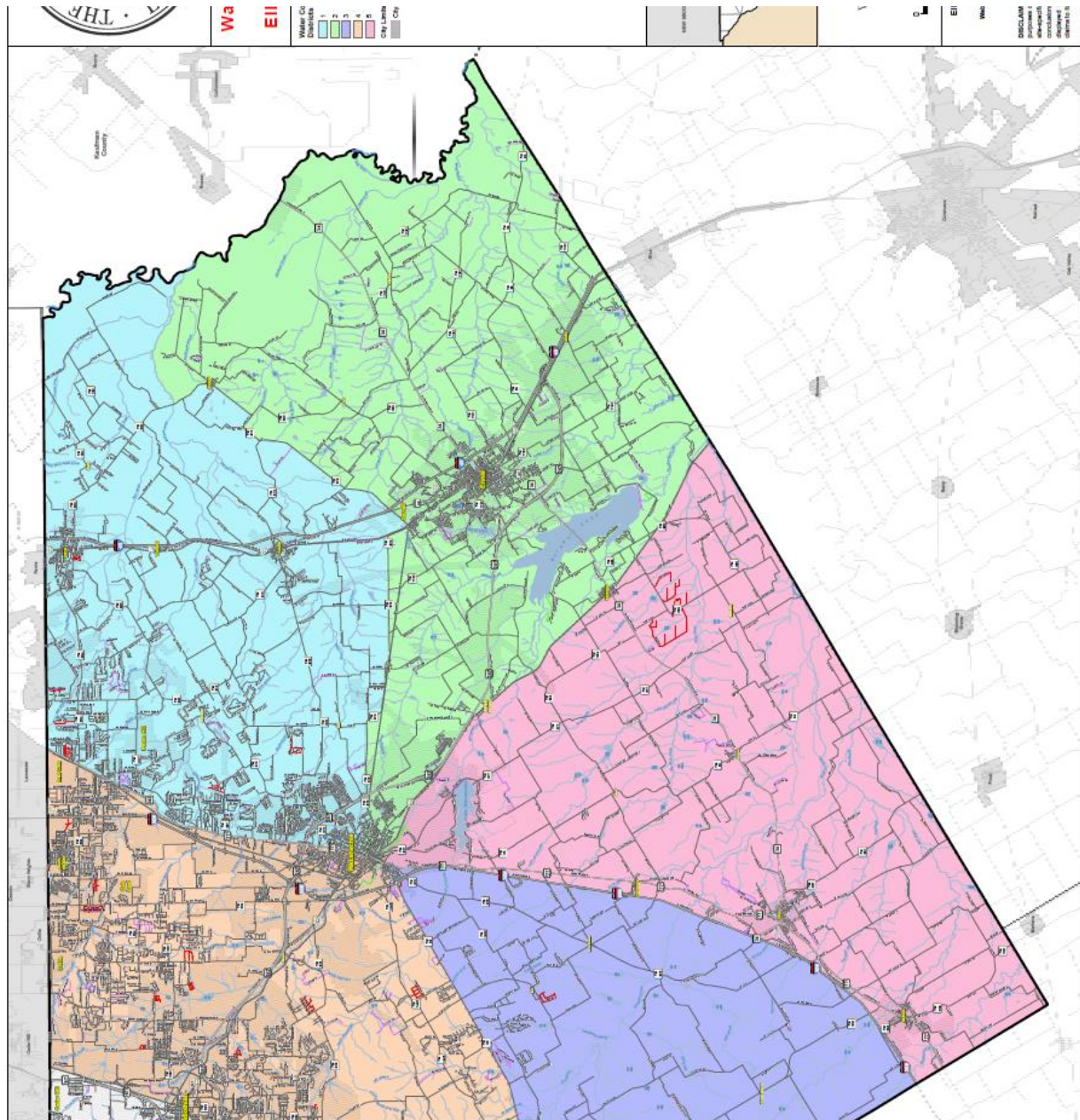
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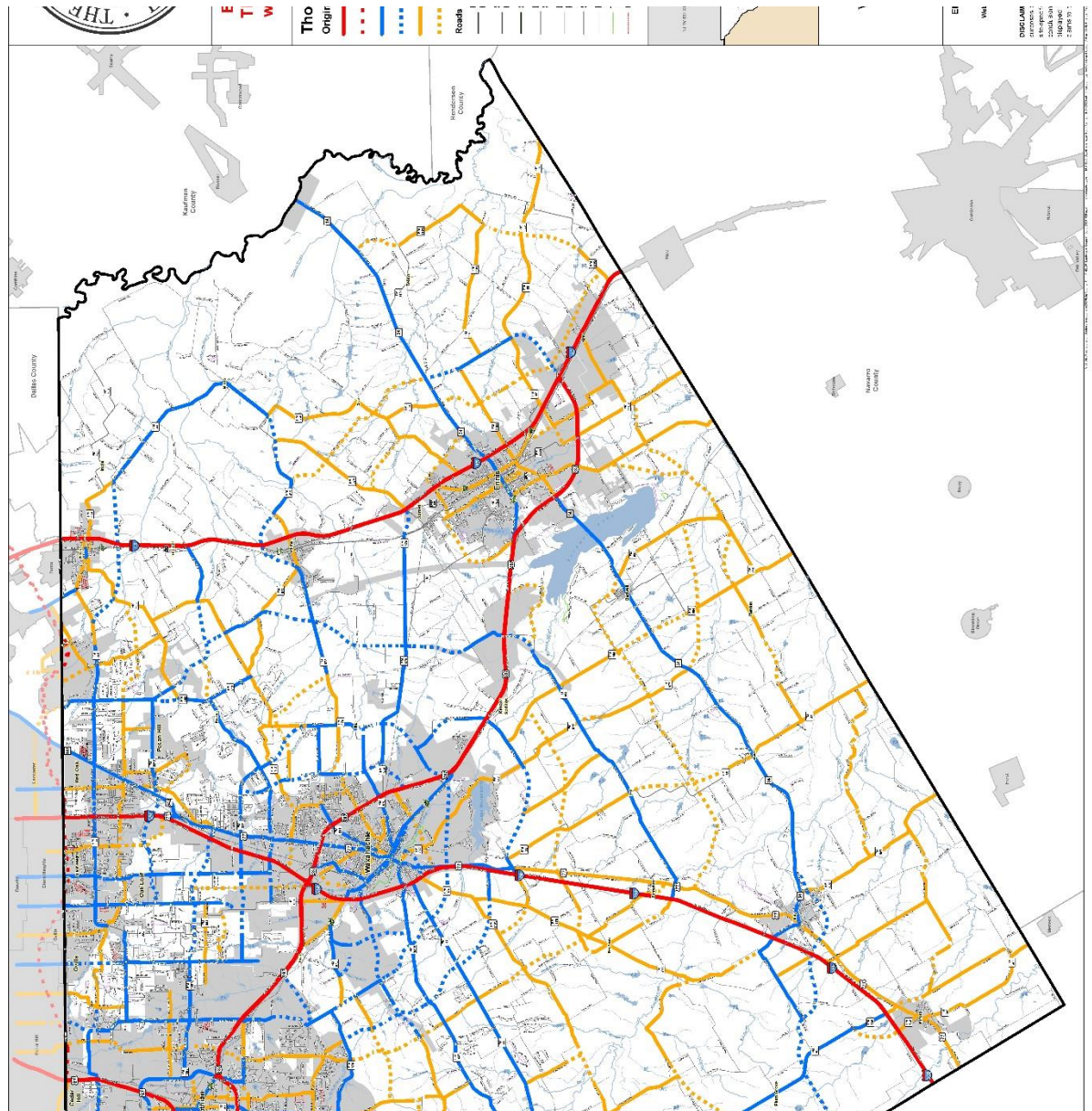


**Emergency Preparedness**

North Carolina's Council of Government  
Map Created By: Amanda Emery  
11/15/2014  
10/23/2014



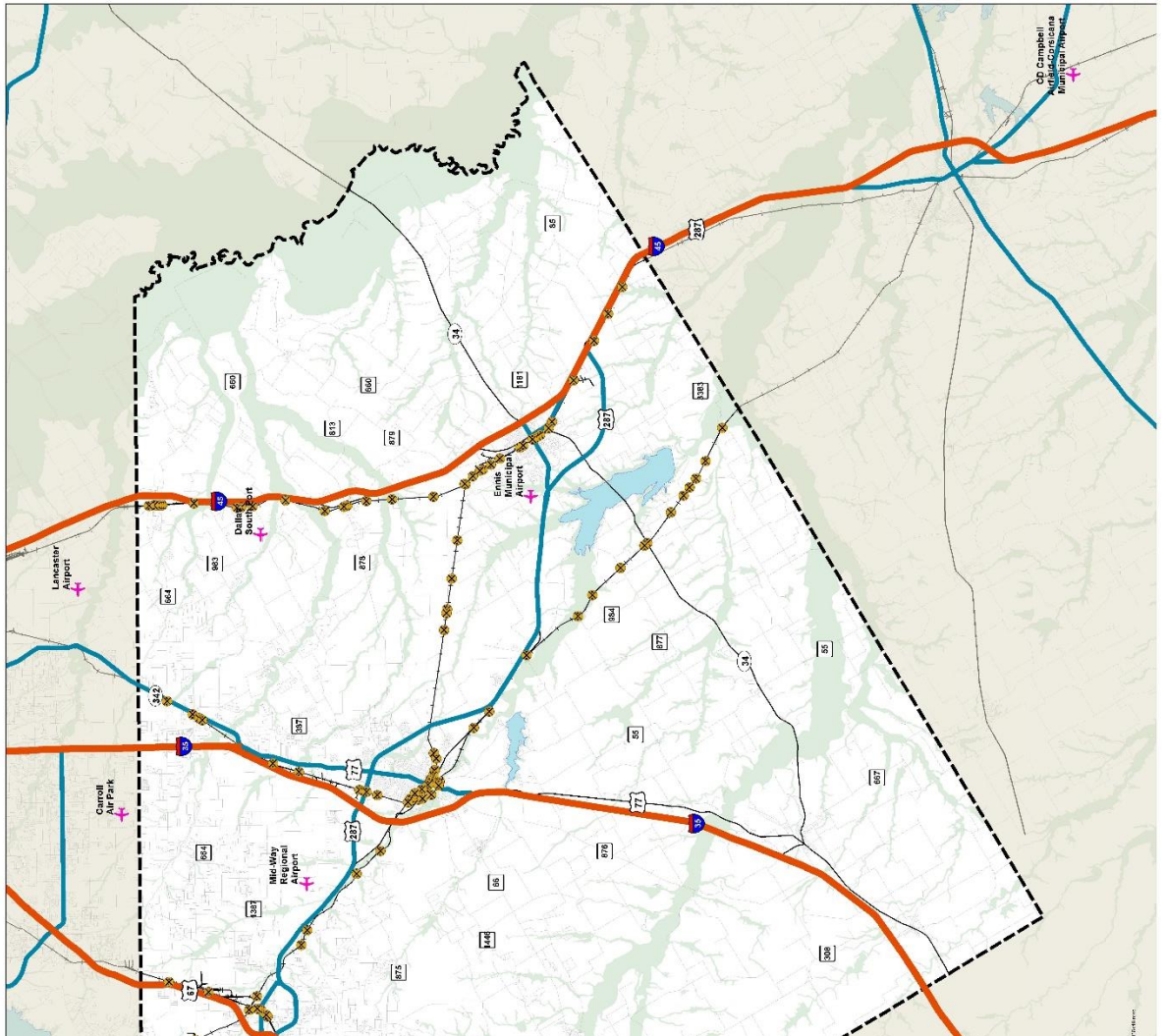


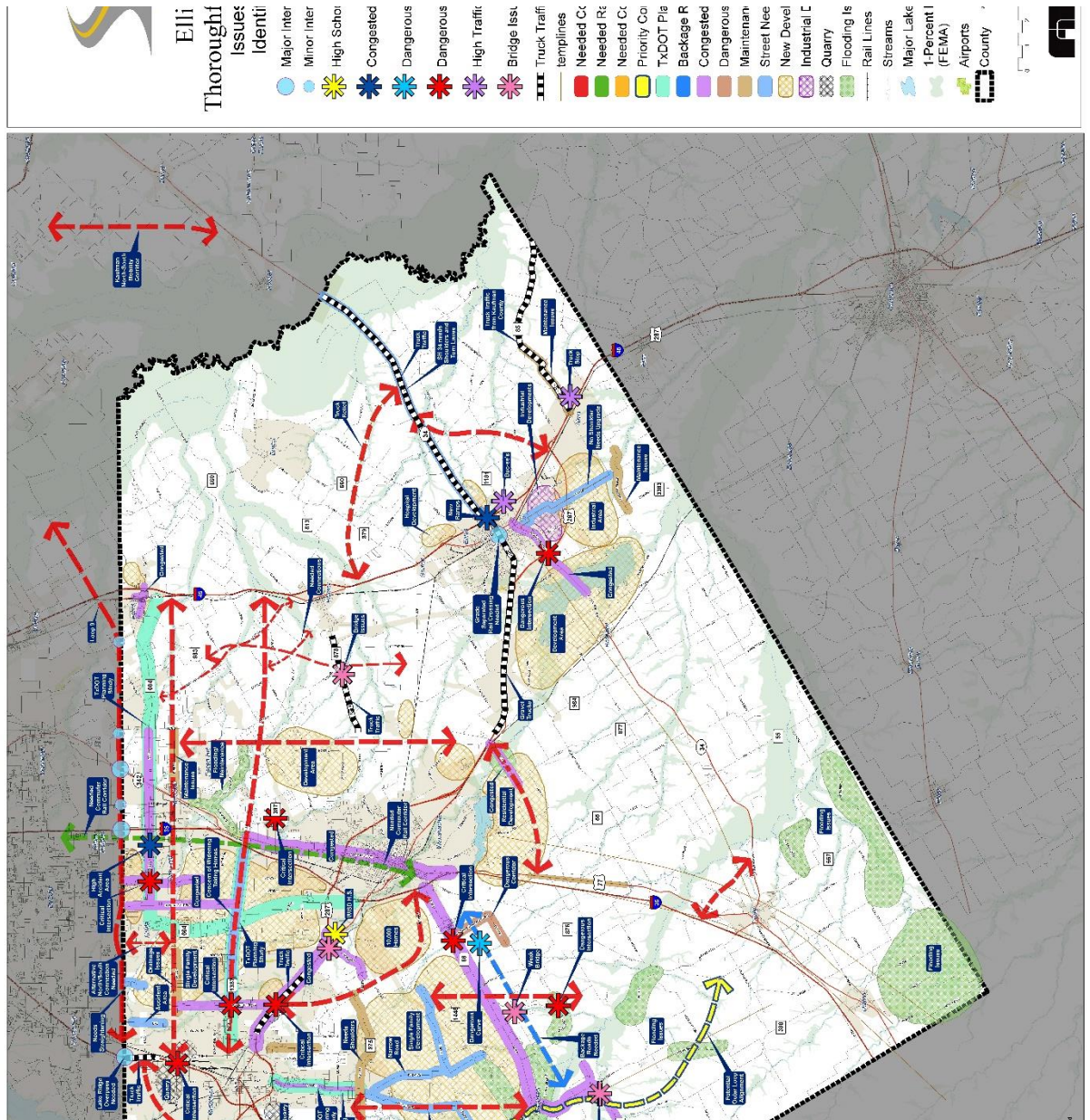




**Legend**

-  Airports
-  Primary Fr
-  Secondary
-  Rail Crossi
-  Rail Lines
-  Ellis Count
-  Major Lake
-  1-Percent I





## Appendix B: Capabilities Assessment

The following capability assessments examine the ability of the jurisdictions to implement and manage a comprehensive mitigation strategy. Strengths, weaknesses, and resources of the jurisdictions are identified as a means to develop an effective Hazard Mitigation Plan (HMP). The capabilities identified in these assessments were evaluated collectively to develop feasible recommendations, which support the implementation of effective mitigation activities.

The assessments include questions regarding existing plans, policies, and regulations that contribute to or hinder the ability to implement hazard mitigation activities, including legal and regulatory capabilities; administrative and technical capabilities; and fiscal capabilities.

## City of Alma

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Capital Improvement Plan (CIP)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/>	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
		Region	strategy?		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to	<input type="checkbox"/> Yes	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			implement mitigation actions?	<input type="checkbox"/> No	
Stormwater Management Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
Parks or Open Space Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
	<input type="checkbox"/> N/A	Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year: 2009 IBC
Building Code Effectiveness Grading Schedule (BGEGS) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Score:
Fire Department ISO Rating	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Rating:

Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Review method: Building Inspector</b>
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### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Describe capability:</b>
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Tree trimming, clearing drainage systems
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> County and state mutual aid agreements

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Chief Building Official	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes



Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
	<input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Public Works Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
Hazard data and information	<input type="checkbox"/> Yes	Describe capability:	

Technical	Have capability?	If Yes...	
	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Has capability been used to assess or mitigate risk in the past? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		If yes, for what type of hazard event?	
Grant writing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		If yes, for what type of hazard event?	
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		If yes, for what type of hazard event?	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		Describe program or organization and how it relates to disaster resilience and mitigation:	
Ongoing public education or information program (e.g.,	<input type="checkbox"/> Yes	Could the program or organization help implement future mitigation activities? <input type="checkbox"/> Yes	

Program or Organization	Have capability?	If Yes...	
responsible water use, fire safety, household preparedness, environmental education)	<input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Authority to levy taxes for specific purposes	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Impact fees for new development	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Stormwater utility fee	<input type="checkbox"/> Yes <input type="checkbox"/> No	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/>

Funding Resources	Have capability?	If Yes...	
	<input checked="" type="checkbox"/> N/A		No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Incurrence of debt through general obligation bonds and/or special tax bonds	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Community Development Block Grant	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Other federal funding programs (e.g. FEMA)	<input type="checkbox"/> Yes	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
mitigation grants)	<input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
State funding programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Bardwell

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input type="checkbox"/> Yes	<input type="checkbox"/> Local	Does the plan address natural	<input type="checkbox"/> Yes	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> County <input type="checkbox"/> Region	hazards?	<input type="checkbox"/> No	
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Capital Improvement Plan (CIP)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):



Type of Plans	Have capability?	Level	If Yes...		
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local – <input checked="" type="checkbox"/> County Ellis County Emergency Management Plan, 02/10/2021 <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to	<input type="checkbox"/>	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Stormwater Management Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			strategy?		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes	Is the ordinance an effective measure for	<input checked="" type="checkbox"/> Yes	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
	<input type="checkbox"/> No <input type="checkbox"/> N/A	<b>reducing hazard impacts?</b>	<input type="checkbox"/> No	
		<b>Is the ordinance adequately administered and enforced?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is the ordinance an effective measure for reducing hazard impacts?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
		<b>Is the ordinance adequately administered and enforced?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
		<b>Is the FIRM adequately administered and enforced?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is the ordinance an effective measure for reducing hazard impacts?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
		<b>Is the ordinance adequately administered and enforced?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Acquisition of land for open space and public recreation uses	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is the ordinance an effective measure for reducing hazard impacts?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
		<b>Is the ordinance adequately administered and enforced?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Version/Year:</b>

Building Code Effectiveness Grading Schedule (BGEES) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Score:</b>
Fire Department ISO Rating	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Rating:</b>
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Review method:</b> <b>Building Inspector</b>

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b>
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> The City of Bardwell participates in the Ellis County Hazard Mitigation Action Planning Committee that Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Tree trimming, clearing drainage systems
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> County and state mutual aid agreements

Staff	Have capability? FT/PT*	If Yes...
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<b>*Full-time (FT) or part-time (PT) position</b>			
Chief Building Official	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
	<input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b>	
		<b>Has capability been used to assess or mitigate risk in the past?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Technical	Have capability?	If Yes...
		If yes, for what type of hazard event?
Hazard data and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> The Ellis County Hazard Mitigation Action Plan has historical occurrences of natural hazards that are reviewed during the planning process to determine risks to people, property and the environment.
		<b>Has capability been used to assess or mitigate risk in the past?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? Natural hazards
Grant writing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b>
		<b>Has capability been used to assess or mitigate risk in the past?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b>
		<b>Has capability been used to assess or mitigate risk in the past?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>



Program or Organization	Have capability?	If Yes...	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Authority to levy taxes for specific purposes	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Impact fees for new development	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Stormwater utility fee	<input type="checkbox"/> Yes	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/>

Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Incurrence of debt through general obligation bonds and/or special tax bonds	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Community Development Block Grant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	

Funding Resources	Have capability?	If Yes...	
Other federal funding programs (e.g. FEMA mitigation grants)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
State funding programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Ennis

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County	Does the plan address natural hazards? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			Does the plan identify projects? <input checked="" type="checkbox"/> Yes		<b>Comments (optional):</b>

Type of Plans	Have capability?	Level	If Yes...		
		<input type="checkbox"/> Region	to include in the mitigation strategy?	<input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Capital Improvement Plan (CIP)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Stormwater Management Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			mitigation actions?		
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance	<input type="checkbox"/> Yes	Comments (optional):



Land Use Planning and Ordinances	Have capability?	If Yes...		
		adequately administered and enforced?	<input type="checkbox"/> No	
Acquisition of land for open space and public recreation uses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year: IBC 2015
Building Code Effectiveness Grading Schedule (BGEES) Score	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Score:
Fire Department ISO Rating	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Rating: 2
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Review method:

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Describe capability:

	<input type="checkbox"/> N/A	
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Tree trimming, clearing drainage systems
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> County and state mutual aid agreements

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Chief Building Official	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Community Planner	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of hazard event?	
Hazard data and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
Grant writing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	

Technical	Have capability?	If Yes...	
HaZUS analysis or GIS software	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	
Natural disaster or safety related school programs	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	
Public/private partnership initiatives addressing	<input checked="" type="checkbox"/> Yes	Could the program or organization help implement future mitigation activities?	<input checked="" type="checkbox"/> Yes

Program or Organization	Have capability?	If Yes...	
disaster-related issues	<input type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Authority to levy taxes for specific purposes	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
			No
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Impact fees for new development	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Stormwater utility fee	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Incurrence of debt through general obligation bonds and/or special tax bonds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
			<input checked="" type="checkbox"/> No
<b>If yes, for what type of mitigation activities?</b>			
Incur debt through private activities	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Community Development Block Grant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Other federal funding programs (e.g. FEMA mitigation grants)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
State funding programs	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/>



Funding Resources	Have capability?	If Yes...	
			Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities?			

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Ferris

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Capital Improvement Plan (CIP)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be	<input checked="" type="checkbox"/> Yes	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			used to implement mitigation actions?	<input type="checkbox"/> No	
Economic Development Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			actions?		
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Stormwater Management Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure	<input type="checkbox"/> Yes	<input type="checkbox"/>	Does the plan address natural	<input type="checkbox"/> Yes	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
Plan	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Local <input type="checkbox"/> County <input type="checkbox"/> Region	hazards?	<input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Parks or Open Space Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...
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Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Version/Year: 2015 IBC

	<input type="checkbox"/> N/A	
Building Code Effectiveness Grading Schedule (BGEES) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Score:</b>
Fire Department ISO Rating	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Rating: 3</b>
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Review method:</b>

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Plan and coordinate strategic development throughout the city.
Mitigation Planning Committee	<input type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Hydrant maintenance program, tree trimming throughout city streets, annual inspections, annual pre-incident planning tours.
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> EDUCT mutual aid agreement.

Staff	Have capability? FT/PT*	If Yes...
<b>*Full-time (FT) or part-time (PT) position</b>		

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Chief Building Official	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...
Warning Systems/Services (e.g., Reverse 911, outdoor)	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Outdoor tornado sirens, NIXEL text messaging system, social media



Technical	Have capability?	If Yes...	
warning signals)	<input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Has capability been used to assess or mitigate risk in the past?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b> Severe weather such as tornadoes, winter freezes, and droughts.	
Hazard data and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Tier Two Reporting System	
		<b>Has capability been used to assess or mitigate risk in the past?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b>	
Grant writing	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Currently establishing a program for this.	
		<b>Has capability been used to assess or mitigate risk in the past?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b>	
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Describe capability:</b>	
		<b>Has capability been used to assess or mitigate risk in the past?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b>	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused	<input type="checkbox"/> Yes	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes

Program or Organization	Have capability?	If Yes...	
on environmental protection, emergency preparedness, access, and functional needs populations, etc.	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b> Public education on how to install and use smoke detectors properly, household fire safety, education on outdoor burning.	
Natural disaster or safety related school programs	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b> Public school presentations on fire safety.	
Public/private partnership initiatives addressing disaster-related issues	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b> Private churches have in the past provided housing for displaced peoples.	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

Program or Organization	Have capability?	If Yes...
	<input type="checkbox"/> N/A	

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Authority to levy taxes for specific purposes	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Fees for water, sewer, gas, and/or electric services	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Impact fees for new development	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
			<input type="checkbox"/> No
Stormwater utility fee	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Incurrence of debt through general obligation bonds and/or special tax bonds	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Incur debt through private activities	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Community Development Block Grant	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Other federal funding programs (e.g. FEMA mitigation grants)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
State funding programs	<input type="checkbox"/> Yes	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> No		<input type="checkbox"/> No
	<input type="checkbox"/> N/A	Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Garrett

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Capital Improvement Plan (CIP)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	City of Garrett mirrors Ellis County Emergency Operations Plan Adopted June 2011
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to	<input type="checkbox"/> Yes	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			implement mitigation actions?	<input type="checkbox"/> No	
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Stormwater Management Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
Green Infrastructure Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):



Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Version/Year: 2017/ IBC

	<input type="checkbox"/> N/A	
Building Code Effectiveness Grading Schedule (BGEES) Score	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Score:</b>
Fire Department ISO Rating	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Rating:</b>
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Building Inspector</b>

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Describe capability:</b>
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> City of Garrett participates in Ellis County Hazard Mitigation Planning committee that identifies hazards, conducts a risk vulnerability assessment and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Tree trimming is done annually thru major accessed roads though out the City. Ditches are cleaned out as needed.
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Interjurisdictional Mutual Aid Agreements with the State of Texas, County of Ellis and City of Garrett to provide mutual aid emergency services. Ellis County uses all county owned resources to respond to situation as needed. Statement of Agreement with American Red Cross. County contracts with East Texas

		Medical Center -EMS. Agreement with Garrett Volunteer Fire Department.
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Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Chief Building Official	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
	<input type="checkbox"/> No <input type="checkbox"/> N/A	Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Chief Building Official	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes

Technical	Have capability?	If Yes...	
signals)			<input type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b>	
Hazard data and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	The Ellis County Hazard Mitigation Action Plan has historical occurrences of natural hazards that are reviewed during the planning process to determine risks to people, property and the environment.	
		<b>Has capability been used to assess or mitigate risk in the past?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b>	
Grant writing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>City of Garrett uses Public Management for all grant writing and assistance.</b>	
		<b>Has capability been used to assess or mitigate risk in the past?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b>	
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b>	
		<b>Has capability been used to assess or mitigate risk in the past?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b>	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Program or Organization	Have capability?	If Yes...	
populations, etc.		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...
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Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		Has the funding resource been used in past for mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		If yes, for what type of mitigation activities?	
Authority to levy taxes for specific purposes	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		Has the funding resource been used in past for mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		If yes, for what type of mitigation activities?	
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
		Has the funding resource been used in past for mitigation activities for mitigation activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
		If yes, for what type of mitigation activities?	
Impact fees for new development	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		Has the funding resource been used in past for mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Funding Resources	Have capability?	If Yes...	
		If yes, for what type of mitigation activities?	
Stormwater utility fee	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Incurrence of debt through general obligation bonds and/or special tax bonds	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Community Development Block Grant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/>

Funding Resources	Have capability?	If Yes...	
			No
		If yes, for what type of mitigation activities?	
Other federal funding programs (e.g. FEMA mitigation grants)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
State funding programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Italy

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Local	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
	<input type="checkbox"/> N/A	<input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
Capital Improvement Plan (CIP)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Economic Development Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/>	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>

Type of Plans	Have capability?	Level	If Yes...		
		Region	mitigation strategy?		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Stormwater Management Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			mitigation actions?		
Hazard Mitigation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Natural Hazard Specific Ordinance (e.g., stormwater,	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the ordinance an effective measure for reducing hazard	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
wildfire)	<input type="checkbox"/> N/A	impacts?		
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year: 2015
Building Code Effectiveness Grading Schedule (BGEES) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Score:
Fire Department ISO Rating	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Rating:
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Review method: Contract with Bureau Veritas for this service

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
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Planning Commission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> <b>Established by City Council to review and provide recommendations.</b>
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> <b>Public Works department crew maintains tree trimming and clearing drainage systems, etc.</b>
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> <b>Established mutual aid agreements with county precincts and law enforcement agencies.</b>

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Chief Building Official	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/>

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
			Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
	<input type="checkbox"/> No <input type="checkbox"/> N/A	Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? Severe weather events	
Hazard data and information	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
Grant writing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes

Technical	Have capability?	If Yes...	
			<input type="checkbox"/> No
		If yes, for what type of hazard event? FEMA	
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes  <input type="checkbox"/> No
		If yes, for what type of hazard event?	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input type="checkbox"/> Yes  <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input type="checkbox"/> Yes  <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input type="checkbox"/> Yes  <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	

Program or Organization	Have capability?	If Yes...	
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Authority to levy taxes for specific purposes	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities?			
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Has the funding resource been used in past for mitigation activities for mitigation activities?			
If yes, for what type of mitigation activities?			
Impact fees for new development	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Has the funding resource been used in past for mitigation activities?			
If yes, for what type of mitigation activities?			
Stormwater utility fee	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Has the funding resource been used in past for mitigation activities?			
If yes, for what type of mitigation activities?			
Incurrence of debt through general obligation bonds and/or special tax bonds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> N/A		No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Community Development Block Grant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Other federal funding programs (e.g. FEMA mitigation grants)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities? Flooding/Winter Storm	
State funding programs	<input checked="" type="checkbox"/> Yes	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/>

Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> No <input type="checkbox"/> N/A		Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities? TDEM, COVID-19</b>	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Maypearl

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Capital Improvement Plan (CIP)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Local	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>



Type of Plans	Have capability?	Level	If Yes...		
	<input type="checkbox"/> N/A	<input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan identify projects to include in the mitigation strategy? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Can the plan be used to implement mitigation actions? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
Economic Development Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Does the plan identify projects to include in the mitigation strategy? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Can the plan be used to implement mitigation actions? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
Local Emergency Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Does the plan identify projects to include in the mitigation strategy? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Can the plan be used to implement mitigation actions? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/>	Does the plan address natural hazards? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Does the plan identify projects to include in the <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	

Type of Plans	Have capability?	Level	If Yes...		
		Region	mitigation strategy?		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Stormwater Management Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			mitigation actions?		

Land Use Planning and Ordinances	Have capability?	If Yes...			
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):	
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):	
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
Acquisition of land for open space and public recreation uses	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	

<b>Building Code, Permitting, and Inspections</b>	<b>Have capability?</b>	
Building Code	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Version/Year:</b>
Building Code Effectiveness Grading Schedule (BGEES) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Score:</b>
Fire Department ISO Rating	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Rating:</b>
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Review method: Planning and Zoning Commission &amp; Bureau Veritas</b>

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

<b>Administration</b>	<b>Have capability?</b>	<b>If Yes...</b>
Planning Commission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Planning and Zoning Commission is established and meets monthly.
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> We have a public works department that maintains the roads with current funding constraints as well as trims trees and clears antiquated drainage systems.
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Describe capability:</b> Interjurisdictional Mutual Aid Agreement: State Mutual Aid throughout the county

	<input type="checkbox"/> N/A	Maypearl ISD: local partnership to aid in financial support and mutual success Ellis County Sherriff's Department: Aids in disasters
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Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Chief Building Official	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input type="checkbox"/> Yes-FT	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
	<input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...		
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:		
		<table border="1"> <tr> <td>Has capability been used to assess or mitigate risk in the past?</td> <td> <input type="checkbox"/> Yes   <input type="checkbox"/> No           </td> </tr> </table>	Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes  <input type="checkbox"/> No
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes  <input type="checkbox"/> No	
If yes, for what type of hazard event?				
Hazard data and information	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:		
		<table border="1"> <tr> <td>Has capability been used to assess or mitigate risk in the past?</td> <td> <input type="checkbox"/> Yes   <input type="checkbox"/> No           </td> </tr> </table>	Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes  <input type="checkbox"/> No
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes  <input type="checkbox"/> No	
If yes, for what type of hazard event?				
Grant writing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:		
		<table border="1"> <tr> <td>Has capability been used to assess or mitigate risk in the past?</td> <td> <input type="checkbox"/> Yes   <input type="checkbox"/> No           </td> </tr> </table>	Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes  <input type="checkbox"/> No
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes  <input type="checkbox"/> No	
If yes, for what type of hazard event?				
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:		
		<table border="1"> <tr> <td>Has capability been used to assess or mitigate risk in the past?</td> <td> <input type="checkbox"/> Yes   <input type="checkbox"/> No           </td> </tr> </table>	Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes  <input type="checkbox"/> No
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes  <input type="checkbox"/> No	
If yes, for what type of hazard event?				

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.



Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

**Financial Assessment**

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Authority to levy taxes for specific purposes	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Impact fees for new development	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
			<input type="checkbox"/> No
<b>If yes, for what type of mitigation activities?</b>			
Stormwater utility fee	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Incurrence of debt through general obligation bonds and/or special tax bonds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Community Development Block Grant	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/>

Funding Resources	Have capability?	If Yes...	
			<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Other federal funding programs (e.g. FEMA mitigation grants)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
State funding programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Midlothian

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/>	Does the	<input type="checkbox"/>	Comments (optional): Envision

Type of Plans	Have capability?	Level	If Yes...		
Plan	<input type="checkbox"/> No <input type="checkbox"/> N/A	Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>plan address natural hazards?</b>	Yes <input checked="" type="checkbox"/> No	<b>Midlothian 2018 addresses:</b> <b>Community engagement, economic &amp; fiscal, community character &amp; design, land-use (floodplain ordinances), transportation, parks, trails and environment, health &amp; safety.</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
Capital Improvement Plan (CIP)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional): Road improvements to drainage</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
Economic Development	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/>	<b>Does the plan</b>	<input type="checkbox"/>	<b>Comments (optional): In December 2019, Economic Development</b>

Type of Plans	Have capability?	Level	If Yes...		
Plan	<input type="checkbox"/> No <input type="checkbox"/> N/A	Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>address natural hazards?</b>	Yes <input checked="" type="checkbox"/> No	<b>Board approved a Plan that identifies:</b> 1. Business Park 2. Department Fundamentals 3. Expansion 4. Workforce Development 5. Partnerships
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional): 2021 Hazard Identification and Risk Assessment City of Midlothian Emergency Management Plan</b> <b>Annex A: Warning</b> <b>Annex B: Communications</b> <b>Annex C: Mass Care &amp; Sheltering</b> <b>Annex D: Radiological Protection</b> <b>Annex E: Evacuation</b> <b>Annex F: Firefighting</b> <b>Annex G: Law Enforcement</b> <b>Annex H: Health and Medical Services</b> <b>Annex I: Emergency Public Information</b> <b>Annex J: Recovery &amp; Pre-Disaster Recovery Plan</b> <b>Annex K: Public Works and Engineering</b> <b>Annex L: Utilities</b> <b>Annex M: Resource Management</b>

Type of Plans	Have capability?	Level	If Yes...		
					<b>Annex N: EOC Direction and Control</b> <b>Annex O: Human Services</b> <b>Annex P: Hazard Mitigation</b> <b>Annex Q: Hazardous Materials and Oil Spill Response</b> <b>Annex R: Search and Rescue</b> <b>Annex S: Transportation</b> <b>Annex T: Volunteer &amp; Donations Management</b> <b>Annex U: Legal</b> <b>Annex V: Terrorist Incident Response</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional): Annex P: Hazard Mitigation &amp; Ellis County Hazard Mitigation Action Plan</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be</b>	<input type="checkbox"/>	<b>Comments (optional):</b>

Type of Plans	Have capability?	Level	If Yes...		
			used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Transportation Plan	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input checked="" type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional): Metropolitan Transportation Plan, <a href="#">Mobility 2045</a> , was adopted by the <a href="#">Regional Transportation Council</a> on June 14, 2018
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Stormwater Management Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional): On May 27, 2014, the City passed Resolution No. 2014-25 adopting the City of Midlothian SWMP  On January 12, 2016, <a href="#">Ordinance No. 2016-01</a> was adopted to establish <i>Rules and Regulations</i> for the SWMP.
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be	<input type="checkbox"/>	Comments (optional):



Type of Plans	Have capability?	Level	If Yes...		
			used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input checked="" type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional): NCTCOG Green Infrastructure Guide, May 2017. <a href="http://nctcog.org/GreenInfrastructureGuide_2017.pdf">GreenInfrastructureGuide_2017.pdf (nctcog.org)</a>
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
Parks or Open Space Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional): 2012 Midlothian Parks, Recreation and Open Space Master Plan, <a href="#">Microsoft Word - Midlothian Park Master Plan MOST CURRENT 1-12-12 App B &amp; C not inserted yet TG.doc</a>
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional): Ellis County Hazard Mitigation Action Plan (2015-2016)
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...
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Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>Is the ordinance an effective measure for reducing hazard impacts?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p><b>Comments (optional):</b> On July 9, 2013, the City Council adopted a new Zoning Ordinance that simplified, reorganized, and reformatted the previous one and made this one more user-friendly, easier to understand and navigate to find the needed information. <a href="#">Zoning Ordinance   Midlothian, TX - Official Website</a></p> <p><b>Code of Ordinances:</b> <a href="#">Franklin Legal Publishing, powered by CTS z2</a></p>
		<p>Is the ordinance adequately administered and enforced?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p><b>Comments (optional):</b></p>
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>Is the ordinance an effective measure for reducing hazard impacts?</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p><b>Comments (optional):</b> City of Midlothian Subdivision Ordinances: <a href="#">Franklin Legal Publishing, powered by CTS z2</a></p>
		<p>Is the ordinance adequately administered and enforced?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p><b>Comments (optional):</b></p>
		<p>Is the FIRM adequately administered and enforced?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p><b>Comments (optional):</b> City of Midlothian Code of Ordinances: <a href="#">Franklin Legal Publishing, powered by CTS z2</a></p> <p><b>Division 3. Provisions for Flood Hazard Reduction</b>  <b>3.1.004 Floodplain</b>   <b>3.12.041 Designation of Floodplain Administrator</b></p>

Land Use Planning and Ordinances	Have capability?	If Yes...		
				Code and Enforcement is located in the MPD Community Services Division.
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b> <a href="#">Franklin Legal Publishing, powered by CTS z2</a> <b>Ordinance: Flooding, Stormwater,</b>
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b> <a href="#">Code &amp; Zoning Enforcement   Midlothian, TX - Official Website</a>
Acquisition of land for open space and public recreation uses	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b> The City of Midlothian does not have an ordinance to acquire land for open space and public recreation uses.
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Version/Year: City of Midlothian</b>  2015 International Building Code and <b>Amendments</b> 2015 International Mechanical Code and <b>Amendments</b> 2015 International Plumbing Code and <b>Amendments</b> 2015 International Residential Code and <b>Amendments</b> 2015 International Energy Conservation Code and <b>Amendments</b>

		<p>2015 International Fuel and Gas Code and <a href="#">Amendments</a></p> <p>2015 International Existing Building Code and <a href="#">Amendments</a></p> <p>2015 International Fire Code and <a href="#">Amendments</a></p> <p>2014 National Electrical Code and <a href="#">Amendments</a></p> <p><a href="#">Adopted Codes   Midlothian, TX - Official Website</a></p>
Building Code Effectiveness Grading Schedule (BGEGS) Score	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Score:
Fire Department ISO Rating	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Rating: 2
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>Review method each Thursday: The City's Development Team consists of the Planning Department, Engineering &amp; Utilities, Public Works, Utilities Superintendent, Fire Department Chief, Fire Marshal, Chief Building Official.</p> <p><a href="#">Development Review Team   Midlothian, TX - Official Website</a></p>

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p><b>Describe capability:</b> The City of Midlothian Planning &amp; Zoning Commission considers all platting issues, provides guidance on long range</p>

	<input type="checkbox"/> N/A	growth for the community, and serves as an advisory board to the City Council on ordinance amendments and zoning issues. The commission is composed of seven members serving two-year terms. City residency is required for membership. Appointments are made in December. <a href="#">Planning &amp; Zoning Commission   Midlothian, TX - Official Website</a>
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> The City of Midlothian Hazard Mitigation Planning Team is comprised of city departments and partner agencies that identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions. HMPT next meeting will be July 21, 2021.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Parks and Recreation, Public Works / Streets and tree trimming companies (contractors) hired by the City of Midlothian to conduct tree trimming operations to reduce risk on city owned property or right-of-ways.
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> <ol style="list-style-type: none"> <li>1. Joint Resolution between Ellis County and the Cities of Ellis County dated Nov 10, 2003.</li> <li>2. Agreement &amp; Contract# 48715 Master Switch User &amp; Communications System Agreement for Radio System Access for Interoperability Communications– City of Fort Worth to provide communication access via standard communications and statewide mutual aid frequencies, February 21, 2017.</li> <li>3. Adoption of the Ellis County Hazard Mitigation Action Plan, 2015-2016, November 10, 2015.</li> <li>4. Statement of Agreement between the American Red Cross and First United Methodist Church of Midlothian to provide mass care and sheltering, disaster preparedness activities, conducting and coordinating actual disaster relief operations. The American Red Cross will maintain its capability to take immediate action to provide emergency assistance to any number of people affected by, and emergency workers involved in, disaster or threat of disaster, June 18, 2015.</li> </ol>

		<p>5. Interjurisdictional Mutual Aid Agreement, State of Texas, County of Ellis – Alma, Bardwell, Cedar Hill, Ennis, Ferris, Garrett, Glenn Heights, Grand Prairie, Italy, Mansfield, Maypearl, Midlothian, Milford, Oak Leaf, Ovilla, Palmer, Pecan Hill, Red Oak and Waxahachie to provide mutual aid emergency services.</p> <p>6. Interjurisdictional Mutual Aid Agreement for EDUCT Interjurisdictional Mutual Aid Agreement for EDUCT – Cedar Hill, DeSoto, Duncanville, Ferris, Glenn Heights, Lancaster, Midlothian, Ovilla, Red Oak and Waxahachie for Fire, EMS and police protection and law enforcement assistance to participating cities, May 24, 2005.</p> <p>7. Resolution 2005-11. National Incident Management System (NIMS) adoption, September 27, 2005.</p> <p>8. Resolution - Interlocal Agreement for Regional Public Works Emergency Response Team, February 26, 2013.</p> <p>9. Law enforcement agreement with Ellis County regarding jail operations and other law enforcement operations.</p> <p>10. Agreement for the Northern Ellis Emergency Dispatch for Midlothian PD to provide 911 Dispatch for Ovilla and Red Oak.</p> <p>11. (See City of Emergency Management Plan for comprehensive list of agreements and contracts for emergency response.)</p>
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Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Chief Building Official	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/>

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
			<input type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
	<input type="checkbox"/> No <input type="checkbox"/> N/A	Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director – MPD Community Services handles nuisance calls and will notify the Texas Commission on Environmental Quality (TCEQ) for monitoring and enforcement.	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., CodeRed, outdoor warning signals)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: The City of Midlothian operates 14 Outdoor Warning Sirens and CodeRed to provide emergency notification via cell phone through text message, voice messages and emails.	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
		If yes, for what type of hazard event? Natural hazards such as tornadoes, high winds sustained over 70mph, large hail such as 1.50 in hail or larger, chemical emergencies or other emergencies as deemed necessary by Emergency Management.	
Hazard data and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: The City of Midlothian has a Hazard Identification and Risk Assessment as part of the City of Midlothian Emergency Management Plan and the Ellis County Hazard Mitigation Action Plan.	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? Natural, Man-made, technological hazards	
Grant writing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: The Emergency Management Coordinator has experience in FEMA Hazard Mitigation Grant Program (HMGP) , Emergency Management Performance Grant (EMPG), State Homeland Security Grants (SHSP), and FEMA Public Assistance grants (PA). Other city departments may be experienced in other grant programs.	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of hazard event?	
HaZUS analysis or GIS software	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: The City of Midlothian has a GIS Specialist in the Engineering Department that has the ability to create maps for public safety and emergency management to include hazard mitigation.	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? All hazards	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
<p>Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>Could the program or organization help implement future mitigation activities?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>Could the program or organization help implement future mitigation activities?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Natural disaster or safety related school programs</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>Could the program or organization help implement future mitigation activities?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Program or Organization	Have capability?	If Yes...	
		<p>Describe program or organization and how it relates to disaster resilience and mitigation: The City of Midlothian regularly partners with Midlothian ISD to conduct training and exercise opportunities for each school campus for all-hazards emergency preparedness, response, recovery and mitigation. In 2020-2021, The City of Midlothian and MISD have conducted the following exercises to promote preparedness and a more resilient community:</p> <p>Pipeline Emergency Table Top Exercise, October 2020</p> <p>COVID 19 Response – March 2020 – Current</p> <p>Winter Storm Uri and Widespread Power Outages, February 2021</p> <p>Severe Weather &amp; Tornado Table Top Exercise, April 15, 2021</p> <p>MISD Parent – Student Reunification Full Scale Exercise, April 15, 2021 that includes city staff, MISD Principals, MISD Administration, MISD Transportation and Dieterich Middle School students.</p>	
Public/private partnership initiatives addressing disaster-related issues	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>Could the program or organization help implement future mitigation activities?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
StormReady certification	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<p>Describe program or organization and how it relates to disaster resilience and mitigation: The Midlothian Police Department have established public/private partnerships through Community Action through Teamwork (CATT), Community Emergency Response Team, local Ministerial Alliance through local church pastors to bring the community together as a team, to prevent, combat, deter and stop crime.</p> <p><a href="#">Community Involvement   Midlothian, TX - Official Website</a></p>	

Program or Organization	Have capability?	If Yes...
Firewise Communities Certification	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities? Streets & Drainage, Stormwater	
Authority to levy taxes for specific purposes	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Fees for water, sewer, gas, and/or electric services	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities? <input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
			<input type="checkbox"/> No
Impact fees for new development	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Could the resource be used to fund future mitigation activities?</b></p> <p>The State of Texas authorizes municipalities to assess impact fees upon new developments in order to finance the construction of capital improvements necessitated by those developments.</p> <p>On December 13, 2016, <a href="#">Ordinance 2016-52</a> (Effective Date January 1, 2017) was adopted to amend the City of Midlothian's Impact Fees. <a href="#">Adopted Roadway, Water, and Wastewater Impact Fee Study (2016)</a></p> <p>On May 8, 2018, <a href="#">Ordinance 2018-27</a> (Effective Date May 8, 2018) was adopted to amend the City of Midlothian's Impact Fees.</p> <p>Adopted <a href="#">2018 Roadway Impact Fee Update</a> (2018)</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<p><b>Has the funding resource been used in past for mitigation activities?</b></p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Stormwater utility fee	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Could the resource be used to fund future mitigation activities?</b></p> <p>On January 12, 2016, <a href="#">Ordinance No. 2016-01</a> was adopted to establish <i>Rules and Regulations</i> for the SWMP.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<p><b>Has the funding resource been used in past for mitigation activities?</b></p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Incurrence of debt through general obligation	<input checked="" type="checkbox"/> Yes	<p><b>Could the resource be used to fund future mitigation activities?</b></p>	<input checked="" type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
bonds and/or special tax bonds	<input type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities? Streets and Drainage projects</b>	
Incur debt through private activities	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Community Development Block Grant	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Other federal funding programs (e.g. FEMA mitigation grants)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
State funding programs	<input checked="" type="checkbox"/> Yes	<b>Could the resource be used to fund future</b>	<input checked="" type="checkbox"/>

Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> No <input type="checkbox"/> N/A	mitigation activities?	Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	

**How can these capabilities be expanded and improved to reduce risk?**

The City of Midlothian has adopted and implemented actions that enhance and improve existing authorities through local ordinances, plans, policies, and resources for mitigation. The City of Midlothian also includes budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations through building codes, approving the hiring and training of staff, such as the Emergency Management Coordinator, for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Milford

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):



Type of Plans	Have capability?	Level	If Yes...		
Capital Improvement Plan (CIP)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Local Emergency Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Local	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
	<input type="checkbox"/> N/A	<input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan identify projects to include in the mitigation strategy?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Can the plan be used to implement mitigation actions?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Comments (optional):</b>
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Does the plan identify projects to include in the mitigation strategy?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Can the plan be used to implement mitigation actions?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
Stormwater Management Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Does the plan identify projects to include in the mitigation strategy?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Can the plan be used to implement mitigation actions?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/>	<b>Does the plan address natural hazards?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Does the plan identify projects to include in the</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	

Type of Plans	Have capability?	Level	If Yes...		
		Region	mitigation strategy?		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance	<input type="checkbox"/> Yes	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...	
		adequately administered and enforced?	<input type="checkbox"/> No

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year:
Building Code Effectiveness Grading Schedule (BGEGS) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Score:
Fire Department ISO Rating	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Rating:
Site Plan Review Requirements	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Review method:

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Responsible for making recommendations to the City Council on zoning and subdivision matters.
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Describe capability:</b> Maintains city facilities and property.

systems)	<input type="checkbox"/> N/A	
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Local fire department receives mutual aid when local resources are exhausted.

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Chief Building Official	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Civil Engineer	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:
		Has capability been used to assess or mitigate risk in the past? <input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?
Hazard data and information	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:
		Has capability been used to assess or mitigate risk in the past? <input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?
Grant writing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:
		Has capability been used to assess or mitigate risk in the past? <input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:
		Has capability been used to assess or mitigate risk in the past? <input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?

Education and Outreach Assessment



Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

## Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Authority to levy taxes for specific purposes	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Impact fees for new development	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Stormwater utility fee	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Incurrence of debt through general obligation bonds and/or special tax bonds	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Community Development Block Grant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/>

Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> N/A		No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities?			
Other federal funding programs (e.g. FEMA mitigation grants)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
State funding programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Oak Leaf

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Capital Improvement Plan (CIP)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Local	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
	<input type="checkbox"/> N/A	<input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Stormwater Management Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/>	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b> <b>Oak Leaf has a MS4 Waiver Currently.</b>

Type of Plans	Have capability?	Level	If Yes...		
		Region	mitigation strategy?		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional): The City will be creating one soon.

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):



Land Use Planning and Ordinances	Have capability?	If Yes...		
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year: 2015 ICC
Building Code Effectiveness Grading Schedule (BGEES) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Score: Data unavailable
Fire Department ISO Rating	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Rating: Class split 2/9
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Review method: Building inspector

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Planning and zoning capabilities
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Tree trimming and ditch clearing
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> We have a Mutual Aid Agreement with Ellis County.

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Chief Building Official	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
	<input type="checkbox"/> No <input type="checkbox"/> N/A	Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: BlackBoard Connect messaging system	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? Flood event in September 2018	
Hazard data and information	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
Grant writing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes

Technical	Have capability?	If Yes...	
			<input type="checkbox"/> No
		If yes, for what type of hazard event?	
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation: Newsletter and BlackBoard Connect. Posting information and sending messages directly to citizens.	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Program or Organization	Have capability?	If Yes...	
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Authority to levy taxes for specific purposes	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities?			
Fees for water, sewer, gas, and/or electric services	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Has the funding resource been used in past for mitigation activities for mitigation activities?			
If yes, for what type of mitigation activities?			
Impact fees for new development	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Has the funding resource been used in past for mitigation activities?			
If yes, for what type of mitigation activities?			
Stormwater utility fee	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Has the funding resource been used in past for mitigation activities?			
If yes, for what type of mitigation activities?			
Incurrence of debt through general obligation bonds and/or special tax bonds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> N/A		No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities?			
Incur debt through private activities	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities?			
Community Development Block Grant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities? Bridge embankment repairs.			
Other federal funding programs (e.g. FEMA mitigation grants)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities?			
State funding programs	<input checked="" type="checkbox"/> Yes	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/>



Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> No <input type="checkbox"/> N/A		Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities? Bridge embankment repairs.</b>	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Ovilla

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>
Capital Improvement	<input type="checkbox"/> Yes	<input type="checkbox"/>	<b>Does the plan address natural</b>	<input type="checkbox"/> Yes	<b>Comments (optional):</b>

Type of Plans	Have capability?	Level	If Yes...		
Plan (CIP)	<input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Local  <input type="checkbox"/> County  <input type="checkbox"/> Region	hazards?	<input type="checkbox"/> No	
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local  <input type="checkbox"/> County  <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local  <input type="checkbox"/> County  <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Local	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
	<input type="checkbox"/> N/A	<input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan identify projects to include in the mitigation strategy? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Can the plan be used to implement mitigation actions? <input type="checkbox"/> Yes <input type="checkbox"/> No		Comments (optional):
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Does the plan identify projects to include in the mitigation strategy? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Can the plan be used to implement mitigation actions? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
Stormwater Management Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Does the plan identify projects to include in the mitigation strategy? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Can the plan be used to implement mitigation actions? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/>	Does the plan address natural hazards? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	
			Does the plan identify projects to include in the <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):	

Type of Plans	Have capability?	Level	If Yes...		
		Region	mitigation strategy?		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance	<input type="checkbox"/> Yes	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...	
		adequately administered and enforced?	<input type="checkbox"/> No

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year: 2009 IBC
Building Code Effectiveness Grading Schedule (BGEGS) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Score:
Fire Department ISO Rating	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Rating:
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Review method: Building Inspector

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Describe capability:
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	Describe capability: Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Describe capability: Tree trimming, clearing drainage systems

systems)	<input type="checkbox"/> N/A	
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> County and state mutual aid agreements

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Chief Building Official	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Civil Engineer	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input type="checkbox"/> Yes-FT <input checked="" type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No



Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
Hazard data and information	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
Grant writing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	

Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Authority to levy taxes for specific purposes	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Impact fees for new development	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Stormwater utility fee	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Incurrence of debt through general obligation bonds and/or special tax bonds	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Community Development Block Grant	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> N/A		No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Other federal funding programs (e.g. FEMA mitigation grants)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
State funding programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Palmer

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Capital Improvement Plan (CIP)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Local Emergency Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Local	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
	<input type="checkbox"/> N/A	<input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Transportation Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the mitigation strategy?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Can the plan be used to implement mitigation actions?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
Stormwater Management Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/>	<b>Does the plan address natural hazards?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>
			<b>Does the plan identify projects to include in the</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>

Type of Plans	Have capability?	Level	If Yes...		
		Region	mitigation strategy?		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):



Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year: 2009
Building Code Effectiveness Grading Schedule (BCEGS) Score	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Score:
Fire Department ISO Rating	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Rating:
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Review method:

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Describe capability:</b>
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b>
Mutual Aid Agreements	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b>

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Chief Building Official	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input type="checkbox"/> Yes-FT	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
	<input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations? We do not have a full time or part time Civil Engineer; we use a company through contracts.</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Fire Chief	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
Hazard data and information	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	

Technical	Have capability?	If Yes...	
Grant writing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	

Program or Organization	Have capability?	If Yes...	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the program or organization help implement future mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation:	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	

Funding Resources	Have capability?	If Yes...	
Authority to levy taxes for specific purposes	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Fees for water, sewer, gas, and/or electric services	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Impact fees for new development	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Stormwater utility fee	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No



Funding Resources	Have capability?	If Yes...	
		If yes, for what type of mitigation activities?	
Incurrence of debt through general obligation bonds and/or special tax bonds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Incur debt through private activities	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Community Development Block Grant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Other federal funding programs (e.g. FEMA mitigation grants)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
			No
		If yes, for what type of mitigation activities?	
State funding programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Red Oak

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional): Identifies flood plan
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
Capital Improvement Plan (CIP)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Local	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
	<input type="checkbox"/> N/A	<input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan identify projects to include in the mitigation strategy?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Can the plan be used to implement mitigation actions?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Comments (optional):</b>
Transportation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Does the plan identify projects to include in the mitigation strategy?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Can the plan be used to implement mitigation actions?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>	
Stormwater Management Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Does the plan identify projects to include in the mitigation strategy?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Can the plan be used to implement mitigation actions?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>	
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/>	<b>Does the plan address natural hazards?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Does the plan identify projects to include in the</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	

Type of Plans	Have capability?	Level	If Yes...		
		Region	mitigation strategy?		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional): Limits development in floodplain and gas well. Other chapters of the city code address hazards.
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
	<input type="checkbox"/> N/A	Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year: 2018
Building Code Effectiveness Grading Schedule (BGEES) Score	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Score: 4
Fire Department ISO Rating	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Rating: 2
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Review method: through planning and zoning

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Can recommend to council policies
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Routine maintenance of stormwater conduits. We also trim trees in the

trimming, clearing drainage systems)	<input type="checkbox"/> No <input type="checkbox"/> N/A	ROW.
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> NCTCOG Public Works Emergency Response Team, APWA Public Works Emergency Response Council, inter local agreements

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
Chief Building Official	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No



Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
			<input checked="" type="checkbox"/> No
Civil Engineer	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
	<input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? Tornado, Straight line winds, Thunderstorm/Flooding	
Hazard data and information	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
Grant writing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
HaZUS analysis or GIS software	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: ArcGIS	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Technical	Have capability?	If Yes...
		If yes, for what type of hazard event?

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Natural disaster or safety related school programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Public/private partnership initiatives addressing disaster-related issues	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b>	
Storm Ready certification	<input type="checkbox"/> Yes		

Program or Organization	Have capability?	If Yes...
	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Firewise Communities Certification	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Authority to levy taxes for specific purposes	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>Has the funding resource been used in past</b>	<input type="checkbox"/>

Funding Resources	Have capability?	If Yes...	
		for mitigation activities for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities?			
Impact fees for new development	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities? Water and Sewer			
Stormwater utility fee	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, for what type of mitigation activities?			
Incurrence of debt through general obligation bonds and/or special tax bonds	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Funding Resources	Have capability?	If Yes...	
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, for what type of mitigation activities?			
Community Development Block Grant	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Other federal funding programs (e.g. FEMA mitigation grants)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
State funding programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting, and implementing stricter mitigation regulations, approving the hiring, and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## City of Waxahachie

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Capital Improvement Plan (CIP)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Local	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
	<input type="checkbox"/> N/A	<input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan identify projects to include in the mitigation strategy?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Can the plan be used to implement mitigation actions?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Comments (optional):</b>
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Does the plan identify projects to include in the mitigation strategy?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Can the plan be used to implement mitigation actions?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
Continuity of Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Does the plan identify projects to include in the mitigation strategy?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Can the plan be used to implement mitigation actions?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Comments (optional):</b>	
Transportation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	<b>Does the plan address natural hazards?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	
			<b>Does the plan identify projects to include in the</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Comments (optional):</b>	



Type of Plans	Have capability?	Level	If Yes...		
		Region	mitigation strategy?		
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Stormwater Management Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Parks or Open Space Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
		enforced?		
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the FIRM adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year: IBC 2018
Building Code Effectiveness Grading Schedule (BGEGS) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Score:

Fire Department ISO Rating	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Rating: 2</b>
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Review method: DRC</b>

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b>
Mitigation Planning Committee	<input type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Trimming, street maintenance, creek dredging
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> EDUCT, PWERT, NTPA

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Chief Building Official	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
			<input type="checkbox"/> No
Parks and Recreation Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
	<input type="checkbox"/> No <input type="checkbox"/> N/A	Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Fire Chief	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: OWS, reverse 911, Ever Bridge	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
		If yes, for what type of hazard event? Floods, tornadoes	
Hazard data and information	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability:	
		Has capability been used to assess or mitigate risk in the past?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event?	
Grant writing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: State, FEMA, Private	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? Winter Storm, Covid, Tornado, Floods	
HaZUS analysis or GIS software	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: ESRI	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? Flooding	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection,	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Could the program or organization help implement future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Program or Organization	Have capability?	If Yes...	
emergency preparedness, access and functional needs populations, etc.	<input type="checkbox"/> N/A		No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Natural disaster or safety related school programs	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Public/private partnership initiatives addressing disaster-related issues	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		



Program or Organization	Have capability?	If Yes...
	<input type="checkbox"/> N/A	

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities? Generators, OWS, trainings	
Authority to levy taxes for specific purposes	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Fees for water, sewer, gas, and/or electric services	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities for mitigation activities? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities? Stormwater	

Funding Resources	Have capability?	If Yes...	
<b>mitigations, flooding mitigation</b>			
Impact fees for new development	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities? Offsets cost of mitigation action items	
Stormwater utility fee	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Incurrence of debt through general obligation bonds and/or special tax bonds	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
			<input type="checkbox"/> No
Community Development Block Grant	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other federal funding programs (e.g. FEMA mitigation grants)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
State funding programs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	

**How can these capabilities be expanded and improved to reduce risk?**

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

## Ellis County Unincorporated

### Planning and Regulatory Assessment

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of natural hazards.

Type of Plans	Have capability?	Level	If Yes...		
Comprehensive or Master Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Capital Improvement Plan (CIP)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Economic Development Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects	<input checked="" type="checkbox"/> Yes	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
		<input type="checkbox"/> Region	to include in the mitigation strategy?	<input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Local Emergency Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Continuity of Operations Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Transportation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Stormwater Management Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Community Wildfire Protection Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Green Infrastructure Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			mitigation actions?		
Parks or Open Space Plan	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Hazard Mitigation Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Local <input checked="" type="checkbox"/> County <input type="checkbox"/> Region	Does the plan address natural hazards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Does the plan identify projects to include in the mitigation strategy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
Zoning Ordinance	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision Ordinance	<input checked="" type="checkbox"/> Yes	Is the ordinance an effective measure for	<input checked="" type="checkbox"/> Yes	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
	<input type="checkbox"/> No <input type="checkbox"/> N/A	reducing hazard impacts?	<input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
		Is the FIRM adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Acquisition of land for open space and public recreation uses	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is the ordinance an effective measure for reducing hazard impacts?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Building Code, Permitting, and Inspections	Have capability?	
Building Code	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Version/Year:
Building Code Effectiveness Grading Schedule (BGEGS) Score	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Score:
Fire Department ISO Rating	<input type="checkbox"/> Yes <input type="checkbox"/> No	Rating:



	<input checked="" type="checkbox"/> N/A	
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Review method:</b>

### Administrative and Technical Assessment

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions.

Administration	Have capability?	If Yes...
Planning Commission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability: Planning commission is established through the Department of Development.</b>
Mitigation Planning Committee	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b> Identifies hazards, conducts a risk and vulnerability assessment, and creates and monitors mitigation actions.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability: Each precinct in the count has Road and Bridge crews that maintain items like tree trimming and clearing drainage systems.</b>
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability: The county has established Mutual Aid Agreements with local agencies to assist in a time of need.</b> <b>1. Joint Resolution between Ellis County and the Cities of Ellis County dated Nov 10, 2003.</b> <b>2. Agreement &amp; Contract# 48715 Master Switch User &amp; Communications System Agreement for Radio System Access for Interoperability Communications– City of Fort Worth to provide communication access via standard communications and statewide mutual aid frequencies, February 21, 2017.</b> <b>3. Adoption of the Ellis County Hazard Mitigation Action Plan, 2015-2016, November 10, 2015.</b> <b>4. Statement of Agreement between the American Red Cross and First United Methodist Church of Midlothian to provide mass care and sheltering, disaster preparedness activities, conducting and coordinating actual disaster relief operations. The American Red Cross will maintain its capability to take immediate action to provide</b>

		<p>emergency assistance to any number of people affected by, and emergency workers involved in, disaster or threat of disaster, June 18, 2015.</p> <p>5. Interjurisdictional Mutual Aid Agreement, State of Texas, County of Ellis – Alma, Bardwell, Cedar Hill, Ennis, Ferris, Garrett, Glenn Heights, Grand Prairie, Italy, Mansfield, Maypearl, Midlothian, Milford, Oak Leaf, Ovilla, Palmer, Pecan Hill, Red Oak and Waxahachie to provide mutual aid emergency services.</p> <p>6. Interjurisdictional Mutual Aid Agreement for EDUCT Interjurisdictional Mutual Aid Agreement for EDUCT – Cedar Hill, DeSoto, Duncanville, Ferris, Glenn Heights, Lancaster, Midlothian, Ovilla, Red Oak and Waxahachie for Fire, EMS and police protection and law enforcement assistance to participating cities, May 24, 2005.</p> <p>7. Resolution 2005-11. National Incident Management System (NIMS) adoption, September 27, 2005.</p>
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Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Chief Building Official	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Parks and Recreation Director	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Emergency Manager	<input checked="" type="checkbox"/> Yes-FT	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
	<input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Community Planner	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Civil Engineer	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
GIS Coordinator	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Public Works Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Is staffing adequate to enforce regulations?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Is staff trained on natural hazards and mitigation?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Staff	Have capability? FT/PT*	If Yes...	
<b>*Full-time (FT) or part-time (PT) position</b>			
Fire Chief	<input type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Environmental Director	<input checked="" type="checkbox"/> Yes-FT <input type="checkbox"/> Yes- PT <input type="checkbox"/> No <input type="checkbox"/> N/A	Is staffing adequate to enforce regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Technical	Have capability?	If Yes...	
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Mass Notification System (Everbridge)	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? Notifications sent for severe weather events.	
Hazard data and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> Ellis County Hazard Mitigation Action Plan	
		Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of hazard event? Natural, Man-made, technological hazards Severe Weather, Floods, and Hazardous Materials Pipeline reverse 911	
Grant writing	<input checked="" type="checkbox"/> Yes	<b>Describe capability:</b>	

Technical	Have capability?	If Yes...	
	<input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Has capability been used to assess or mitigate risk in the past?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b> Hazard Mitigation Grants and FEMA PA	
HaZUS analysis or GIS software	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Describe capability:</b> A GIS Specialist in the Engineering Department that has the ability to create maps for public safety and emergency management to include hazard mitigation.	
		<b>Has capability been used to assess or mitigate risk in the past?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of hazard event?</b> All Hazards. Planning for dams and other critical infrastructures	

### Education and Outreach Assessment

Education and outreach programs and methods can be used to implement mitigation activities and communicate hazard-related information.

Program or Organization	Have capability?	If Yes...	
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation: CERT program</b>	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b> Annual safety fair that promotes safety and preparedness. KnowWhat2Do public education videos, public information sharing on social media accounts, weather forecasting, environmental hazards in the	

Program or Organization	Have capability?	If Yes...	
		area, etc... prepares the community to become more resilient.	
Natural disaster or safety related school programs	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b> School tornado poster contest helps students understand severe weather and how to prepare, mitigate, respond and recover.	
Public/private partnership initiatives addressing disaster-related issues	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the program or organization help implement future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Describe program or organization and how it relates to disaster resilience and mitigation:</b> Partnering with Chambers of Commerce's to participate in the Ellis County Preparedness Fair hosted every September (National Preparedness Month).	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	In the process of certification.	
Firewise Communities Certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

### Financial Assessment

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resources	Have capability?	If Yes...	
Capital Improvements Project funding	<input checked="" type="checkbox"/> Yes	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
	<input type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities? Drainage for storm water.</b>	
Authority to levy taxes for specific purposes	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Fees for water, sewer, gas, and/or electric services	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
Impact fees for new development	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	

Funding Resources	Have capability?	If Yes...	
Stormwater utility fee	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Incurrence of debt through general obligation bonds and/or special tax bonds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Incur debt through private activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		If yes, for what type of mitigation activities?	
Community Development Block Grant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Has the funding resource been used in past for mitigation activities?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No



Funding Resources	Have capability?	If Yes...	
		<b>If yes, for what type of mitigation activities?</b>	
Other federal funding programs (e.g. FEMA mitigation grants)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	
State funding programs	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Could the resource be used to fund future mitigation activities?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<b>Has the funding resource been used in past for mitigation activities?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<b>If yes, for what type of mitigation activities?</b>	

<b>How can these capabilities be expanded and improved to reduce risk?</b>
Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates to existing plans as new needs are recognized.

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# Appendix C: NCTCOG Programs

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The North Central Texas Council of Governments (NCTCOG) is a voluntary association of, by and for local governments, established to assist in regional planning. NCTCOG's purpose is to strengthen both the individual and collective power of local governments and to help them recognize regional opportunities, eliminate unnecessary duplication, and make joint decisions. NCTCOG consists of many departments that implement programs and projects that address the mitigation goals of the participating jurisdictions.

The Environment & Development Department at NCTCOG plays a major role in regional coordination and management of reports and projects that improve regional resilience to natural hazards through the following programs:

- **The Corridor Development Certificate (CDC)** – The CDC process aims to stabilize flood risk along the Trinity River. The CDC process does not prohibit floodplain development but ensures that any development that does occur in the floodplain will not raise flood water levels or reduce flood storage capacity. A CDC permit is required to develop land within a specific area of the Trinity floodplain called the Regulatory Zone, which is similar to the 100-year floodplain.
  - Under the CDC process, local governments retain ultimate control over floodplain permitting decisions, but other communities along the Trinity River Corridor are given the opportunity to review and comment on projects in their neighbor's jurisdiction. As the Metroplex economy continues to grow and develop, the CDC process will prevent increased flood risks
- **NCTCOG-OneRain Contrail Flood Warning Software**- Contrail software that delivers automated real-time data collection, processing, validation, analysis, archiving and visualization of hydrometeorological and environmental sensor data.
- **The *integrated* Stormwater Management (iSWM) Program**- The iSWM™ Program for Construction and Development is a cooperative initiative that assists cities and counties to achieve their goals of water quality protection, streambank protection, and flood mitigation, while also helping communities meet their construction and post-construction obligations under state stormwater permits.
  - Development and redevelopment by their nature increase the amount of imperviousness in our surrounding environment. This increased imperviousness translates into loss of natural areas, more sources for pollution in runoff, and heightened flooding risks. To help mitigate these impacts, more than 60 local governments are cooperating to proactively create sound stormwater management guidance for the region through the *integrated* Stormwater Management (iSWM) Program.
- **16-County Watershed Management Initiative**- Communities from across the region come together to collaborate on how to reduce the risks of flooding in their communities.
- **Texas Smartscape**- Texas SmartScape™ is a landscape program crafted to be "smart" for North Central Texas. Based on water-efficient landscape principles, it promotes the use of plants

suited to our region's soil, climate, and precipitation that don't require much—if any—additional irrigation, pesticides, fertilizer, or herbicides to thrive.

- The two main goals of the program are to:
  - Improve stormwater runoff quality
  - Conserve local water supplies

The Transportation Department promotes the following programs:

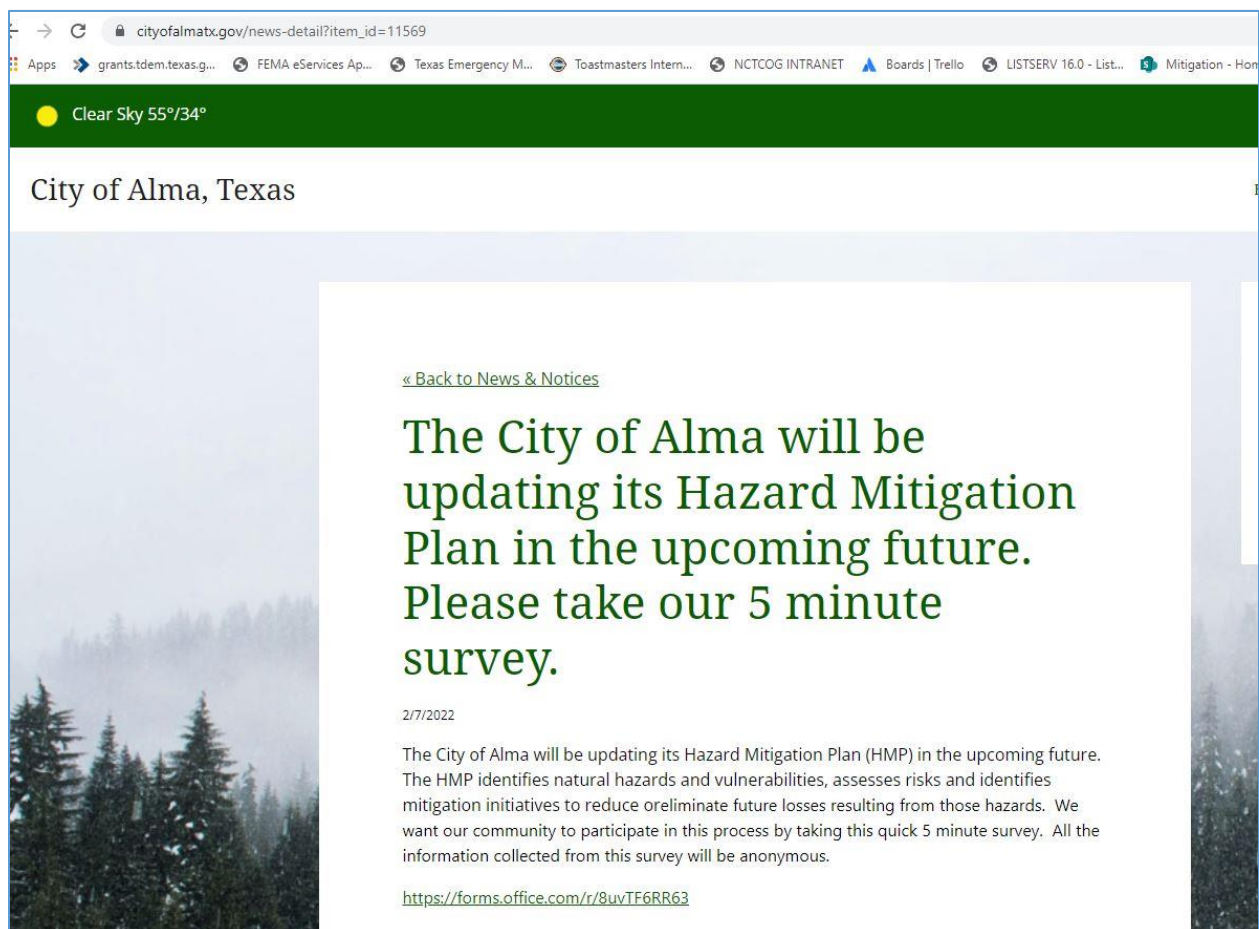
- **Bicycle-Pedestrian-** The passage of the 1991 Intermodal Surface Transportation Efficiency Act prompted NCTCOG to include non-motorized transportation network improvements in regional planning efforts. NCTCOG established the Bicycle and Pedestrian program in 1992 to address the various activities related to implementing bicycle and pedestrian facilities as an alternative mode of regional transportation.
- **Sustainable Development-** As land uses influence regional travel patterns and demand on the transportation system, and transportation connects land uses and provides access to developments, both need to be planned in conjunction with one another. NCTCOG supports Sustainable Development: mixed-use, infill, and transit-oriented developments that reduce vehicle miles traveled, enable the use of alternative modes of transportation, promote economic development, and improve air quality.

# Appendix D: Public Meeting Documents

## Part 1: Survey Announcement

Instead of hosting a separate public meeting outside of our regular, open planning meetings, the planning team felt that a public survey would be the best method of collecting public opinion for this plan update. The team advertised a Hazard Mitigation Plan survey on their jurisdiction's websites, Twitter, and Facebook pages. Part 1 includes one screenshot of those survey posts from each participating jurisdiction.

### City of Alma



# City of Bardwell

The screenshot shows the Facebook profile for the City of Bardwell. The profile picture is a circular image of four people standing outdoors. The name 'City of Bardwell' is displayed in bold, with '307 followers • 0 following' underneath. A 'Follow' button and a search bar are visible in the top right. Below the header, there are tabs for 'Posts', 'About', 'Mentions', 'Followers', 'Photos', 'Videos', and 'More'. The 'Intro' section contains the text: 'This page is for relaying information and announcements to City of Bardwell residents.' Below this, there are details for the page type ('Government organization'), address ('100 Planter Gin Rd, Bardwell, TX, United States, Texas'), phone number ('(972) 646-5332'), and email ('CityofBardwell@yahoo.com'). A 'Photos' section shows a preview of a document titled '2022 HOLIDAY SCHEDULE'. The 'Posts' section features a post from 'City of Bardwell' dated March 8 at 4:34 PM. The post text reads: 'The City of Bardwell will be updating its Hazard Mitigation Plan (HMP) in the upcoming future. The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous. Click the link below to access the survey.' Below the text is a link to a Microsoft Forms survey from FORMS.OFFICE.COM. The post has 2 likes and options to 'Like', 'Comment', and 'Share'.

# City of Ferris

The screenshot shows the Facebook profile for the Ferris Fire Department. The profile picture is a logo featuring a fire helmet with the year '1902' and the words 'FIRE DEPT'. The name 'Ferris Fire Department' is displayed in bold, with 'The Ferris Fire Department is a combination department that consists of 6 Full-Time firefighters, 6' underneath. Below the header, there are tabs for 'Posts', 'About', 'Photos', and 'Videos'. The 'Intro' section contains the following information: '1.3K Followers', 'Page · Government organization', address ('111 Ewing Blvd, Ferris, TX, United States, Texas'), phone number ('(972) 842-2898'), email ('ferrisfd@outlook.com'), website ('ferristexas.gov'), and 'Always open'. The 'Posts' section features a post from 'Ferris Fire Department' dated 4 mins ago. The post text reads: 'The City of Ferris will be updating its Hazard Mitigation Plan (HMP) in the upcoming future. The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous.' Below the text is a link to a Microsoft Forms survey from FORMS.OFFICE.COM. The post has options to 'Like', 'Comment', and 'Share'.

# City of Garrett

City of Garrett

HOME GOVERNMENT DEPARTMENTS MUNICIPAL COURT COMMUNITY

(972)875-5893 Fax (972)875-0226

## Hazard Mitigation Plan (HMP)

The City of Garrett will be updating its Hazard Mitigation Plan (HMP) in the upcoming future. The HMP identifies natural hazards and vulnerabilities, assesses risk and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous.


<https://forms.office.com/r/8uvTF6RR63>

# City of Italy

The screenshot shows a Facebook browser window with the following content:

- Browser Tabs:** Hazard Mitigation Survey for Elli..., (2) City of Italy - Municipal Page, +
- Address Bar:** facebook.com/profile.php?id=100069151181559
- Page Header:** City of Italy - Municipal Page
- Post Content:**
  - Text:** "The City of Italy will be updating its Hazard Mitigation Plan (HMP) in the upcoming future. The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous."
  - Source:** FORMS.OFFICE.COM Microsoft Forms
- Left Sidebar (Intro):**
  - Location: "We are located at the junction of U.S. Highway 77 and State Highway 34, just off Interstate 35E, app"
  - Website: "ci.italy.tx.us"
- Bottom Taskbar:** Windows search bar, system tray showing 39°F, 8:52 AM, 2/8/2022.

## City of Maypearl




### **PUBLIC REQUEST**

The City of Maypearl will be updating its Hazard Mitigation Plan (HMP) in the upcoming future. The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous. Click the link below to begin the survey: <https://forms.office.com/r/8uvTF6RR63>

Thank you in advance for your participation!

Natural Hazard Mitigation Saves



## City of Midlothian

### **Hazard Mitigation Plan Update**

The City of Midlothian will be updating its Hazard Mitigation Plan (HMP) in the upcoming future. The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous.

[Hazard Mitigation Plan Survey](#)



# City of Milford

**Posts** Filters

**City of Milford, Texas**

3d ·

⋮

The City of Milford is in the process of updating its Hazard Mitigation Plan (HMP). The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous. Please see the link below:  
<https://forms.office.com/r/8uvTF6RR63>

## Natural Hazard Mitigation Saves

**Natural Hazard Mitigation Provides the Nation \$6 in Benefit for Every \$1 Invested**

National Benefit-Cost Ratio (BCR) Per Peril <i>*BCR numbers in this study have been rounded</i>	Beyond Code Requirements	Federally Funded	This Interim Study quantified a number of benefits from mitigation, including reductions in:
<b>Overall Hazard Benefit-Cost Ratio</b>	<b>\$4:1</b>	<b>\$6:1</b>	<ul style="list-style-type: none"> <li>• Future deaths, nonfatal injuries, and PTSD</li> <li>• Repair costs for damaged buildings and contents</li> <li>• Sheltering costs for displaced households</li> <li>• Loss of revenue and other business interruption costs to businesses whose properties are damaged</li> <li>• Loss of economic activity in the broader community</li> <li>• Loss of service to the community when fire stations, hospitals, or other public buildings are damaged</li> <li>• Insurance costs other than insurance claims</li> <li>• Costs for urban search and rescue</li> </ul>
<b>Riverine Flood</b>	\$5:1	\$7:1	
<b>Hurricane Surge</b>	\$7:1	Too few points	
<b>Wind</b>	\$5:1	\$5:1	
<b>Earthquake</b>	\$4:1	\$3:1	
<b>Wildland-Urban Interface Fire</b>	\$4:1	\$3:1	

FEMA

3
 3 Shares

Like
 Comment
 Share

# City of Oak Leaf

The screenshot shows a Facebook group page for "City of Oak Leaf, Texas Citizens". The page is set to "Private" and is located in Oak Leaf, Texas. A post by Sally Fuller, an administrator, is visible, sharing a link to a Microsoft Form titled "FORMS.OFFICE.COM". The form is for a Hazard Mitigation Plan (HMP) survey. The text of the post reads: "The City of Oak Leaf will be updating its: Hazard Mitigation Plan (HMP) in the upcoming future. The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous. Thanks for your willingness to participate!" Below the text is a link to the form. The right sidebar contains an "About" section with details on privacy and visibility, and a "Rooms" section with icons for video chat.

# City of Ovilla

The screenshot shows the Facebook page for the "Ovilla Police Department". The page features a cover photo of a police vehicle at night with its lights on. The profile picture is the official seal of the Texas Police Department. The page name is "Ovilla Police Department" and it is described as "The official FACEBOOK page of The Ovilla Police Department". The "Intro" section on the left lists 4.5K followers, a public page, and the address: 105 S. Cockrell Hill Road, Ovilla, TX, United States, Texas. The contact number is (972) 617-7262 and the website is cityofovilla.org. A post by the Ovilla Police Department is visible, sharing a link to a Microsoft Form for a Hazard Mitigation Plan (HMP) survey. The text of the post reads: "The City of Ovilla will be updating its Hazard Mitigation Plan (HMP) in the upcoming future. The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous. Please click the link below to participate in the survey." Below the post is a "Connect with Ovilla Police Department on Facebook" section with "Log In" and "Create new account" buttons.

# City of Palmer





## HAZARD MITIGATION PLAN (HMP)

The City of Palmer will be updating its Hazard Mitigation Plan (HMP) in the upcoming future. The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous.

**Here are the links to the survey:**  
Long URL:  
[https://forms.office.com/Pages/ResponsePage.aspx?id=vH5eL7Aivk-TTKq9204psfjSKeBQvIBMnUbrb\\_rqnqJURVkiWk5ZTjVGODAxN0JJNzRTWiExVINYSy4u](https://forms.office.com/Pages/ResponsePage.aspx?id=vH5eL7Aivk-TTKq9204psfjSKeBQvIBMnUbrb_rqnqJURVkiWk5ZTjVGODAxN0JJNzRTWiExVINYSy4u)  
Short URL:  
<https://forms.office.com/r/8uvTF6RR63>  
(Both URLs work the same.)

**CITY OF PALMER**

# City of Red Oak



## City of Red Oak, Texas Municipal Government

1.5K followers • 103 following

Following Learn More

Posts About Mentions Followers Photos Videos More


### Intro

The City of Red Oak, Texas is strategically located off I-35 in the heart of Northern Ellis County.

- Page - Government organization
- CITY OF RED OAK is responsible for this Page
- 200 Lakeview Parkway, Red Oak, TX, United States, Texas
- +1 972-617-3638
- info@redoaktx.org
- CityofROtx
- redoaktx.org
- Open now

### Photos

See all photos




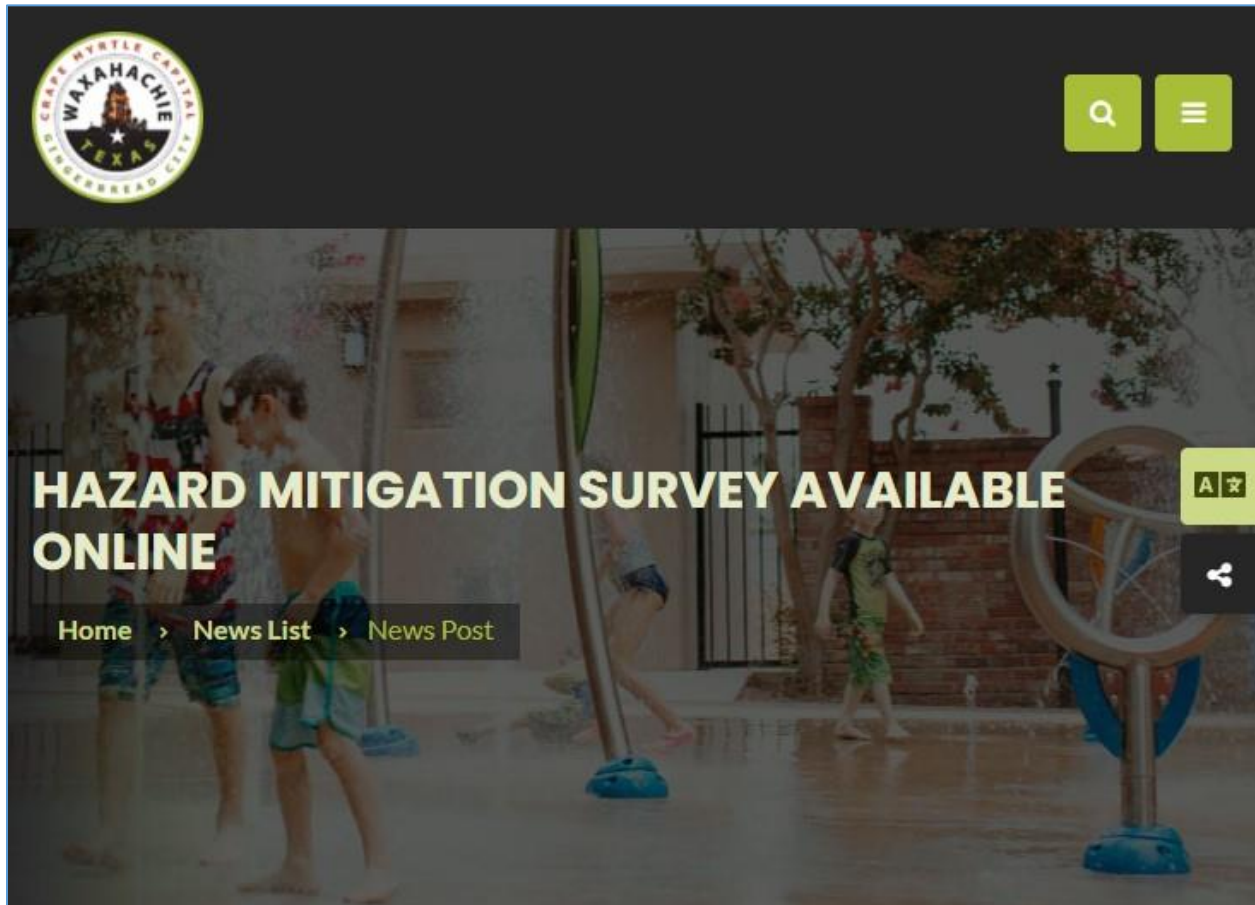
### Posts

City of Red Oak, Texas Municipal Government 58m

The City of Red Oak and Ellis County are in the process of updating their Hazard Mitigation Plan (HMP). The HMP identifies natural hazards and vulnerabilities, assesses risks, and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous. <https://forms.office.com/r/8uvTF6RR63>

## NATURAL HAZARD





**HAZARD MITIGATION SURVEY AVAILABLE ONLINE**

Home > News List > News Post

**HAZARD MITIGATION SURVEY AVAILABLE ONLINE**

The City of Waxahachie will be updating its Hazard Mitigation Plan (HMP) in the near future. The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous.

Survey link:  
<https://forms.office.com/r/8uvTF6RR63>

# Ellis County Unincorporated

OCM
...

## Ellis County Emergency Management

### Intro

We provide proactive emergency management for our citizens, employees, and visitors that enhances th

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**Page** - Government organization

(972) 825-5199

Emc@co.Ellis.tx.us

tx-elliscounty.civicplus.com/index.aspx?nid=94

Closed now

Rating - 4.7 (16 Reviews)

### Photos

See all photos

Ellis County is in the process of updating its Hazard Mitigation Plan (HMP). The HMP identifies natural hazards and vulnerabilities, assesses risks and identifies mitigation initiatives to reduce or eliminate future losses resulting from those hazards. We want our community to participate in this process by taking this quick 5-minute survey. All the information collected from this survey will be anonymous. Please see the link below:

<https://forms.office.com/r/8uvTF6RR63>

## Natural Hazard Mitigation Saves

Natural Hazard Mitigation Provides the Nation \$6 in Benefit for Every \$1 Invested

National Benefit-Cost Ratio (BCR) Per Peril <small>*BCR numbers in this study have been rounded</small>	Beyond Code Requirements	Federally Funded	This Interim Study quantified a number of benefits from mitigation, including reductions in:
Overall Hazard Benefit-Cost Ratio	\$4:1	\$6:1	<ul style="list-style-type: none"> <li>• Future deaths, nonfatal injuries, and PTSD</li> <li>• Repair costs for damaged buildings and contents</li> <li>• Sheltering costs for displaced households</li> <li>• Loss of revenue and other business interruption costs to businesses whose properties are damaged</li> <li>• Loss of economic activity in the broader community</li> <li>• Loss of service to the community when fire stations, hospitals, or other public buildings are damaged</li> <li>• Insurance costs other than insurance claims</li> <li>• Costs for urban search and rescue</li> </ul>
Riverine Flood	\$5:1	\$7:1	
Hurricane Surge	\$7:1	Too few grants	
Wind	\$5:1	\$5:1	
Earthquake	\$4:1	\$3:1	
Wildland-Urban Interface Fire	\$4:1	\$3:1	

## FEMA

2
4 Shares

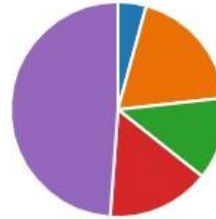
## Part 2: Results

The result of the county-wide survey is below. Responses were taken into consideration when developing the mitigation strategy.

### 1. How long have you lived in Ellis County?

[More Details](#)

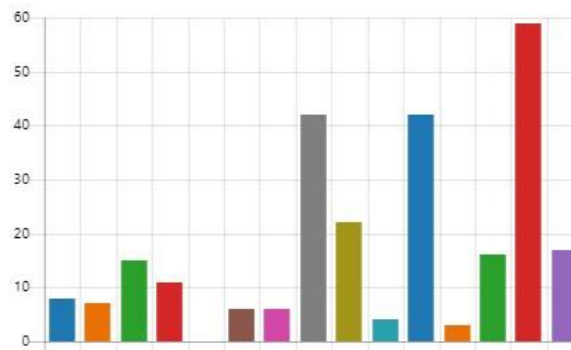
● Less than 1 year	11
● 1 to 5 years	49
● 6 to 9 years	32
● 10 to 19 years	40
● 20 years or more	126



### 2. Please state the jurisdiction where you reside.

[More Details](#)

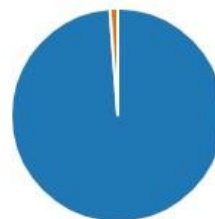
● City of Alma	8
● City of Bardwell	7
● City of Ennis	15
● City of Ferris	11
● City of Garrett	0
● City of Italy	6
● City of Maypearl	6
● City of Midlothian	42
● City of Milford	22
● City of Oak Leaf	4
● City of Ovilla	42
● City of Palmer	3
● City of Red Oak	16
● City of Waxahachie	59
● Other	17



### 3. Are you responding on behalf of a residential or commercial property?

[More Details](#)

● Residential	255
● Commercial	3

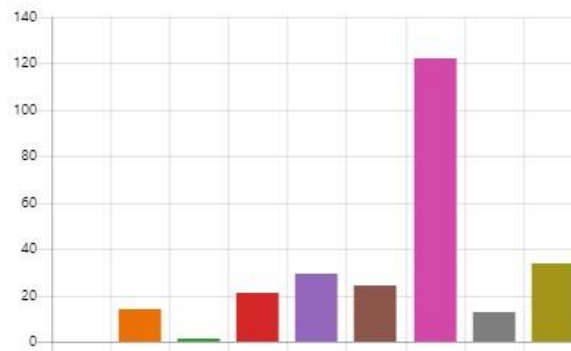


4. Please select the one hazard you think is the highest threat to your neighborhood:

[More Details](#)

[Insights](#)

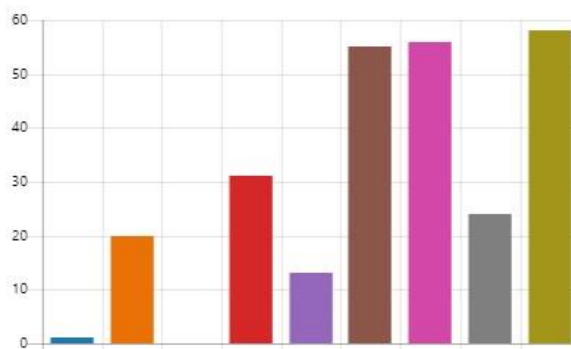
● Dam Failure	0
● Drought	14
● Earthquake	1
● Extreme Heat	21
● Flood	29
● Thunderstorm	24
● Tornado	122
● Wildfire	13
● Winter Storm	34



5. Please select the one hazard you think is the second highest threat to your neighborhood:

[More Details](#)

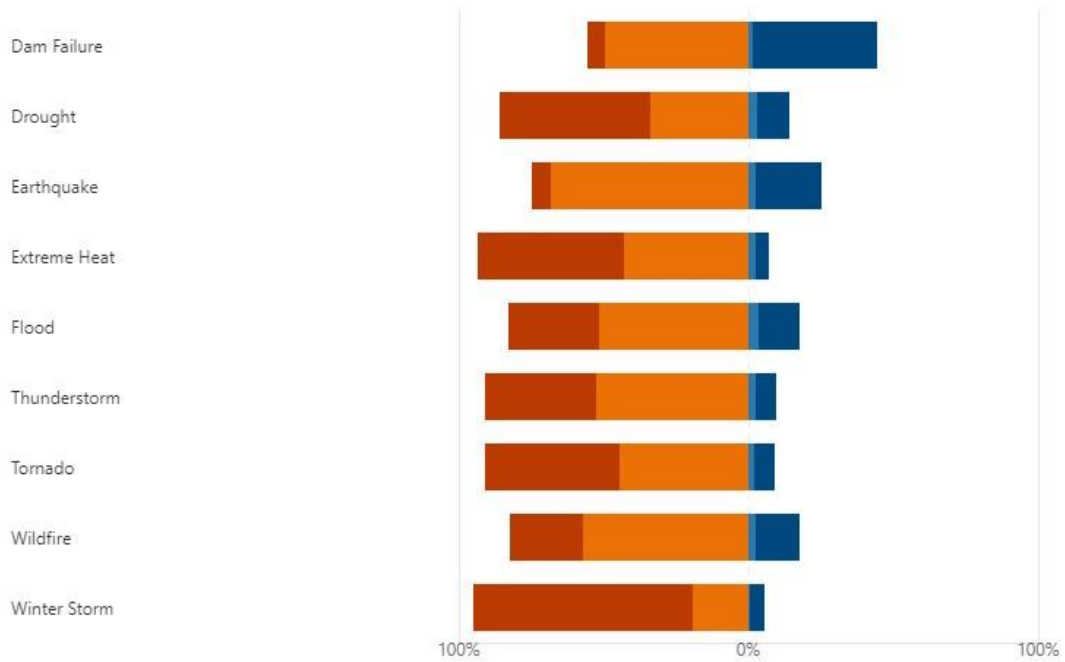
● Dam Failure	1
● Drought	20
● Earthquake	0
● Extreme Heat	31
● Flood	13
● Thunderstorm	55
● Tornado	56
● Wildfire	24
● Winter Storm	58



6. Over the last 10 years, have you noticed an increase or decrease in the occurrences or intensity of any of the following hazards?

[More Details](#)

■ Increasing
 ■ No Change
 ■ Decreasing
 ■ Not Sure

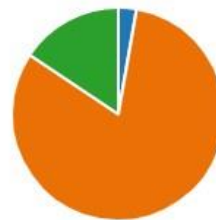


7. Is your home located in a floodplain?

[More Details](#)

[Insights](#)

<span style="color: #000080;">●</span> Yes	7
<span style="color: #FF8C00;">●</span> No	209
<span style="color: #008000;">●</span> Unsure	40





8. Do you have flood insurance?

[More Details](#)

[Insights](#)

- Yes 27
- No 209
- Unsure 20



9. Have you taken any actions to make your home or neighborhood resilient to hazards?

[More Details](#)

- Yes 75
- No 180



10. If "Yes" to Question 9, please explain:

Adding dirt to our land to help with drainage from excessive rainfall. Mew windows to insulated from heat and cold.
Backup Power in case of grid failure.
Better insulation of house, garage, pipes.
Brush and tall grass removal, swales on contour to capture and harvest rain and mitigate flooding.
built stronger homes and buildings
Call authorities and informed them of a illegal landfill
Called the city civil engineer regarding drainage issues caused from all the new construction, purchased flood bag/sand bags
Can't have solid wood fence due to winds with storms. Changed to posts/open wire style.
Changed our foundation from pier and beam and built our pad up to avoid flooding
Clean brush, grading
Contacted and met with Judge Little and commissioner Kyle Butler with little results
Contacted the City Development office. After no assistance, have contacted the Army CoE
Enhanced Drainage around home
Expanding sprinkler systems
Generator tie in to electrical panel.
Generator, extra supplies on hand

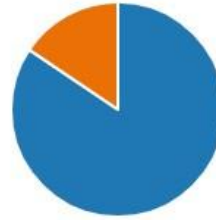
Grass control and removing dead trees
Had a 4 foot drainage channel put in
Hail resistant roof. On site personal weather station.
Hardened
Hardening my home
Have cut new ditches, made new berms, repaired & cleaned out ditches & culverts
Have GMRS Hand Radio License for power outages and weather emergencies
I use a lot of surge protectors to reduce the risk to electronics from nearby lightning strikes
Improved drainage and water retention by replacing non native invasive grasses with native plants and water filtering granite pathways.
Increased insulation of pipes to avoid freezing.
Installed a class 4 roof
Installed a generator with transfer switch
Installed generator transfer switch and purchased generator to power home in cases of power loss
Installed more efficient windows and HVAC system to fight against global warming.
Installed shelter
Insurance, fire extinguisher
I've had to dig a trench between my two ditches (yes we have two ditches) to get water away from my house.
Keeping the lawn low, mowing the road ditch regularly, All itmes outside are secured or tied down.
Landscaping
Larger culvert pipes, bridge instead of pipe to mailbox, a large dike and a long canal.
Made sure we have drainage around the house, an evacuation plan, and a shelter spot
Metal roof
More ditches, culverts & berms
New storm windows and gutters
New windows
New windows, siding, insulation
Now around pasture. Cut trees. Collect rainwater.
Our garage flooded each time it rained heavily
Plan for I.C.E. and some extra supplies.
Purchased generator for power outages and trying to redirect heavy rainfall that drains on our property from three directions causing extreme pooling at our home and yard.
Replaced roof with higher grade shingles to withstand heat, hail, high winds.
Smoke alarms
Smoke/CO2 detectors. Fire extinguisher in home. Go bags. Stocks of food and water. CERT bags. Enough camping equipment to heat water and food.

Some but not enough due to inability
Standby Generator, drainage
Stock firewood, cut grass around pasture
Storm room ready with space, pillows, and hand cranked emergency radio that can also be plugged into electricity
Storm shelter
Tornado shelter
Tornado Shelter Installed
Tornado shelter, grading flood areas.
Tornado Shelter, With assistance of the city, drain management of storm drains behind our house
tornado shelter; whole-home generator
Trim trees away from power lines
Trim trees, shelter, stored food
Try to keep drainage ditch clean, Doesn't seem to be a priority to city
Typical prepper stuff.
We all see the flooding
we have contoured the land behind our house so the water flows to a ditch, not pooling toward our house. We live in the downtown area of Palmer.
We have for the winter storms, we have firewood and extra food and water for when we lose power.
We now have a back way out of our property!
Weatherproofing, sealing leaks, cold weather supplies (firewood, generator)
Winterization, and we keep debris build up form around our home.

11. Are you interested in making your home or neighborhood resilient to hazards?

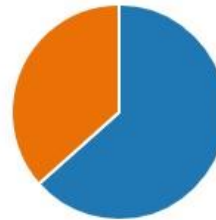
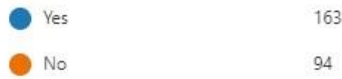
[More Details](#)

 Insights



12. If a major disaster affected Ellis County, do you expect FEMA to help?

[More Details](#)



13. If "Yes", please explain:

Although we are not as heavily populated, they should still help those who have lost their home.
Assume our town & neighborhood would need any and all assistance available in the event of a major disaster
Assuming the disaster is bad enough and outside what the state can handle, a request to FEMA from the governor should be approved for FEMA assistance. Depending on the severity it may be funds for the local government to handle or funds to individuals that qualify for assistance.
But in limited quantities
Depending on the circumstances, would expect assistance with clean up, emergency shelter, etc.
depending the type of destruction, I expect FEMA to bring in support especially if homes are destroyed
Disaster declaration
Doesn't FEMA help in all areas that have major disasters?
Emergency assistance
Emergency Management is their job for MAJOR disasters
Expect assistance when needed relative to disaster size
Families will be in need. Depending on the disaster
Federal assistance and response is an expectation for any major disaster.
FEMA has resources and equipment to assist communities with emergencies.
Fema helps in disaster
Fema is Federal Emergency Management, I believe it is what FEMA was created to do.

FEMA's purpose is, in part, to respond to and recover from disasters
Financial
financial
Food, shelter, water, financial assistance are all necessary depending on the nature and severity of the disaster
Funding, emergency support personnel and equipment, portable shelters,
Guidance of finding resources of water and shelter.
help homeowners restore properties and provide temporary housing
Help in clean up and rebuilding
Help with funding, etc. to clean up and restore area.
Help with housing, food etc to provide basic needs. Financial help to replace and relocate if needed to a new home.
Help with housing..food .etc
Honestly don't know if they will
Housing and household items
I believe FEMA should assist any family that needs help. If the government can help and provide for illegals, it should be no problem helping U.S. citizens.
I expect help with cleaning up, food and shelter
I might need their help depending on severity of damage to residence
I pay income taxes and if Ellis County was impacted by a major disaster I expect FEMA to help.
I pay taxes
I pay taxes.
I thought that's what they did
I would expect as many helpers as possible.
I would expect Ellis County to receive the same assistance any other county would be eligible for.
I would expect fema to assist with food and water and low cost loans.
I would want FEMA to bring needed supplies and help set up shelters, and to help with post disaster recovery.
I'd expect FEMA to provide necessary assistance to our community in the event the need surpasses what local municipalities can provide.
If a major disaster occurs sufficiently large to warrant FEMA activation, I would expect it.
If it gets declared a natural disaster, then yes. More than likely would just bring reimbursement.
If it's a disaster, we will need all the help we can get..
If it's a major disaster, I assume we would need extra resources to help in recovery/rebuild
If it's major FEMA should help. That's what they're for
If not covered by insurance they should help.
If power out in large area or large number of building destroyed expect loan assistance/housing
if the loss exceeds fema standards fema steps in to help

If tornado comes to my street expect to help
If we were to be hit by a tornado, FEMA assistance would be important.
Immediate help (shelter, food, etc) until insurance kicks in.
In the rare instance a natural disaster would occur, we expect all the help for our community as we pull together to help others when disaster happens.
it is FEMA's job to respond to natural disasters and help the local agencies help the citizens of any effected area
It's their job to help during natural disasters.
It's their job!
It's their responsibility to help in natural disasters
It's why FEMA exists - to help communities effected by disasters.
It's FEMA, so...
it's their job.
It's their legal mandate. That said, the American Red Cross would be quicker to help.
Just help with cleanup and make sure people have necessities
lack of sufficient resources
My family is privileged in being able to afford ways to increase our safety and not everyone has that luxury. FEMA should be available for anyone who needs it, regardless of the area you are located in. Ellis County is real quick to claim safe haven for unborn children but what about the children already alive on earth today who might need this extra help during a disaster. Get your priorities straight.
My need help
Natural disaster
Not everyone has the abilities others have and it helps to have advocates willing to help.
Not sure what the criteria is but wouldn't FEMA be helpful
Provide assistance with food clothes shelter
Provide financial assistance to residents and businesses suffering losses.
Resident Financial assistance
Resources
Responding to disaster their function.
Sandra Myers
Somebody has to step in to help!
Stupid question
That is their job.
That is what FEMA is supposed to do
That is what they do. They help others. Why wouldn't they help Ellis County?
That's what they are there for. If they help some area they should help all areas.
That's what FEMA does, help in an emergency.

That's what fema was established for.
That's what they are there for. Federal Emergency management
That's what we pay taxes to federal government for should our governor deem a disaster required federal emergency assistance.
That's FEMA's job. To help in a disaster but based on this question I shouldn't expect much since it's the government and past handling of disasters by FEMA
That's what it is there for
That's what they are for.
that's what they are supposed to do
The purpose of FEMA is for an emergency
They are there to help. But I also hope other organizations would help as well.
They help everyone else, so why not us
They need to do at least the things they do for other emergencies.
They should help,
They should provide emergency assistance as needed for our county. Food, shelter being most important.
They usually do
We don't need/ want intrusive government
We don't have the resources the federal government has
We pay taxes
We pay taxes and isn't that FEMA's job to help out
We would hope they would help
Why not, they help everyone else
Why not?
Why would Ellis County not get the help everyone else does
Why wouldn't they?
Why wouldn't FEMA help? We pay federal taxes. And I don't want to make my neighborhood more resilient to hazards if it increases our local taxes.
within the first week, if the disaster is large enough, the governor can and should request federal assistance
Wouldn't they normally for those that need help? But I would also expect there to be more response from local agencies and charitable organizations.

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# Appendix E: Local Planning Teams

The following tables identify the members of the Local Planning Team (LPT) from each participating jurisdiction.

<b>City of Alma</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
City Administration	City Secretary	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
City Administration	Mayor	General oversight, hazard identification, and plan development.
<b>City of Bardwell</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
City Administration	Mayor	General oversight, hazard identification, and plan development.
Fire Department	Fire Chief	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
<b>City of Ennis</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
City Administration	Mayor	General oversight, hazard identification, and plan development.
Fire Department	Fire Marshal	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
<b>City of Ferris</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
City Administration	Mayor	General oversight, hazard identification, and plan development.
Fire Department	Fire Chief	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
<b>City of Garrett</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
Public Works Department	Director	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
<b>City of Italy</b>		

<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
Fire Department	Fire Chief	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
City Administration	Mayor	General oversight, hazard identification, and plan development.
<b>City of Maypearl</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
City Administration	Mayor	General oversight, hazard identification, and plan development.
Police Department	Police Chief	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
<b>City of Midlothian</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
City Council	Mayor	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
City Administration	City Manager	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
City Administration	Assistant City Manager	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
City Administration	Public Information Officer	Provide technical, communication support and public information throughout the plan development and revision process, attend HMPT meetings
Building Inspections Department	Chief Building Official	Attend and participate in HMPT meetings; provide building code and permitting regulations.
Community Service/Code Enforcement	Community Services Manager	Attend and participate in HMPT meetings; provide building code and permitting, city regulations.
Parks and Recreation Department	Parks and Recreation Director	Provide expertise in open space planning and land development; attend HMPT meetings; Parks and Recreation
Parks and Recreation Department	Park Operations Manager	Provide expertise in open space planning and land development; attend HMPT meetings; Parks and Recreation

Engineering Department	GIS Specialist / Engineering	Assist in risk assessment, conducting capabilities assessment, attend and participate in HMPT meetings and identify mitigation strategies. Assist with GIS mapping required for Hazard Mitigation Plan.
Engineering Department	Engineering Director / Floodplain Administrator	Provide technical information and capabilities assessment including land development, city codes and ordinances, and provide city engineer to provide technical assistance. Storm water projects, Attend HMPT meetings. Expertise in floodplain.
Water Treatment Plant	Water Treatment Plant – Auger and Tayman WTP(s)	Provide an update on capability assessment, support mitigation planning projects, provide expertise in capability assessment, assist in development of mitigation strategies, technical expert in water/waste water operations.
Water Treatment Plant	Water Treatment Plant Manager – Tayman Plant	Provide an update on capability assessment, support mitigation planning projects, provide expertise in capability assessment, assist in development of mitigation strategies, technical expert in water/waste water operations.
Human Resources and Finance	Finance & Human Resources Director	Attend and participate in HMPT meetings and provide expertise in budget, capital improvement plan, funding sources, Hazard mitigation plan development, assist in risk assessment and conducting risk assessment and identifying potential mitigation strategies.
Finance Department	Assistant Finance Director	Attend and participate in HMPT meetings and provide expertise in budget, capital improvement plan, funding sources, Hazard mitigation plan development, assist in risk assessment and conducting risk assessment and identifying potential mitigation strategies.
Fire Department	Fire Chief	Assists in hazard identification and plan development, assist in risk assessment and conducting capabilities assessment

		and provide input on the hazard identification process and mitigation strategies.
Fire Department	Assistant Fire Chief	Assists in hazard identification and plan development, assist in risk assessment and conducting capabilities assessment and provide input on the hazard identification process and mitigation strategies.
Fire Department	Fire Marshal	Assists in hazard identification and plan development, assist in risk assessment and conducting capabilities assessment and provide input on the hazard identification process and mitigation strategies, building codes, fire codes, fire inspections.
Information Technology Department	IT Director	Provide technical support, data for risk assessment, attend HMPT meetings, assists with IT technology needed for hazard mitigation.
Planning Department	Planning Director	Provide technical information and capabilities assessment include land development, city codes, and ordinances.
Public Works	Public Works Director	Provide an update on capability assessment, support mitigation planning protects, provide expertise in capability assessment, assist in development of mitigation strategies and emergency generators to mitigate the loss of commercial power for critical infrastructure.
Public Works	Streets Superintendent	Assist in risk assessment, conducting capabilities assessment, attend and participate in HMPT meetings and identify mitigation strategies, Streets, and CIKR technical expert
Public Works	Utilities Supervisor	Provide an update on capability assessment, support mitigation planning protects, provide expertise in capability assessment, assist in development of mitigation strategies, technical expert in water/waste water operations.

Northern Ellis Emergency Dispatch	Northern Ellis Emergency Dispatch (9-1-1)	Assist in hazard identification and plan development, assist in risk assessment and conducting capabilities assessment and provide input on the hazard identification process and mitigation strategies. Oversees 911 Communications Center for Midlothian, Ovilla and Red Oak.
Police Department Administration	Police Chief	Assist in risk assessment, conducting capabilities assessment, attend and participate in HMPT meetings and identify mitigation strategies, law enforcement technical expert.
Police Department Administration	Assistant Police Chief	Assist in risk assessment, conducting capabilities assessment, attend and participate in HMPT meetings and identify mitigation strategies, law enforcement technical expert.
Senior Center	Senior Center Director	Provide expertise senior activity center; attend HMPT meetings; Senior Activity Center
Midlothian Conference Center	Conference Center Director	Provide expertise Conference Center operations that can be used as a critical facility during emergencies and disasters.
Human Resources Department	Human Resources Coordinator	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings, policy administration, coordination with City Management and city personnel.
Emergency Management	Emergency Management Coordinator	HMPT Coordinator, for hazard identification and plan development, assist in risk assessment and conducting capabilities assessment and provide input on the hazard identification process and mitigation strategies.
Commanders	MPD Commander / Safety and Security Director for MISD	Assist in risk assessment, conducting capabilities assessment, attend and participate in HMPT meetings and identify mitigation strategies, law enforcement technical expert for Midlothian ISD Schools.

<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
Administration	City Administrator	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
City Administration	Mayor	General oversight, hazard identification, and plan development.
<b>City of Oak Leaf</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
Administration	City Secretary	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
City Administration	Mayor	General oversight, hazard identification, and plan development.
<b>City of Ovilla</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
City Council	Mayor	General oversight, hazard identification, and plan development.
City Administration	City Manager	General oversight, hazard identification, and plan development.
Fire Department	Fire Chief	General oversight, hazard identification, and plan development.
Fire Department	EMC	General oversight, hazard identification, and plan development.
Police Department	Police Chief	Hazard identification and plan development.
Police Department	Assistant EMC	Hazard identification and plan development.
Fire Department	Deputy Chief / Fire Marshal	Hazard identification and plan development.
<b>City of Palmer</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
City Administration	City Administrator	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
City Administration	Mayor	General oversight, hazard identification, and plan development.
<b>City of Red Oak</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
City Manager's Office	City Manager	Chief Administrative Officer
Fire	Fire Chief	Emergency Management Coordinator
Fire	Fire Chief	Fire Services
City Engineer	Engineer	Municipal Infrastructure
Public Works	Director	Roads/Barricades

Fire	Fire Marshal	Logistics
<b>City of Waxahachie</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
Emergency Management	Emergency Management Coordinator	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
City Administration	Mayor	General oversight, hazard identification, and plan development.
<b>Ellis County Unincorporated</b>		
<b>Agency/Organization</b>	<b>Position</b>	<b>Role in LPT</b>
Commissioners Court	County Judge	General oversight, hazard identification, and plan development.
Office of the County Judge	Chief of Staff	General oversight, hazard identification, and plan development.
Commissioners Court	Commissioner	General oversight, hazard identification, and plan development.
Commissioners Court	Commissioner	General oversight, hazard identification, and plan development.
Commissioners Court	Commissioner	General oversight, hazard identification, and plan development.
Commissioners Court	Commissioner	General oversight, hazard identification, and plan development.
Emergency Management	Emergency Management Coordinator	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
Emergency Management	Emergency Management Specialist	HMPT Coordinator, for hazard identification and plan development, assist in risk assessment and conducting capabilities assessment and provide input on the hazard identification process and mitigation strategies.
Emergency Management	Emergency Management Planner	Assist in risk management and conducting capabilities assessment, attend and participate in Hazard Mitigation Planning Team meetings.
GIS & 9-1-1 Addressing (Geographic Info Systems)	GIS Specialist / Engineering	Assist in risk assessment, conducting capabilities assessment, attend and participate in HMPT meetings and identify mitigation strategies. Assist with GIS mapping required for Hazard Mitigation Plan.
GIS & 9-1-1 Addressing (Geographic Info Systems)	GIS Specialist / Engineering	Assist in risk assessment, conducting capabilities assessment, attend and

		participate in HMPT meetings and identify mitigation strategies. Assist with GIS mapping required for Hazard Mitigation Plan.
Engineering Department	Water Shed Technician	Provide technical information and capabilities assessment including land development, city codes and ordinances, an provide city engineer to provide technical assistance. Storm water projects, Attend HMPT meetings. Expertise in floodplain.
Engineering Department	County Engineer	Assist in risk assessment, conducting capabilities assessment, attend and participate in HMPT meetings and identify mitigation strategies.
Engineering Department	Assistant County Engineer	Provide technical information and capabilities assessment including land development, city codes and ordinances, an provide city engineer to provide technical assistance. Storm water projects, Attend HMPT meetings. Expertise in floodplain.
Development	Department of Development	Attend and participate in HMPT meetings; provide building code and permitting, county regulations.
GIS & 9-1-1 Addressing (Geographic Info Systems)	Legal – District Attorney's Office	Attend and participate in HMPT meetings; provide legal aid for code and permitting county regulations.
Fire Department	Fire Marshal	Assists in hazard identification and plan development, assist in risk assessment and conducting capabilities assessment and provide input on the hazard identification process and mitigation strategies, building codes, fire codes, fire inspections.
Captain	Sheriff's Office	Assists in hazard identification and plan development, assist in risk assessment and conducting capabilities assessment.



# Appendix F: Risk Reports

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The risk reports in this Appendix include TFS's *Texas Wildfire Risk Assessment Summary Report*, which provides a consistent, comparable set of scientific results to be used as a foundation for wildfire mitigation planning in Ellis County; *Neighborhoods at Risk*, from Headwater Economics and refers to the County's neighborhoods at risk; and Headwater's *Wildfire Risk* report that presents data about wildfire risk, socioeconomic vulnerability, and land use to help communities understand their relative wildfire risk profile.

# TEXAS WILDFIRE RISK ASSESSMENT SUMMARY REPORT



TEXAS A&M  
FOREST SERVICE

*Ellis County*



Report was generated using [www.texaswildfirerisk.com](http://www.texaswildfirerisk.com)

Report version: 4.0

Report generated: 12/9/2021

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# Introduction

## TWRA Summary Report

Welcome to the Texas Wildfire Risk Assessment Summary Report for **Ellis County**. This report contains a set of selected products developed by the Texas Wildfire Risk Assessment project, which have been summarized explicitly for the Ellis County project area.

The **Texas Wildfire Risk Assessment** (TWRA) provides a consistent, comparable set of scientific results to be used as a foundation for wildfire mitigation planning in Texas. Results of the assessment can be used to help prioritize areas in the state where tactical analyses, community interaction and education, or mitigation treatments might be necessary to reduce risk from wildfires. The TWRA products included in this report are designed to provide the information needed to support the following key priorities:

- Identify areas that are most prone to wildfire
- Identify areas that may require additional tactical planning, specifically related to mitigation projects and Community Wildfire Protection Planning
- Provide the information necessary to justify resource, budget and funding requests
- Allow agencies to work together to better define priorities and improve emergency response, particularly across jurisdictional boundaries
- Increase communication with local residents and the public to address community priorities and needs
- Plan for response and suppression resource needs
- Plan and prioritize hazardous fuel treatment programs

To learn more about the TWRA project or to create a custom summary report, go to [www.texaswildfirerisk.com](http://www.texaswildfirerisk.com).

## Products

Each product in this report is accompanied by a general description, table, chart and/or map. A list of available TWRA products in this report is provided in the following table.

TWRA Product	Description
<b>Wildland Urban Interface</b>	Depicts where humans and their structures meet or intermix with wildland fuel
<b>Values Response Index</b>	Represents a rating of the potential impact of a wildfire on values and assets
<b>WUI Response Index</b>	Represents a rating of the potential impact of a wildfire on people and their homes
<b>Pine Plantation Index</b>	Represents a rating of the potential impact of a wildfire on pine plantations
<b>Community Protection Zones</b>	Represents those areas designated as primary and secondary priorities for community protection planning
<b>Wildfire Threat</b>	Likelihood of a wildfire occurring or burning into an area
<b>Wildfire Ignition Density</b>	Likelihood of a wildfire starting based on historical ignition patterns
<b>Wildfire Occurrence Statistics</b>	Information regarding number of fires, acres suppressed and cause of fire
<b>Characteristic Rate of Spread</b>	Represents the speed with which a fire moves in a horizontal direction across the landscape
<b>Characteristic Flame Length</b>	Represents the distance between the tip and base of the flame
<b>Intensity</b>	Quantifies the potential fire intensity for an area by orders of magnitude
<b>Fire Type - Extreme</b>	Represents the potential fire type (surface or canopy) under the extreme percentile weather category
<b>Surface Fuels</b>	Contains the parameters needed to compute surface fire behavior characteristics
<b>Vegetation</b>	General vegetation and landcover types
<b>Pine Age</b>	Age of pine and mixed pine/deciduous forest
<b>Pine Plantations</b>	Pine stands that are planted and actively managed for financial gain or other economic reasons

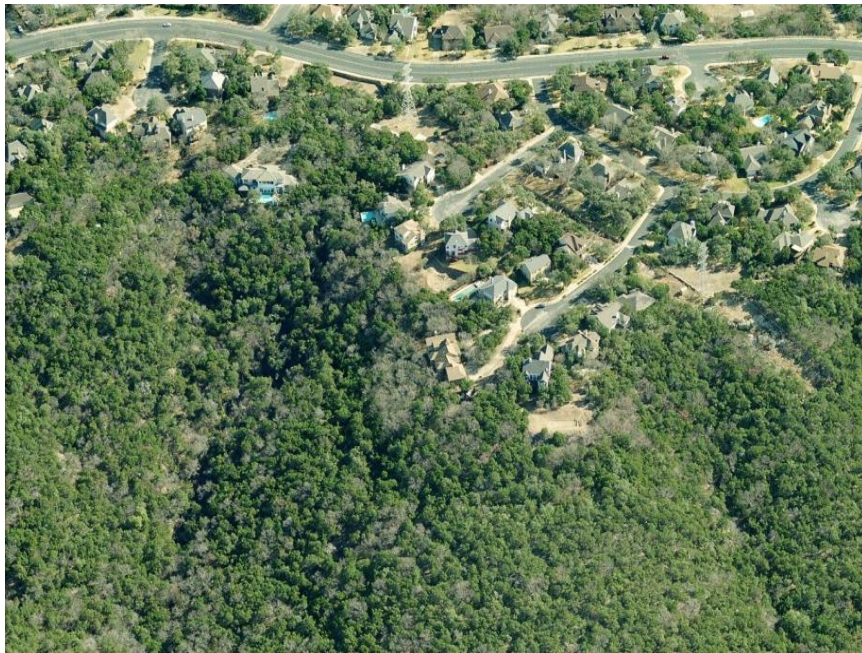


# Wildland Urban Interface

## Description

Texas is one of the fastest growing states in the Nation, with much of this growth occurring adjacent to metropolitan areas. This increase in population across the state will impact counties and communities that are located within the Wildland Urban Interface (WUI). The WUI is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases the risk from wildfire. In Texas nearly 85 percent of wildfires occur within two miles of a community.

For the **Ellis County** project area, it is estimated that **121,790** people or **80.1 % percent** of the total project area population (**152,018**) live within the WUI.



**The Wildland Urban Interface (WUI) layer reflects housing density depicting where humans and their structures meet or intermingle with wildland fuels.** WUI housing density is categorized based on the standard Federal Register and U.S. Forest Service SILVIS data set categories. The number of housing density categories is extended to provide a better gradation of housing distribution to meet specific requirements for fire protection planning activities. While units of the data set are in houses per sq. km., which is consistent with other data such as USFS SILVIS, the data is presented as the number of houses per acre to aid with interpretation and use in Texas.



In the past, conventional wildland urban interface data sets, such as USFS SILVIS, have been used to reflect these concerns.

However, USFS SILVIS and other existing data sources do not provide the level of detail needed by the Texas A&M Forest Service and local fire protection agencies.

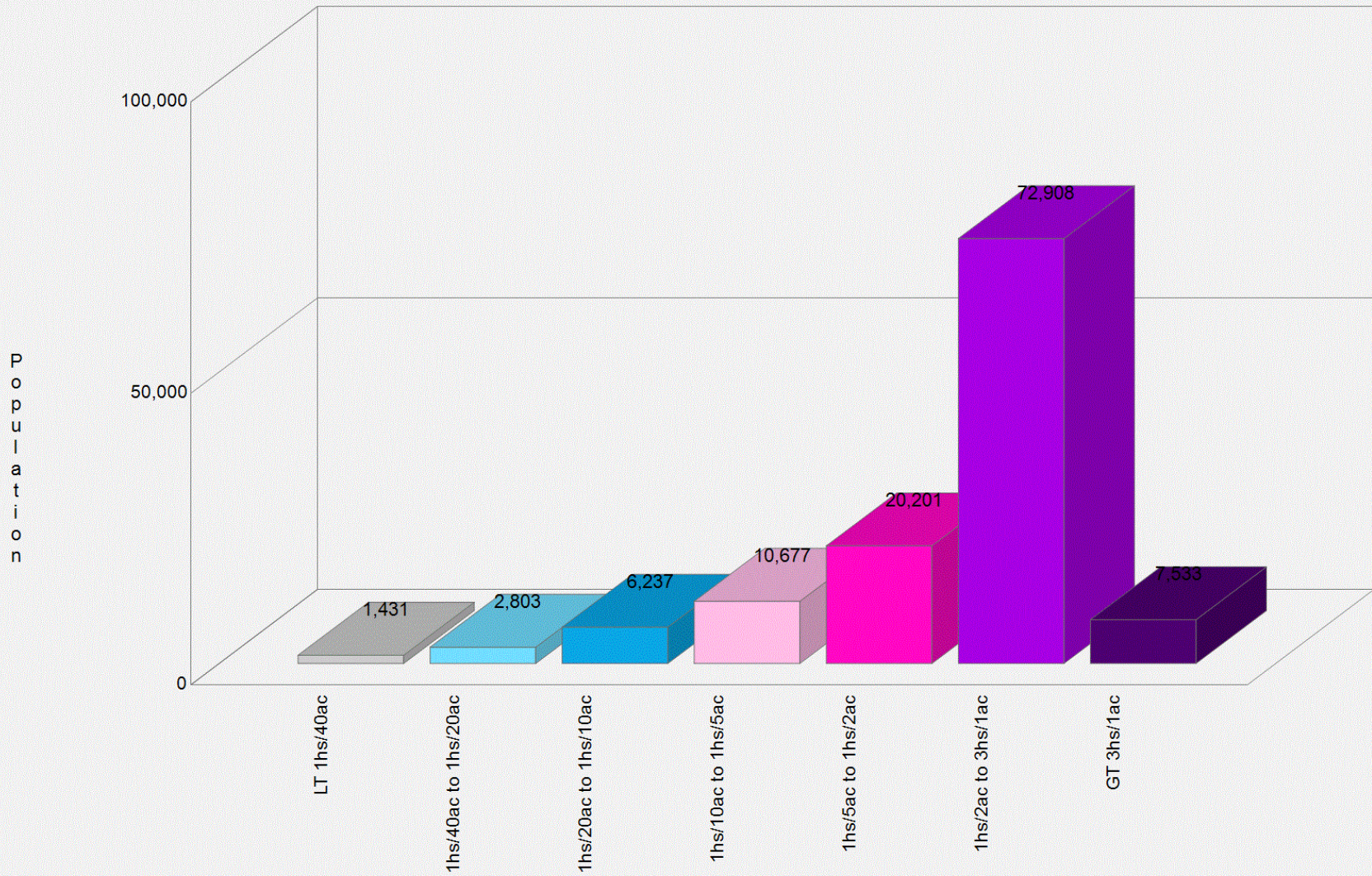
The new WUI dataset is derived using advanced modeling techniques based on the Where People Live dataset and LandScan USA population count data available from the Department of Homeland Security, HSIP Freedom Data Set. WUI is simply a subset of the Where People Live dataset. The primary difference is populated areas surrounded by sufficient non-burnable areas (i.e. interior urban areas) are removed from the Where People Live data set, as these areas are not expected to be directly impacted by a wildfire.

A more detailed description of the risk assessment algorithms is provided in the TWRA Final Report, which can be downloaded from [www.texaswildfirerisk.com](http://www.texaswildfirerisk.com). Data is modeled at a 30-meter cell resolution, which is consistent with other TWRA layers.

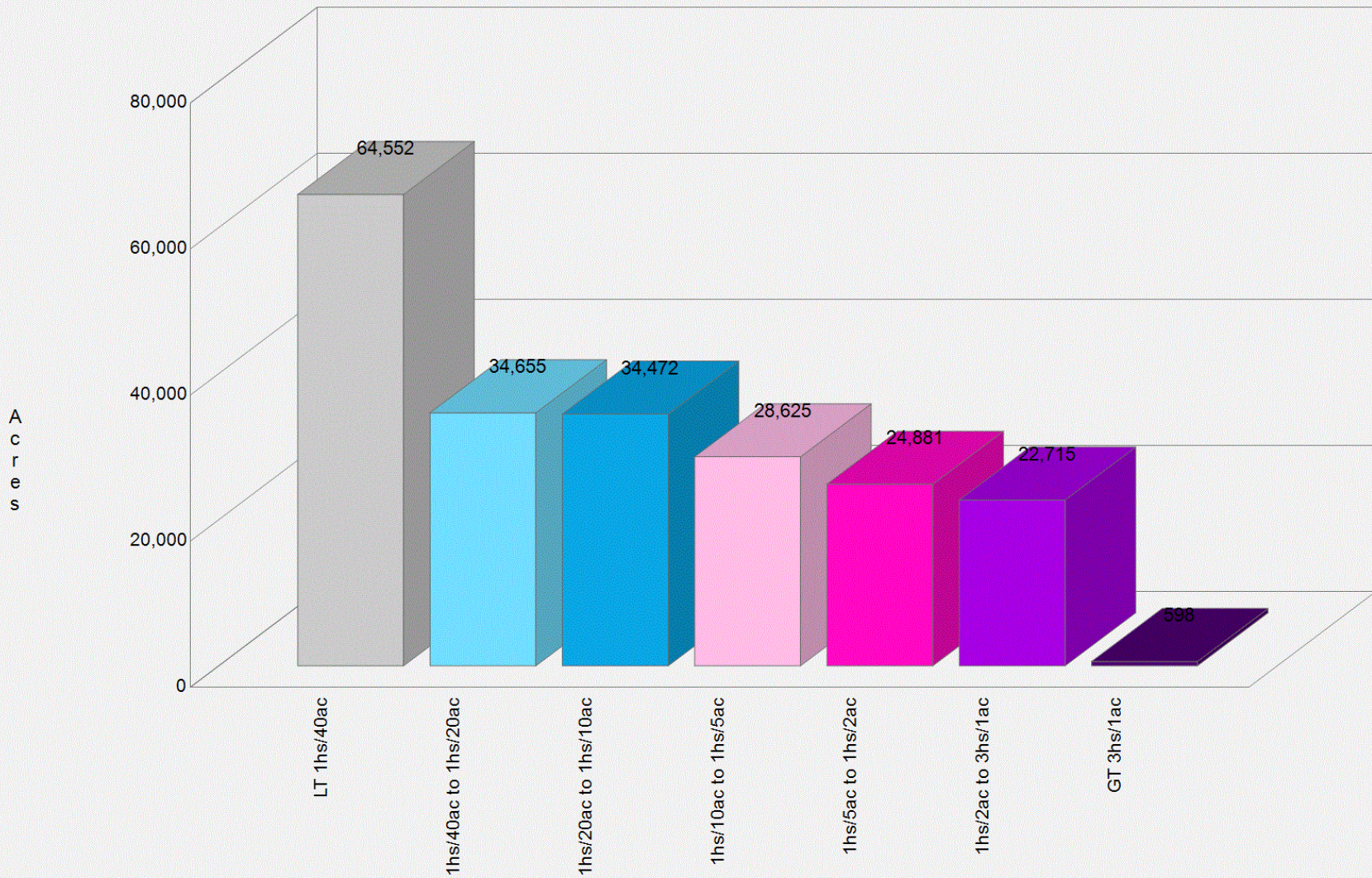
#### WUI – Population and Acres

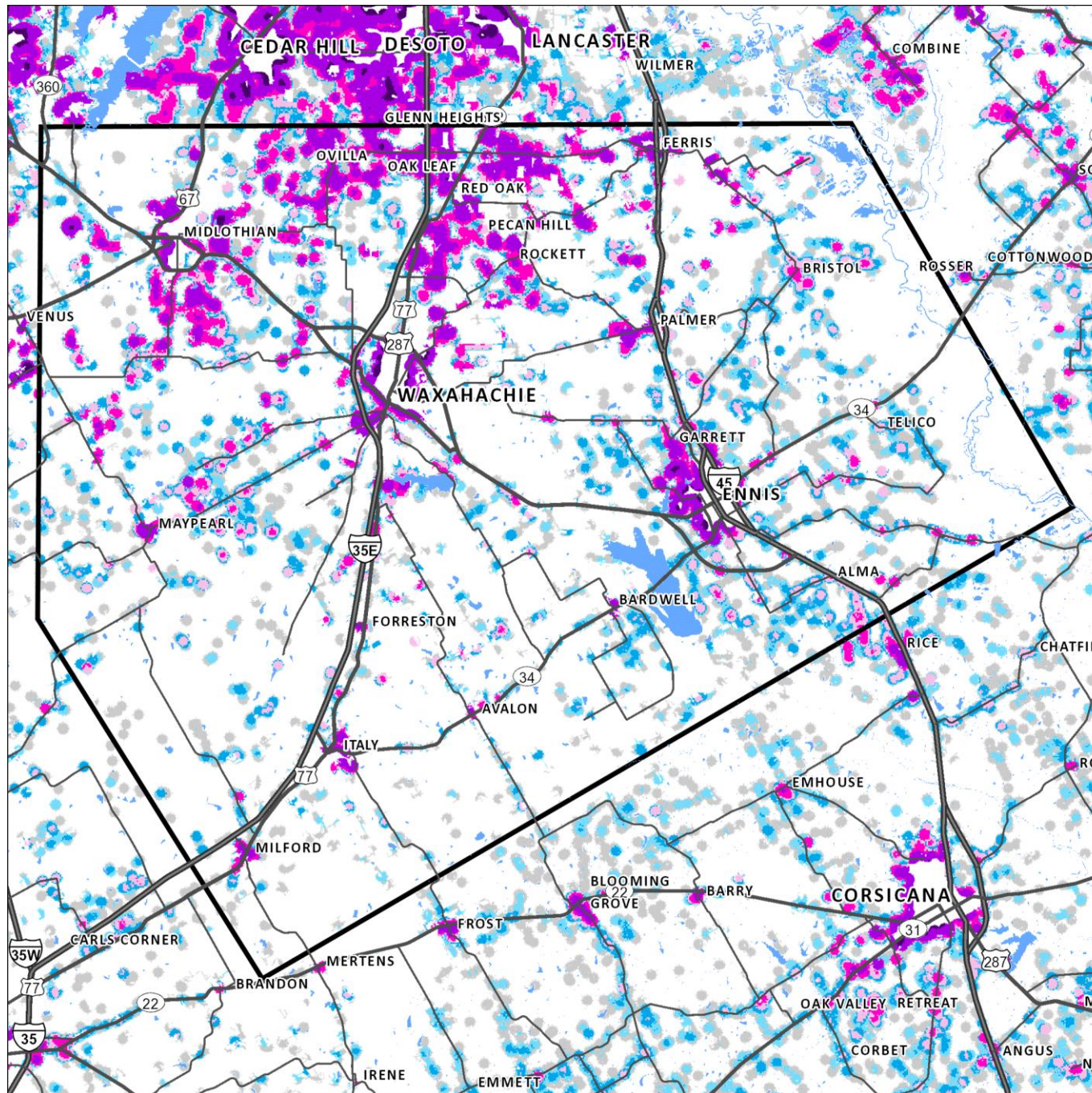
Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
LT 1hs/40ac	1,431	1.2 %	64,552	30.7 %
1hs/40ac to 1hs/20ac	2,803	2.3 %	34,655	16.5 %
1hs/20ac to 1hs/10ac	6,237	5.1 %	34,472	16.4 %
1hs/10ac to 1hs/5ac	10,677	8.8 %	28,625	13.6 %
1hs/5ac to 1hs/2ac	20,201	16.6 %	24,881	11.8 %
1hs/2ac to 3hs/1ac	72,908	59.9 %	22,715	10.8 %
GT 3hs/1ac	7,533	6.2 %	598	0.3 %
<b>Total</b>	<b>121,790</b>	<b>100.0 %</b>	210,498	100.0 %

ellis county  
Wildland Urban Interface



ellis county  
Wildland Urban Interface





ellis county

### Wildland Urban Interface

- 1 - LT 1 hs/40 ac
- 2 - 1 hs/40 to 1 hs/20 ac
- 3 - 1 hs/20 to 1 hs/10 ac
- 4 - 1 hs/10 to 1 hs/5 ac
- 5 - 1 hs/5 to 1 hs/2 ac
- 6 - 1 hs/2 to 3 hs/ac
- 7 - GT 3 hs/ac



Texas Wildfire Risk Assessment  
<http://www.texaswildfirerisk.com>

# Values Response Index

## Description

The Values Response Index (VRI) layer reflects a rating of the potential impact of a wildfire on values or assets. The VRI is an overall rating that combines the impact ratings for Wildland Urban Interface (housing density) and Pine Plantations (pine age) into a single measure. The individual ratings for each value layer, Wildland Urban Interface and Pine Plantations, were derived using a Response Function modeling approach.

Response functions are a method of assigning a net change in the value to a resource or asset based on susceptibility to fire at different intensity levels, such as flame length. These net changes can be negative (adverse) or positive (beneficial). The theoretical range of values is from -9 to 9, with -9 representing the most adverse impact and 9 representing the most positive impact. Zero reflects no impact. The practical range is typically much smaller, however. For the TWRA, the range of values is from -9 to 1. Zero values are not included because they reflect no impact to the value or asset.

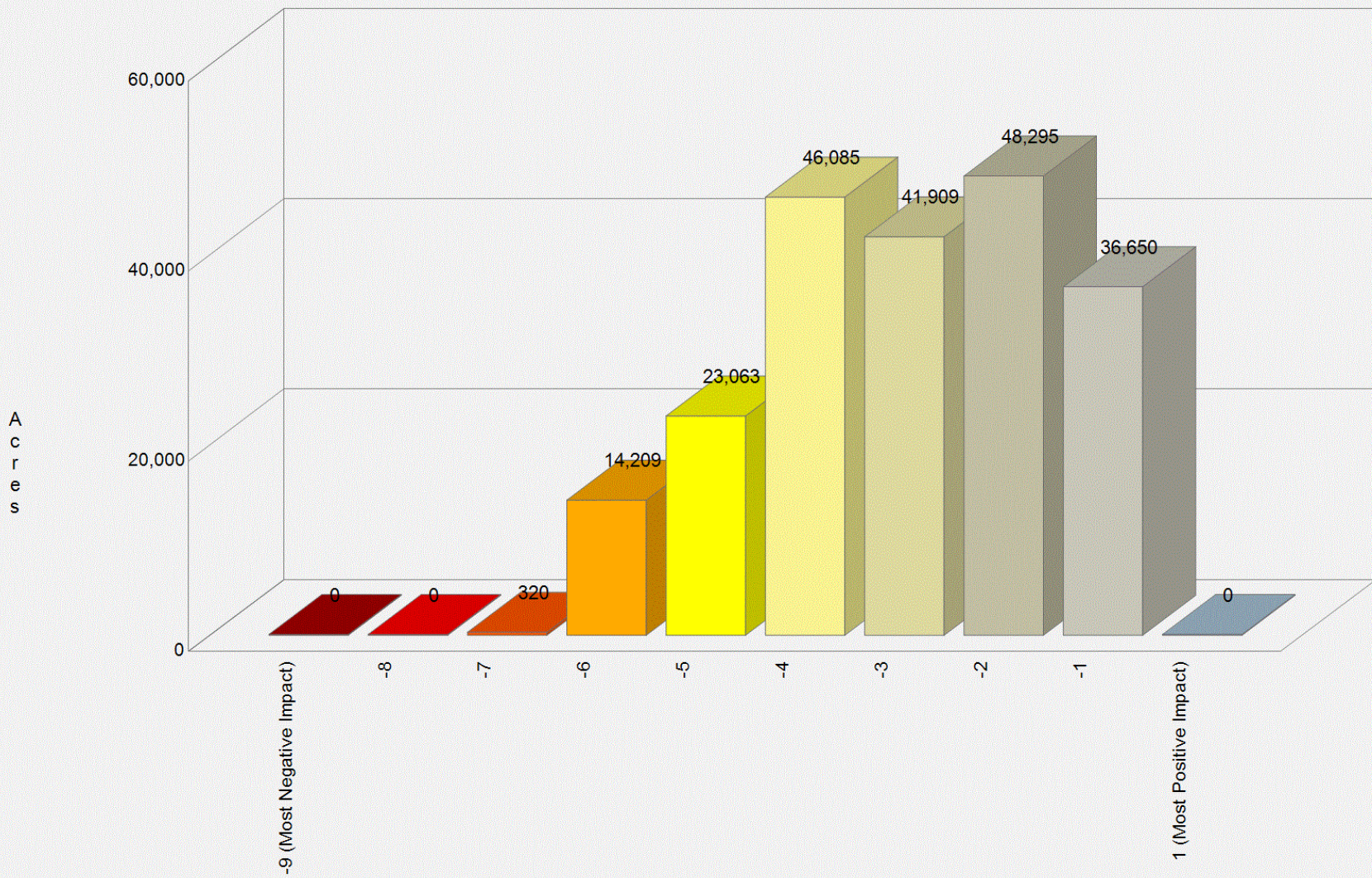
Using the Response Function approach, a rating is calculated to estimate the expected impact to values/assets at different fire intensity levels. The measure of fire intensity used in the Texas assessment is flame length (ft). Response Function outputs are first derived for each input data set and then combined to derive the Values Response Index.

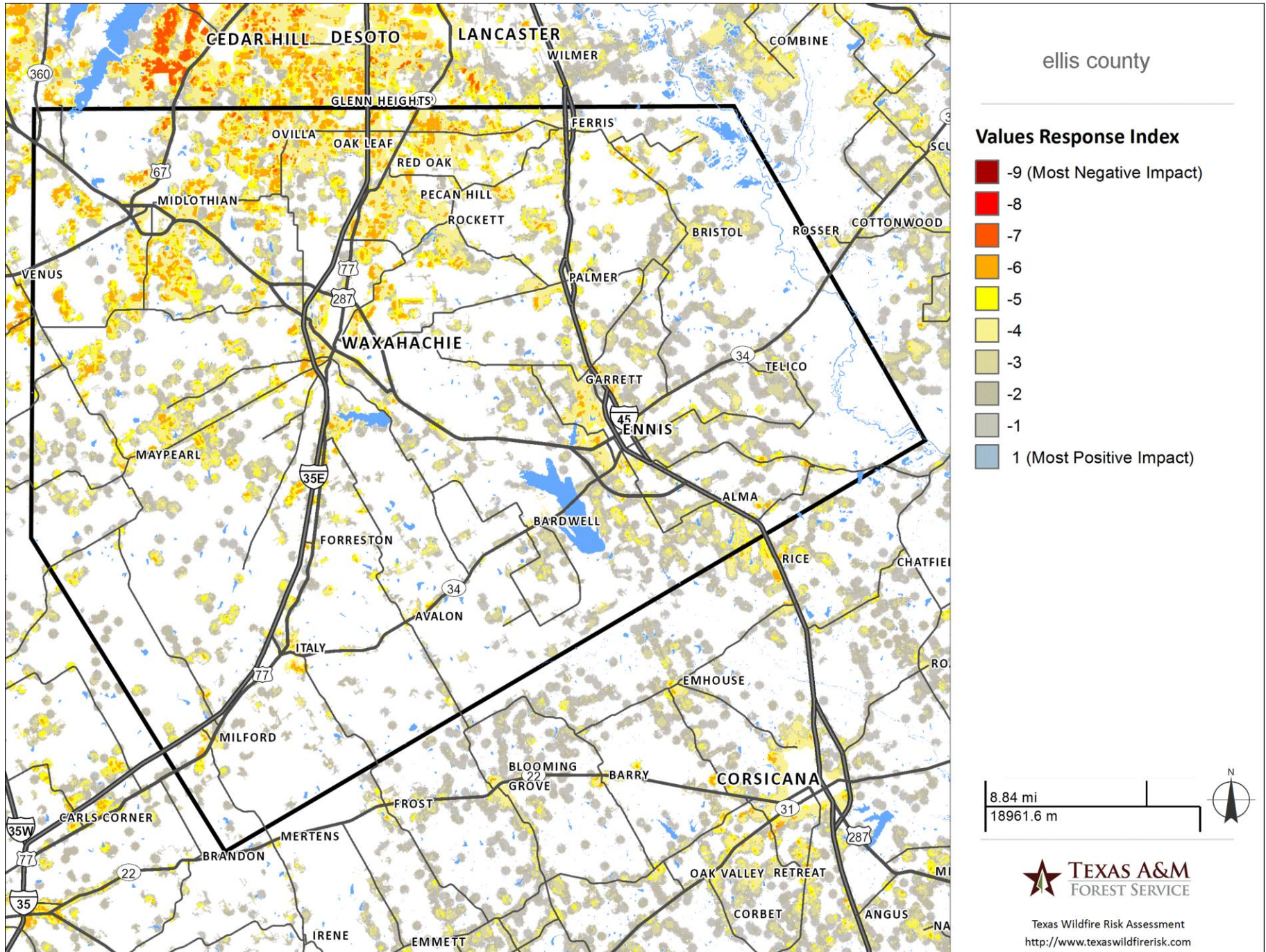
Different weightings are used to combine the response function value outputs for Wildland Urban Interface (WUI) and Pine Plantations with the highest priority placed on protection of people and structures (i.e. WUI). Accordingly, WUI is given an 80% weighting and Pine Plantations a 20% weighting to calculate the statewide VRI. Response Function values and layer weightings were developed by a team of experts to reflect priorities for fire protection planning in Texas.

All areas in Texas have the VRI calculated consistently, which allows for comparison and ordination of areas across the entire state. Data is modeled at a 30-meter cell resolution, which is consistent with other TWRA layers.

Class	Acres	Percent
-9 (Least Negative Impact)	0	0.0 %
-8	0	0.0 %
-7	320	0.2 %
-6	14,209	6.7 %
-5	23,063	11.0 %
-4	46,085	21.9 %
-3	41,909	19.9 %
-2	48,295	22.9 %
-1	36,650	17.4 %
1 (Most Positive Impact)	0	0.0 %
<b>Total</b>	<b>210,531</b>	<b>100.0 %</b>

ellis county  
Values Response Index







# WUI Response Index

## Description

The **Wildland Urban Interface (WUI) Response Index layer is a rating of the potential impact of a wildfire on people and their homes.** The key input, WUI, reflects housing density (houses per acre) consistent with Federal Register National standards. The location of people living in the Wildland Urban Interface and rural areas is key information for defining potential wildfire impacts to people and homes.

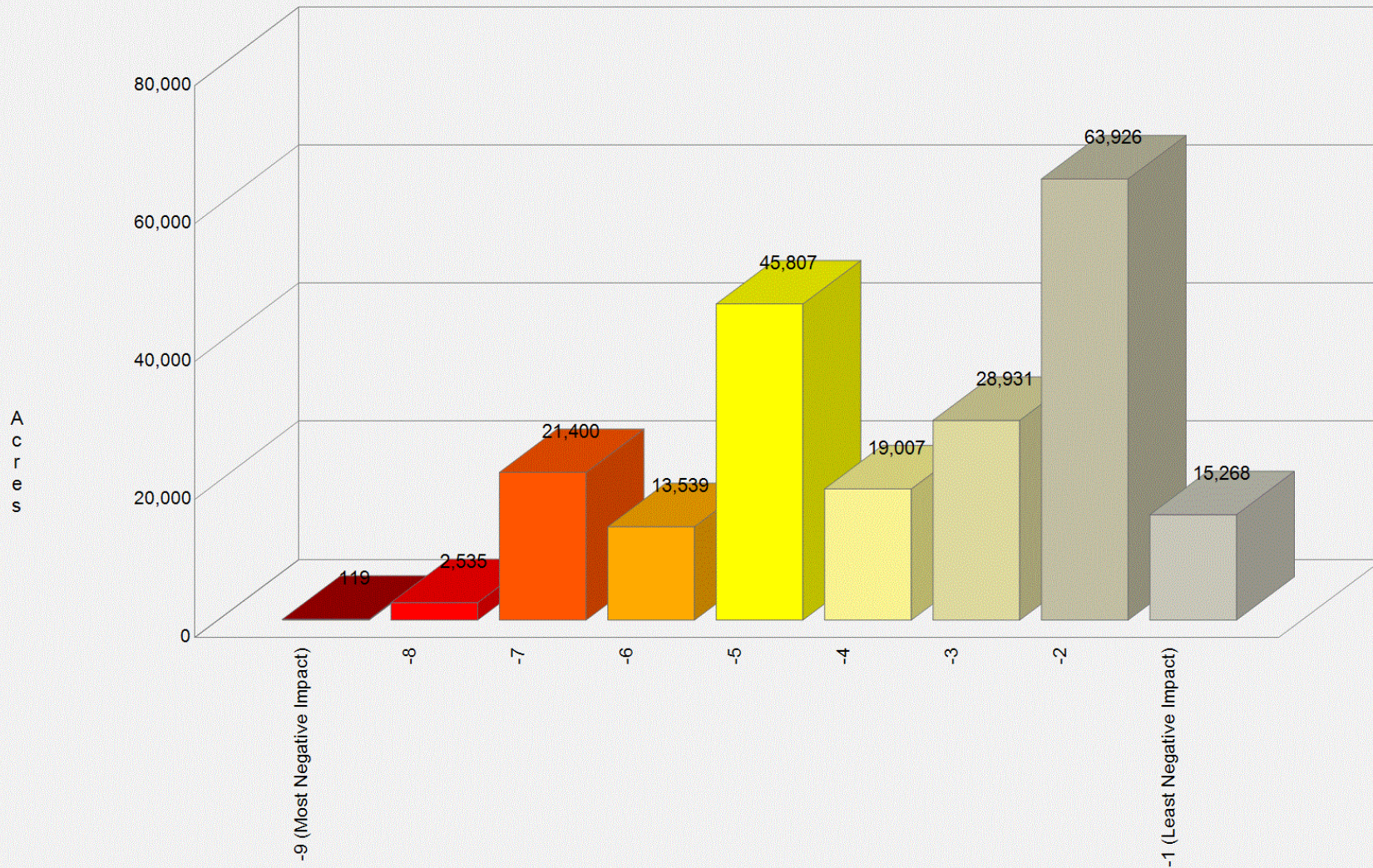
The WUI Response Index is derived using a Response Function modeling approach. Response functions are a method of assigning a net change in the value to a *resource* or *asset* based on susceptibility to fire at different intensity levels, such as flame length. The range of values is from -1 to -9, with 1 representing the least negative impact and -9 representing the most negative impact. For example, areas with high housing density and high flame lengths are rated -9 while areas with low housing density and low flame lengths are rated -1.

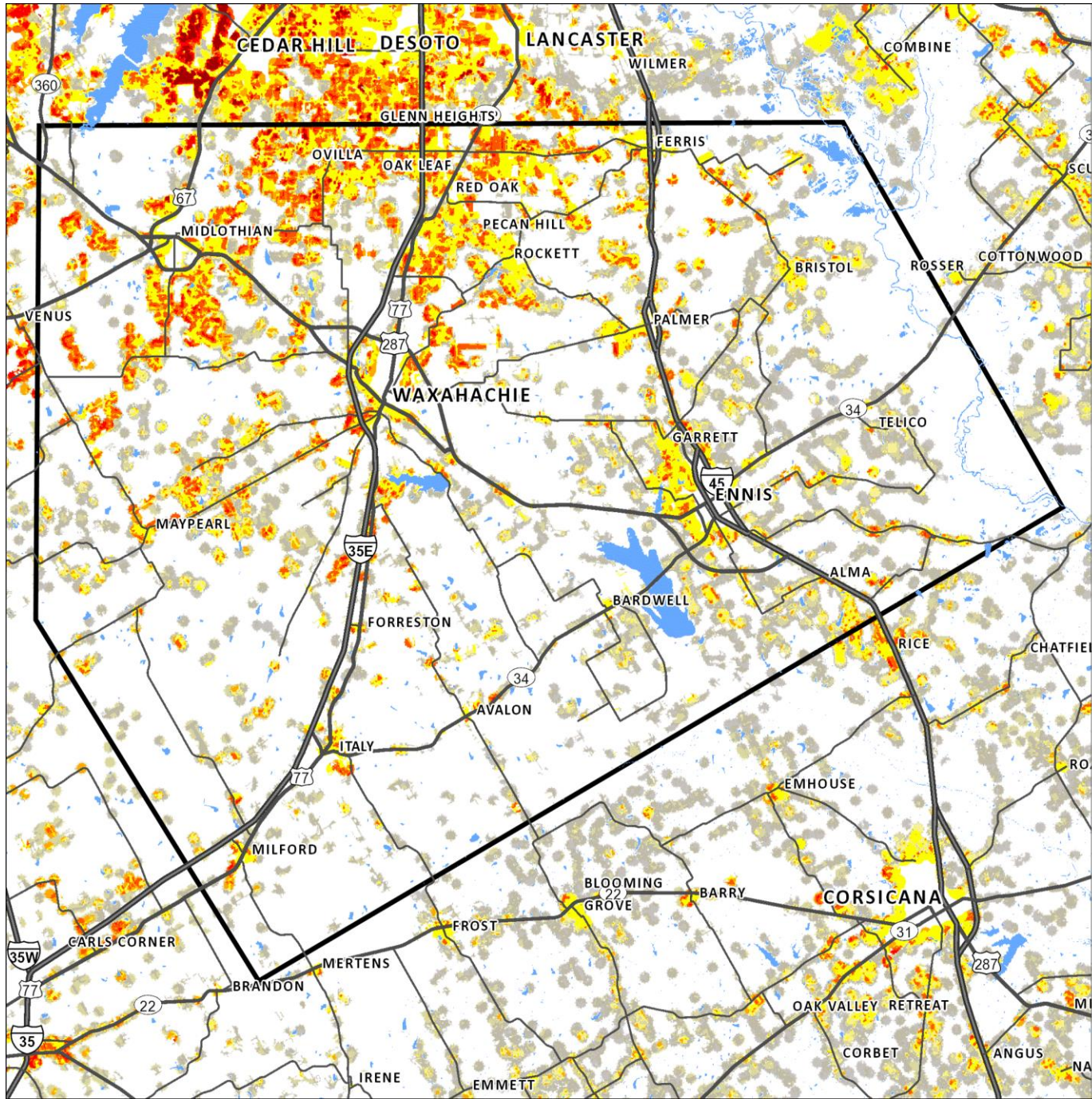
To calculate the WUI Response Index, the WUI housing density data was combined with Flame Length data and response functions were defined to represent potential impacts. The response functions were defined by a team of experts led by the Texas A&M Forest Service mitigation planning staff. By combining flame length with the WUI housing density data, you can determine where the greatest potential impact to homes and people is likely to occur.

Fire intensity data is modeled to incorporate penetration into urban fringe areas so that outputs better reflect real world conditions for fire spread and impact in urban interface areas. All areas in Texas have the WUI Response Index calculated consistently, which allows for comparison and ordination of areas across the entire state. Data is modeled at a 30-meter cell resolution, which is consistent with other TWRA layers.

Class	Acres	Percent
-9 (Most Negative Impact)	119	0.1 %
-8	2,535	1.2 %
-7	21,400	10.2 %
-6	13,539	6.4 %
-5	45,807	21.8 %
-4	19,007	9.0 %
-3	28,931	13.7 %
-2	63,926	30.4 %
-1	15,268	7.3 %
<b>Total</b>	<b>210,532</b>	<b>100.0 %</b>

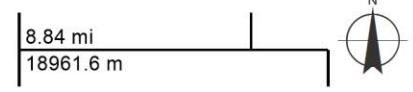
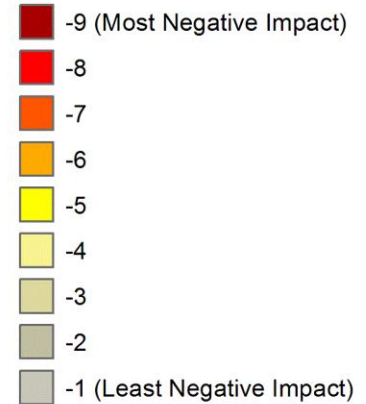
ellis county  
WUI Response Index





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**WUI Response Index**



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# Pine Plantation Response Index

## Description

**The Pine Plantation Response Index layer is a rating of the potential impact of a wildfire on pine plantations.** The key input, Pine Plantation Age, represents the age of pine plantations across Texas and reflects the potential susceptibility to damage from wildfire.

The Pine Plantation Response Index is derived using a Response Function modeling approach. Response functions are a method of assigning a net change in the value to a *resource* or *asset* based on susceptibility to fire at different intensity levels, such as flame length. These net changes can be negative (adverse) or positive (beneficial). The theoretical range of values is from -9 to 9, with -9 representing the most adverse impact and 9 representing the most positive impact. Zero reflects no impact. The practical range is typically much smaller, however. For the TWRA, the range of values is from -9 to 3. Zero values are not included because they reflect no impact to the value or asset. For Pine Plantations, wildfire could have both adverse and beneficial impacts based on the age of the plantation and the corresponding fire intensity level.

To calculate the Pine Plantations Response Index, the Pine Plantation Age data was combined with Flame Length data, and response functions were defined to represent potential impacts. The response functions were defined by a team of experts led by the Texas A&M Forest Service mitigation planning staff. By combining flame length with the Pine Plantation Age data, you can determine where the greatest potential impact to pine plantations is likely to occur.

All areas in Texas have the Pine Plantation Index calculated consistently, which allows for comparison and ordination of areas across the entire state. Data is modeled at a 30-meter cell resolution, which is consistent with other TWRA layers.

**The designated project area does not contain Pine Plantation Response Index data**

# Community Protection Zones

## Description

**Community Protection Zones (CPZ)** represent those areas considered **highest priority for mitigation planning activities**. CPZs are based on an analysis of the Where People Live housing density data and surrounding fire behavior potential. Rate of Spread data is used to determine the areas of concern around populated areas that are within a 2-hour fire spread distance.

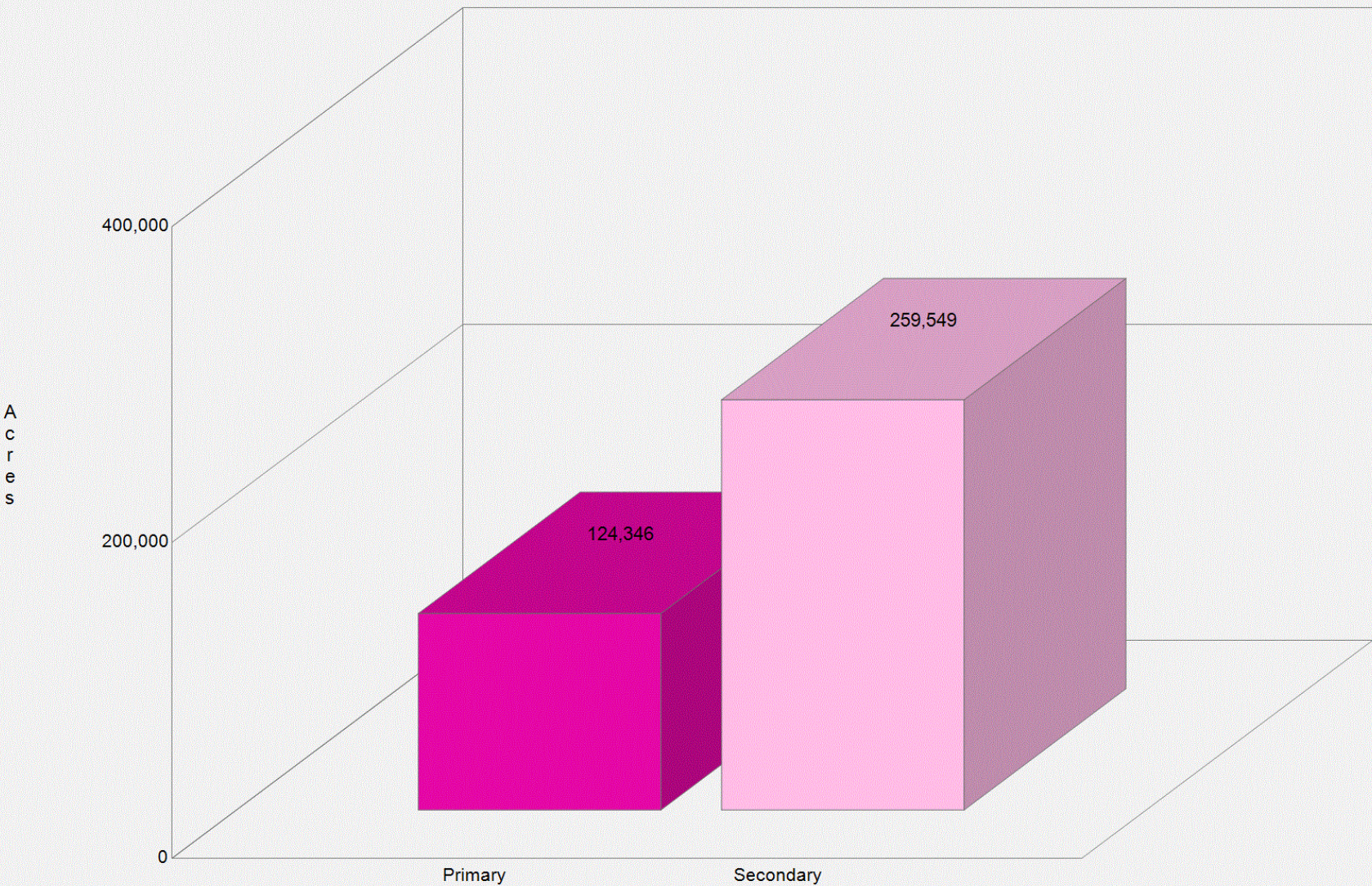
General consensus among fire planners is that for fuel mitigation treatments to be effective in reducing wildfire hazard, they must be conducted within a close distance of a community. In Texas, the WUI housing density has been used to reflect populated areas in place of community boundaries. This ensures that CPZs reflect where people are living in the wildland, not jurisdictional boundaries.

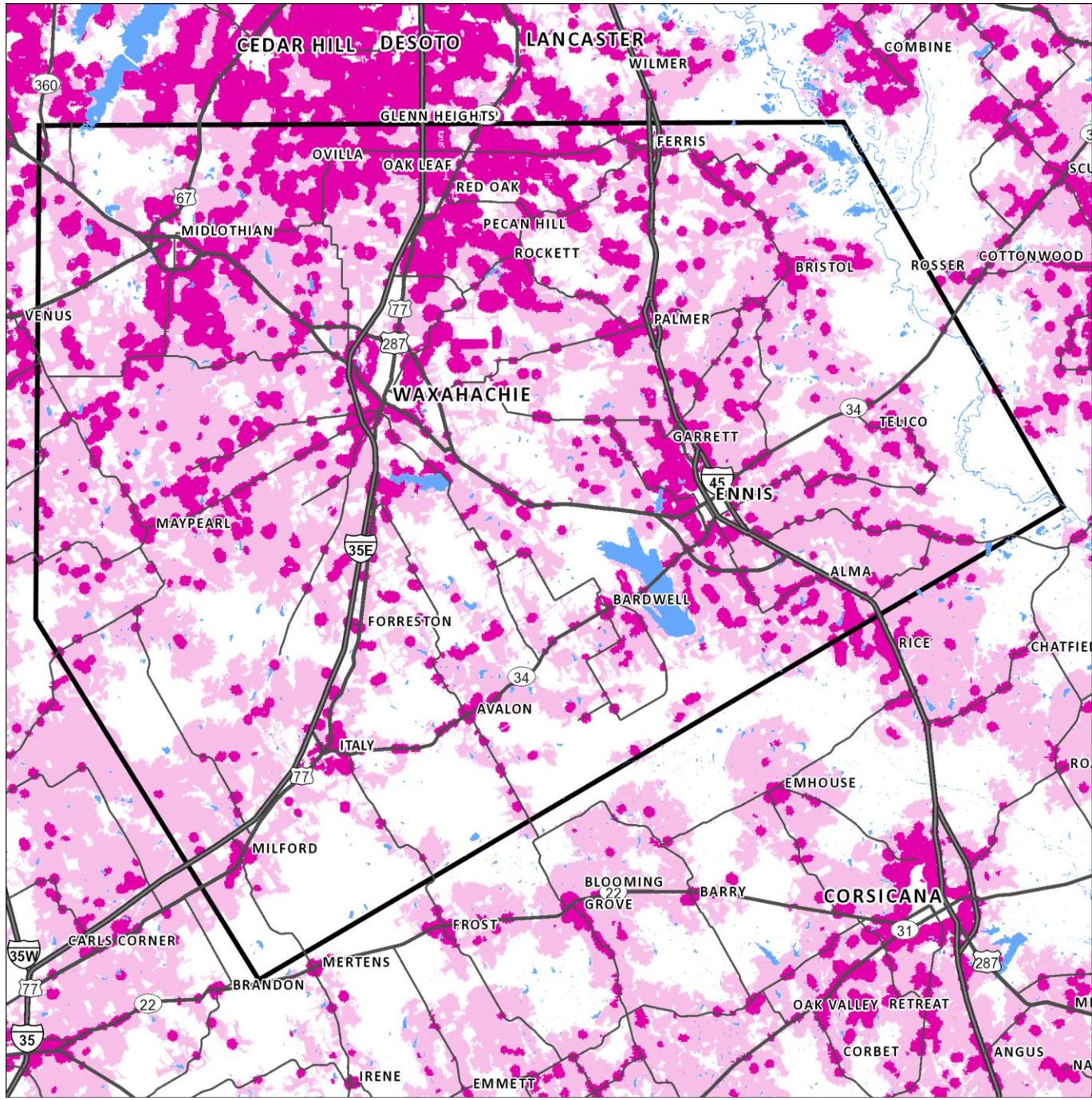
CPZs represent a variable width buffer around populated areas that are within a 2-hour fire spread distance. Accordingly, CPZs will extend farther in areas where rates of spread are greater and less in areas where minimal rate of spread potential exists. CPZ boundaries inherently incorporate fire behavior conditions.

All areas in Texas have the CPZs calculated consistently, which allows for comparison and ordination of areas across the entire state. Data is modeled at a 30-meter cell resolution, which is consistent with other TWRA layers.

	Class	Acres	Percent
	Primary	124,346	32.4 %
	Secondary	259,549	67.6 %
	<b>Total</b>	<b>383,895</b>	<b>100.0 %</b>

ellis county  
Community Protection Zones

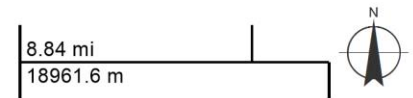




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**Community Protection Zones**

- Primary
- Secondary



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# Wildfire Threat

## Description

**Wildfire Threat is the likelihood of a wildfire occurring or burning into an area.** Threat is derived by combining a number of landscape characteristics including surface fuels and canopy fuels, resultant fire behavior, historical fire occurrence, percentile weather derived from historical weather observations, and terrain conditions. These inputs are combined using analysis techniques based on established fire science.

The measure of wildfire threat used in the Texas Wildfire Risk Assessment (TWRA) is called Wildland Fire Susceptibility Index, or WFSI. WFSI combines the probability of an acre igniting (Wildfire Ignition Density) and the expected final fire size based on rate of spread in four weather percentile categories. WFSI is defined as the likelihood of an acre burning. Since all areas in Texas have WFSI calculated consistently, it allows for comparison and ordination of areas across the entire state. For example, a high threat area in East Texas is equivalent to a high threat area in West Texas.

To aid in the use of Wildfire Threat for planning activities, the output values are categorized into seven (7) classes. These are given general descriptions from Low to Very High threat.

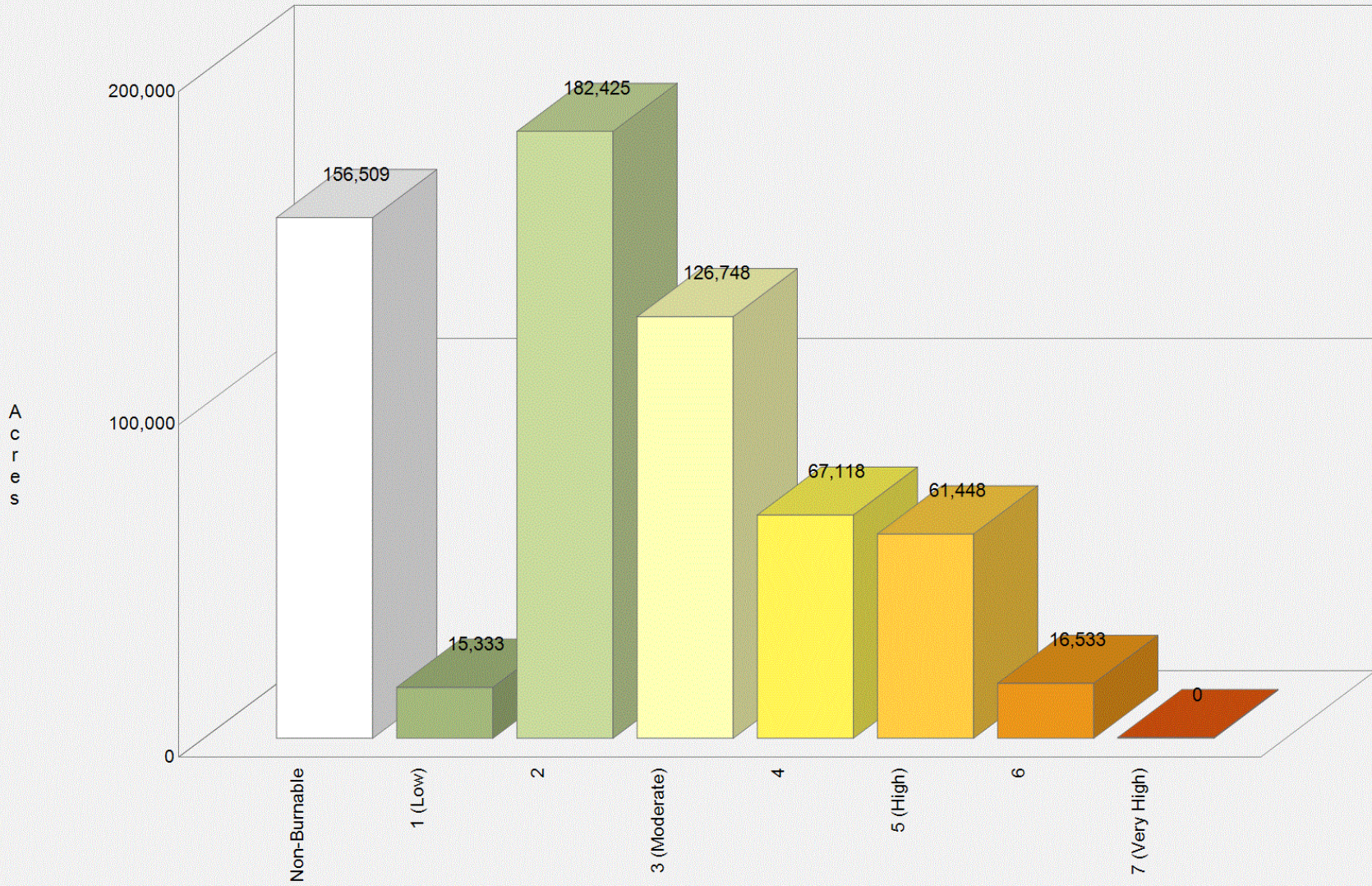
The threat map is derived at a 30 meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local protection mitigation or prevention planning.

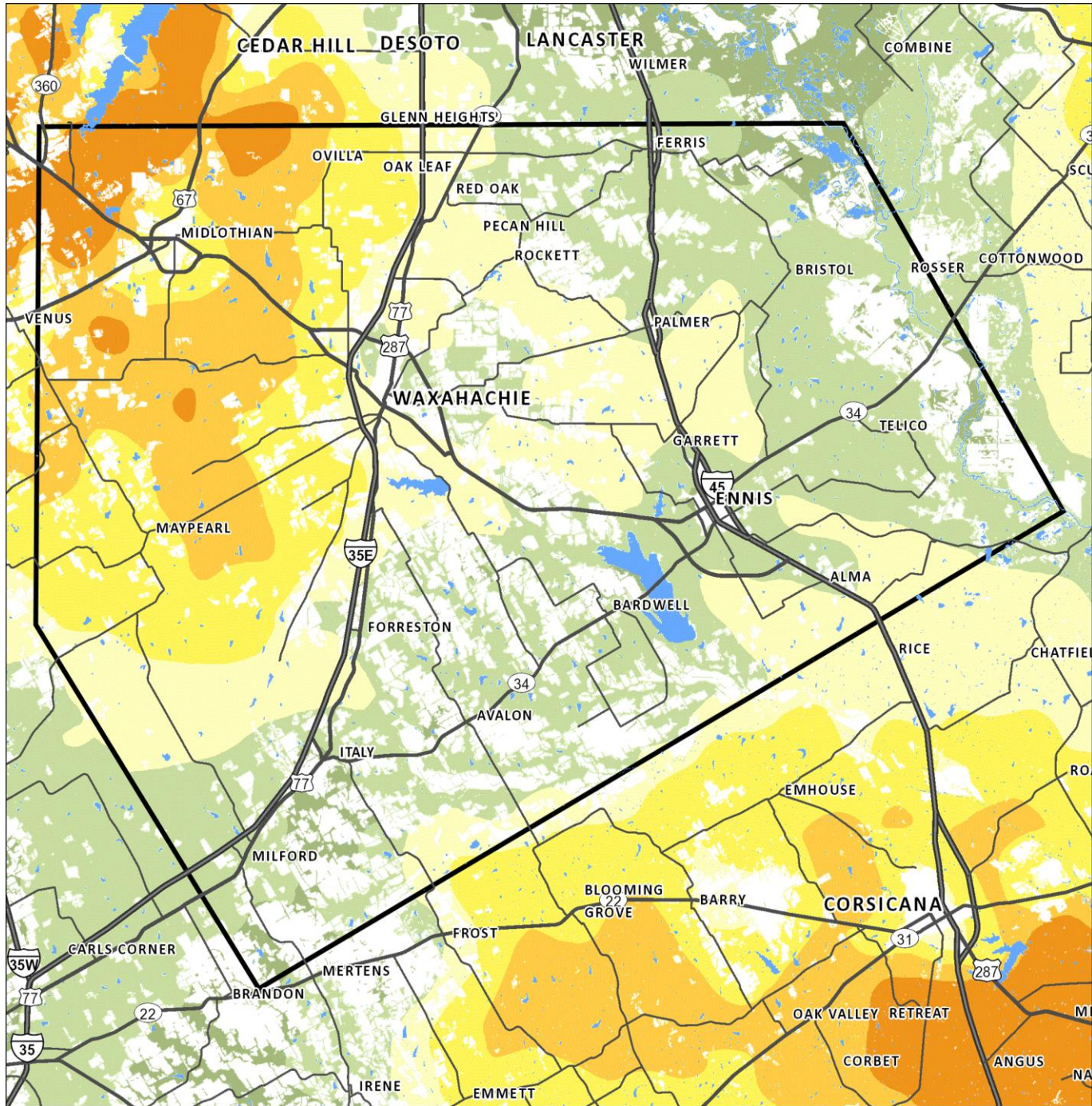
A more detailed description of the risk assessment algorithms is provided in the TWRA Final Report, which can be downloaded from [www.texaswildfirerisk.com](http://www.texaswildfirerisk.com).

Class	Acres	Percent
Non-Burnable	156,509	25.0 %
1 (Low)	15,333	2.4 %
2	182,425	29.1 %
3 (Moderate)	126,748	20.2 %
4	67,118	10.7 %
5 (High)	61,448	9.8 %
6	16,533	2.6 %
7 (Very High)	0	0.0 %
<b>Total</b>	<b>626,114</b>	<b>100.0 %</b>



ellis county  
Wildfire Threat





ellis county

**Wildfire Threat**

- Non-Burnable
- 1 (Low)
- 2
- 3 (Moderate)
- 4
- 5 (High)
- 6
- 7 (Very High)



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# Wildfire Ignition Density

## Description

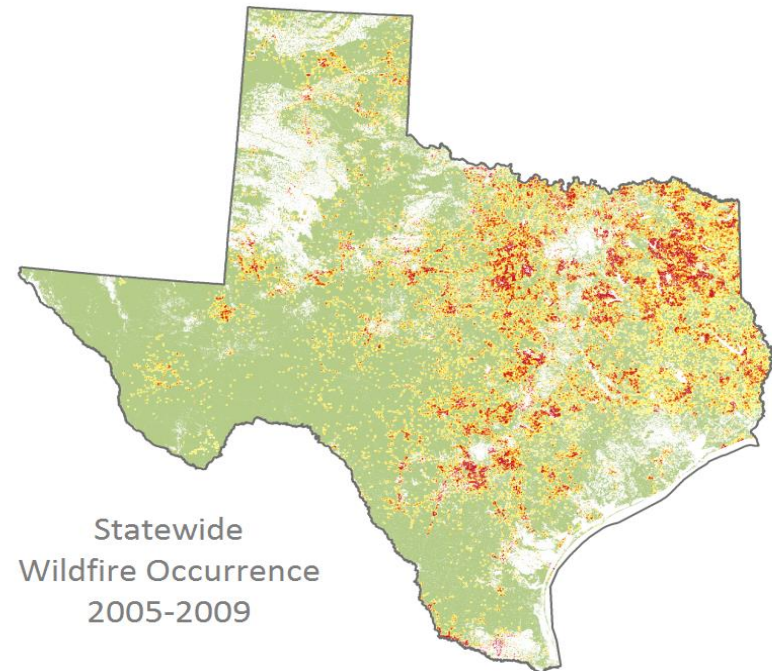
**Wildfire Ignition Density is the likelihood of a wildfire starting based on historical ignition patterns.** Occurrence is derived by modeling historic wildfire ignition locations to create an average ignition rate map. The ignition rate is measured in the number of fires per year per 1000 acres.

Five years of historic fire report data was used to create the ignition points for all Texas fires. Data was obtained from federal, state and local fire department report data sources for the years 2005 to 2009. For East Texas, additional fire data was obtained for state fires for the years 2000 to 2004. The compiled wildfire occurrence database was cleaned to remove duplicate records and to correct inaccurate locations. The database was then modeled to create a density map reflecting historical fire ignition rates.

The measure of wildfire occurrence used in the Texas Wildfire Risk Assessment (TWRA) is called the Wildfire Ignition Density. Since all areas in Texas have Ignition Density calculated consistently, it allows for comparison and ordination of areas across the entire state. For example, a high occurrence area in East Texas is equivalent to a high occurrence area in West Texas.

Wildfire Ignition Density is a key input into the calculation of the Wildfire Threat output. In particular, with most Texas fires being human caused, there is a repeatable spatial pattern of fire ignitions over time. This pattern identifies areas where wildfires are most likely to ignite and prevention efforts can be planned accordingly.

The TWRA Wildfire Ignition Density map is enhanced from the map derived in the Southern Wildfire Risk Assessment (SWRA) project. In particular, the Texas Wildfire Ignition Density map was derived from a larger sampling of ignition data points, including numerous volunteer and state fire reports. Previously, the SWRA was not able to incorporate many state or local data sources due to the limited availability of data. However, due to the implementation of a statewide fire reporting system, and new incentives for reporting by volunteer fire departments, there has been an increase in the number of fires reported, and an improvement in the quality of the fire ignition locations. The use of this data provides a better representation of the wildfire occurrence across the state than previously derived in the SWRA project.



To aid in the use of Wildfire Ignition Density for planning activities, the output values are categorized into seven (7) classes reflecting average ignition rates. These are given general descriptions from Low to Very High. Seven classes are used to present finer detail for mapping purposes so that transitional areas can be easily identified.

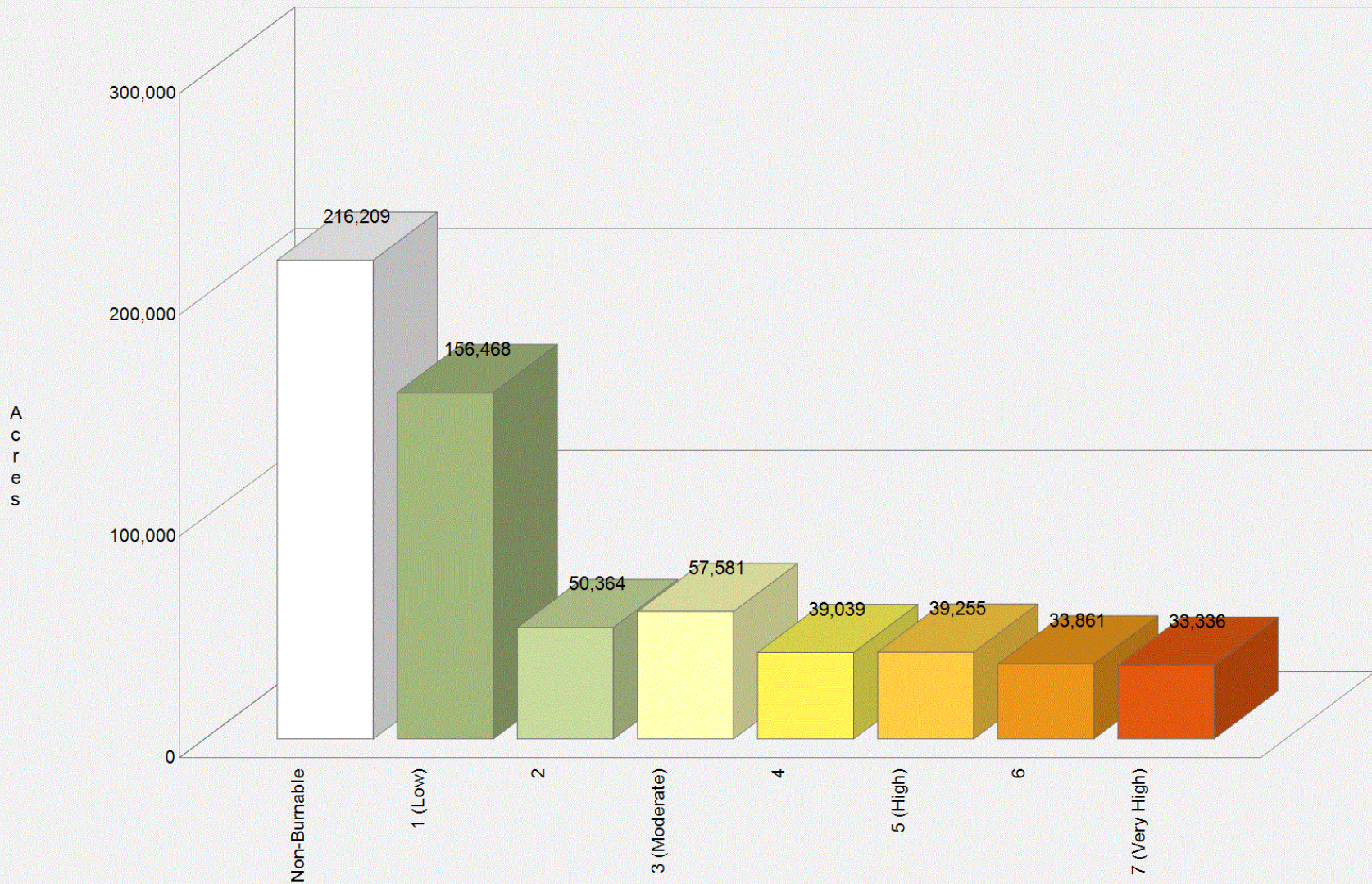
The class breaks are determined by analyzing the Wildfire Ignition Density output values to reflect for the entire state.

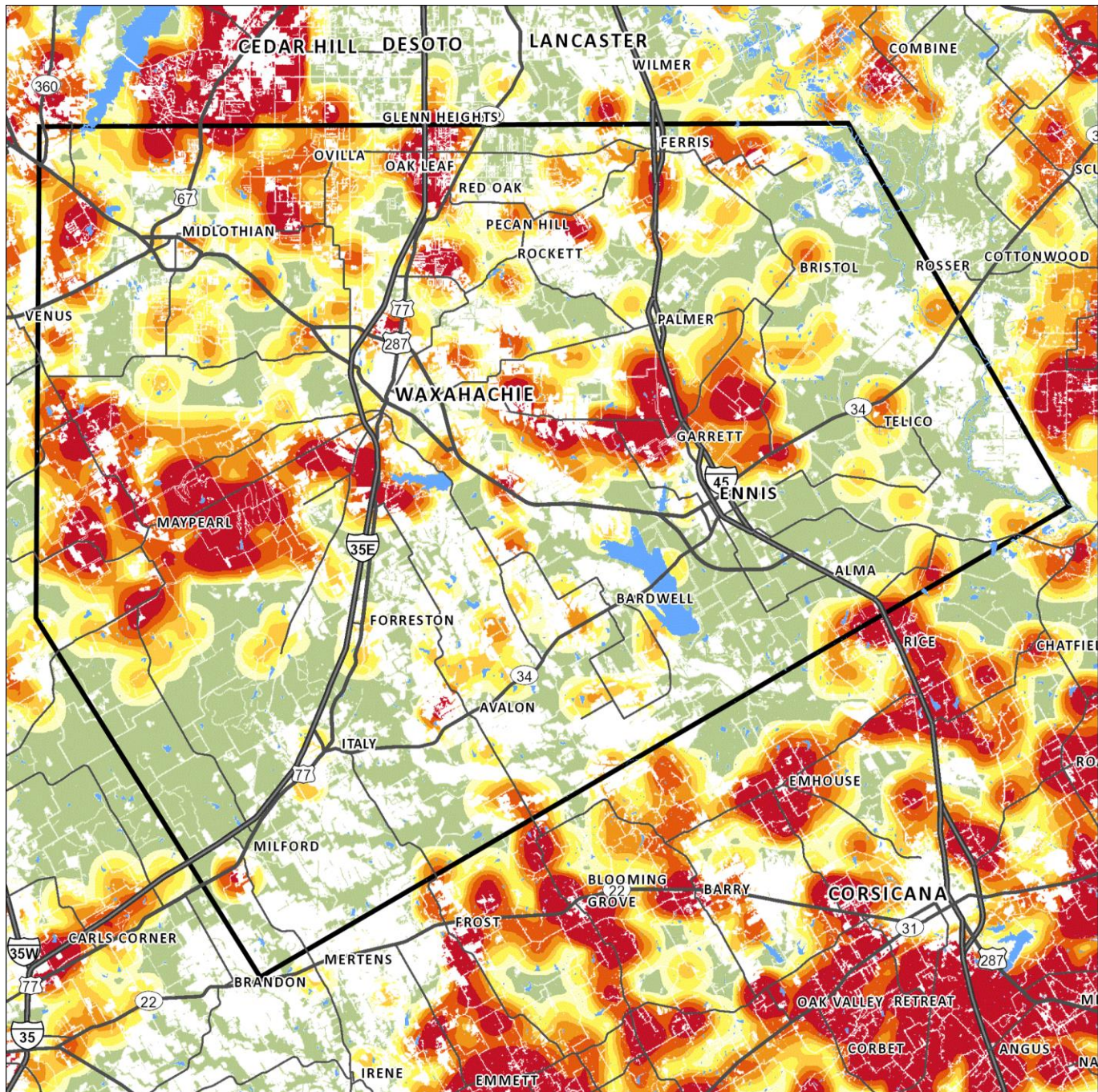
The Wildfire Ignition Density map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local protection mitigation or prevention planning.

A more detailed description of the risk assessment algorithms is provided in the TWRA Final Report, which can be downloaded from [www.texaswildfirerisk.com](http://www.texaswildfirerisk.com).

Class	Acres	Percent
Non-Burnable	216,209	34.5 %
1 (Low)	156,468	25.0 %
2	50,364	8.0 %
3 (Moderate)	57,581	9.2 %
4	39,039	6.2 %
5 (High)	39,255	6.3 %
6	33,861	5.4 %
7 (Very High)	33,336	5.3 %
<b>Total</b>	<b>626,113</b>	<b>100.0 %</b>

ellis county  
Wildfire Ignition Density

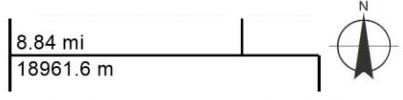




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**Wildfire Ignition Density**

- Non-Burnable
- 1 (Low)
- 2
- 3 (Moderate)
- 4
- 5 (High)
- 6
- 7 (Very High)



Texas Wildfire Risk Assessment  
<http://www.texaswildfirerisk.com>

# Wildfire Occurrence Statistics

## Description

Wildfire occurrence statistics provide insight as to the number of fires, acres burned and cause of fires in Texas. These statistics are useful for prevention and mitigation planning. They can be used to quantify the level of fire business, determine the time of year most fires typically occur, and develop a fire prevention campaign aimed at reducing a specific fire cause. The fire occurrence statistics are grouped by primary response agency type, which include:

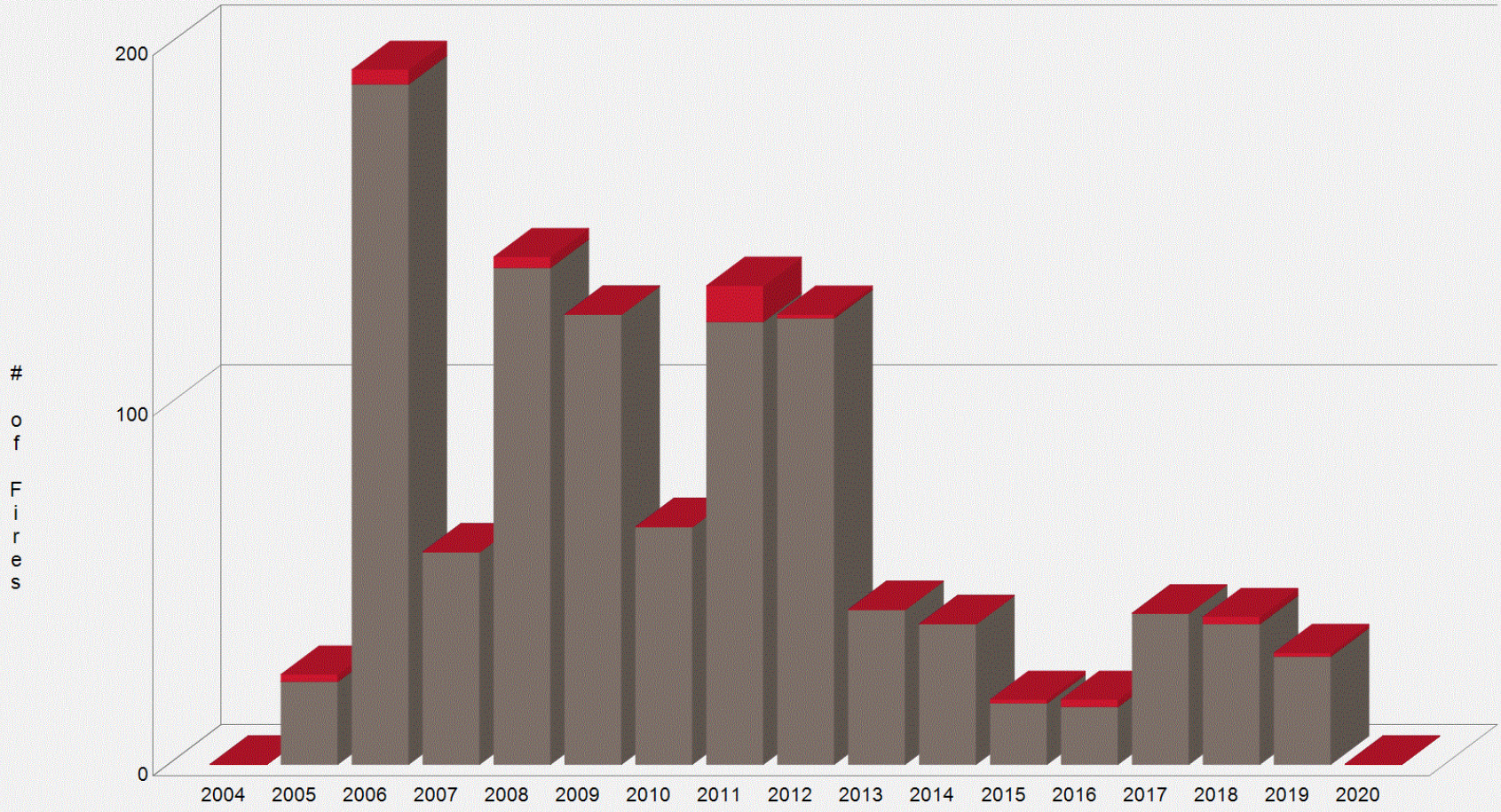
- **Texas Forest Service (TFS)** – The Texas Forest Service fire occurrence database represents all state-reported fires.

- **Local** – The local category includes fires reported via Texas Forest Service’s online fire department reporting system. It is a voluntary reporting system that includes fires reported by both paid and volunteer fire departments since 2004.

Seventeen years of historic fire report data was used to create the fire occurrence summary charts. Data was obtained from state and local fire department report data sources for the years 2004 to 2020. The compiled fire occurrence database was cleaned to remove duplicate records and to correct inaccurate locations.

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### Number of Wildfires Reported by Agency 2004 - 2020

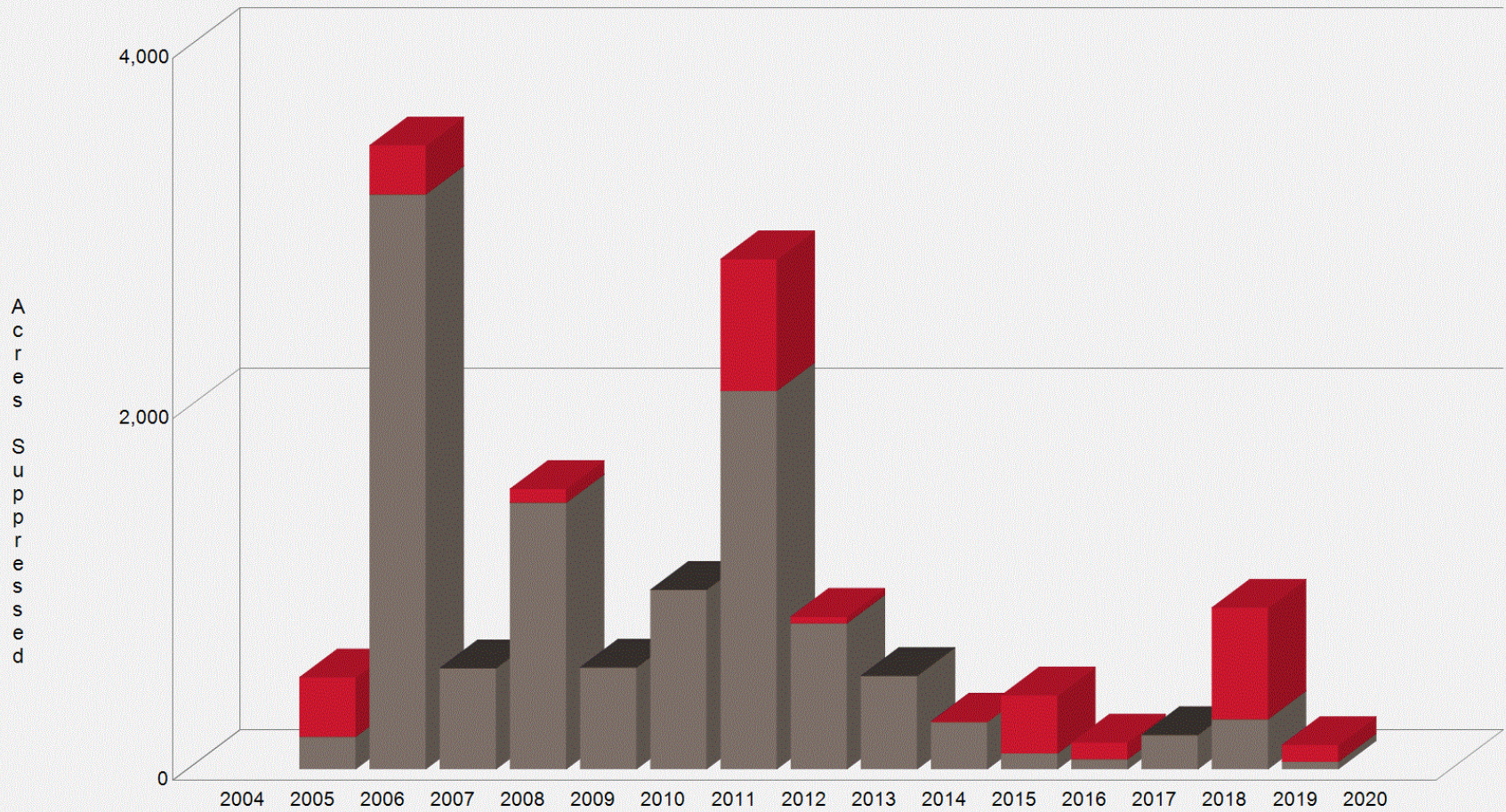


	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Local	0	23	189	59	138	125	66	123	124	43	39	17	16	42	39	30	0
State	0	2	4	0	3	0	0	10	1	0	0	1	2	0	2	1	0

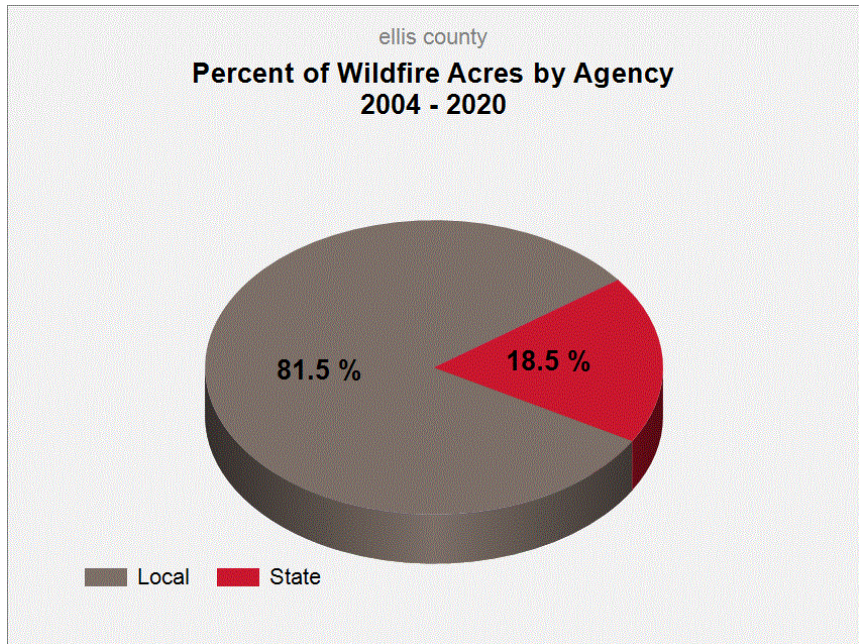
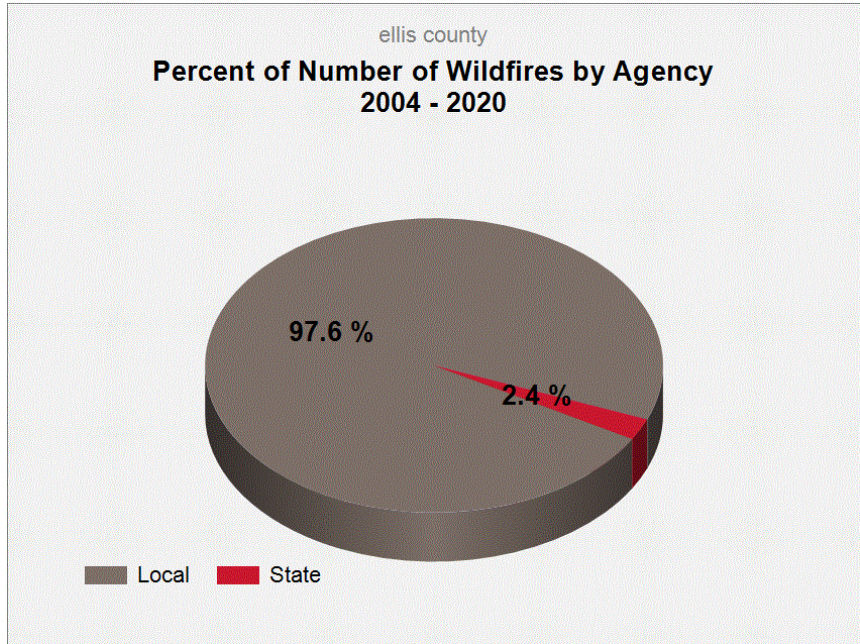


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### Wildfire Acres Reported by Agency 2004 - 2020

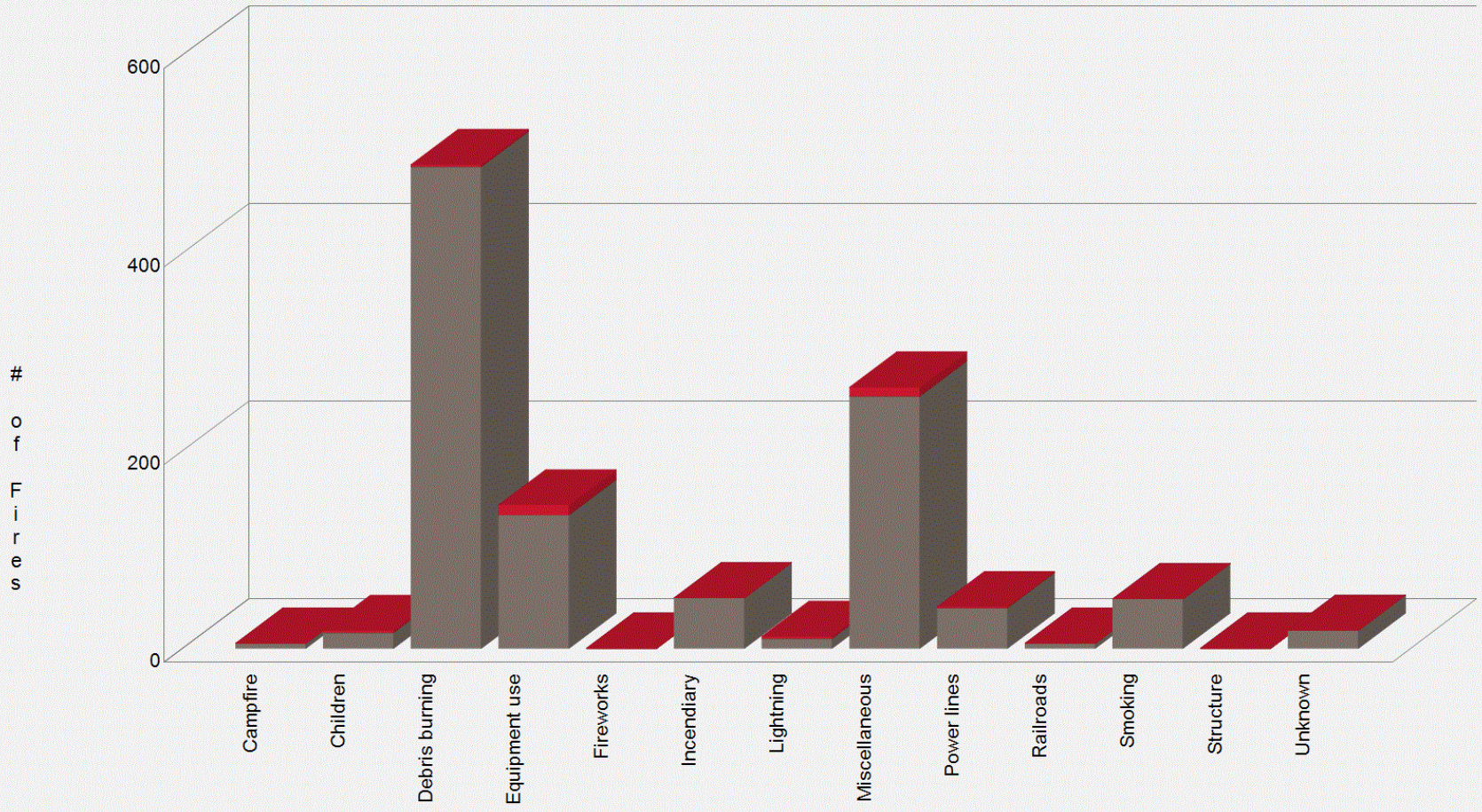


	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Local	0	179	3184	558	1476	562	992	2095	808	515	262	87	55	188	276	40	0
State	0	328	270	0	75	0	0	729	35	0	0	320	91	0	617	92	0



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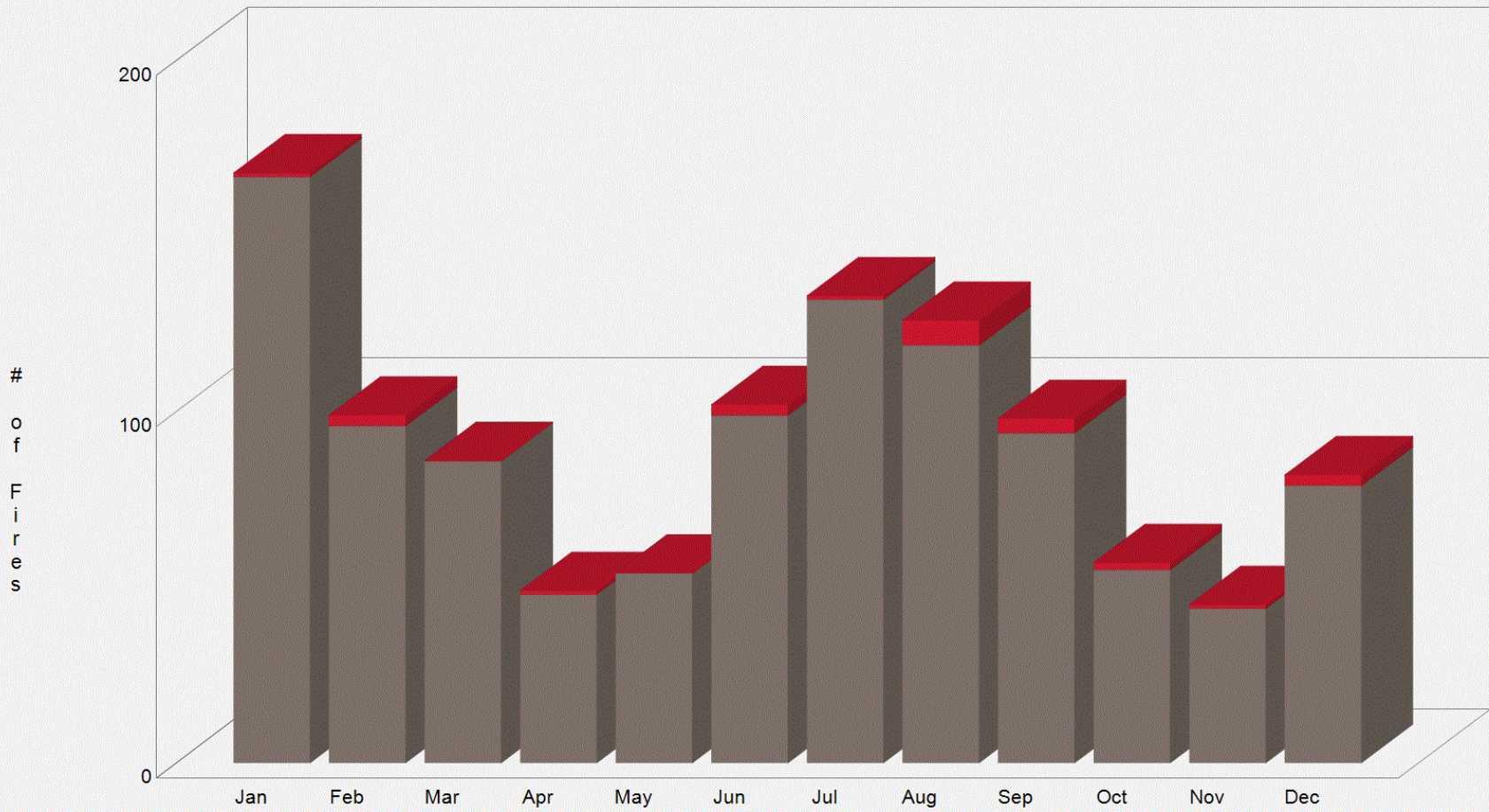
### Cause of Wildfires Reported by Agency 2004 - 2020



	Campfire	Children	Debris burning	Equip. use	Fireworks	Incendiary	Lightning	Misc.	Power lines	Railroads	Smoking	Structure	Unknown
Local	5	16	487	135	0	51	10	255	41	5	50	0	18
State	0	2	2	10	0	0	2	9	1	0	0	0	0

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### Number of Wildfires Reported per Month by Agency 2004 - 2020



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Local	167	96	86	48	54	99	132	119	94	55	44	79
State	1	3	0	1	0	3	1	7	4	2	1	3

# Fire Behavior Overview

## Description

Fire behavior is influenced by the following environmental influences:

1. **Fuels**
2. **Weather**
3. **Topography**



Fire behavior characteristics are attributes of wildland fire that pertain to its spread, intensity, and growth. Fire behavior characteristics utilized in the Texas Wildfire Risk Assessment (TWRA) include fire type, rate of spread, flame length and fireline intensity (fire intensity scale). These metrics are used to determine the potential fire behavior under different weather scenarios. Areas that exhibit moderate to high fire behavior potential can be identified for mitigation treatments, especially if these areas are in close proximity to homes, business, or other assets.

### Fuels

The TWRA includes composition and characteristics for both surface fuels and canopy fuels, whereas the original Southern Wildfire Risk Assessment (SWRA) only included surface fuels. Being able to assess canopy fire potential in addition to surface fire potential represents a significant enhancement for the TWRA. Significant increases in fire behavior will now be captured if the fire has the potential to transition from a surface fire to a canopy fire.

Fuel datasets required to compute both surface and canopy fire potential include:

- **Surface Fuels**, generally referred to as fire behavior fuel models, provide the input parameters needed to compute surface fire behavior.
- **Canopy Cover** is the horizontal percentage of the ground surface that is covered by tree crowns. It is used to compute wind reduction factors and shading.
- **Canopy Ceiling Height/Stand Height** is the height above the ground of the highest canopy layer where the density of the crown mass within the layer is high enough to support vertical movement of a fire. A good estimate of canopy ceiling height would be the average height of the dominant and co-dominant trees in a stand. It is used for computing wind reduction to midflame height and spotting distances from torching trees .
- **Canopy Base Height** is the lowest height above the ground above which there is sufficient canopy fuel to propagate fire vertically . Canopy base height is a property of a plot, stand, or group of trees, not of an individual tree. For fire modeling, canopy base height is an effective value that incorporates ladder fuel, such as tall shrubs and small trees. Canopy base height is used to determine if a surface fire will transition to a canopy fire.

- **Canopy Bulk Density** is the mass of available canopy fuel per unit canopy volume (Scott & Reinhardt, 2001). Canopy bulk density is a bulk property of a stand or group of trees, not an individual tree. Canopy bulk density is used to predict whether a canopy fire can propagate through the canopy of a stand of trees.

### Weather

Environmental weather parameters needed to compute fire behavior characteristics include 1-hour, 10-hour, and 100-hour timelag fuel moistures, herbaceous fuel moisture, woody fuel moisture, and the 20-foot 10 minute average wind speed. To collect this information, weather influence zones were established across the state. A weather influence zone is an area where for analysis purposes the weather on any given day is considered uniform. There are 22 weather influence zones in Texas as shown in Figure 2. Within each weather influence zone, historical daily weather is



gathered to compile a weather dataset from which four percentile weather categories are created. The percentile weather categories are intended to represent low, moderate, high, and extreme fire weather days. Fire behavior outputs are computed for each percentile weather category to determine fire potential under different weather scenarios. The four percentile weather categories include:

- Low Weather Percentile (0 – 15%)
- Moderate Weather Percentile (16 – 90%)
- High Weather Percentile (91 – 97%)
- Extreme Weather Percentile (98 – 100%)

TWRA uses the same approach as the original Southern Wildfire Risk Assessment (SWRA) for compiling the weather parameters. For a detailed description of the methodology, refer to the SWRA Final Report at [www.southernwildfirerisk.com](http://www.southernwildfirerisk.com).

### Topography

Topography datasets required to compute fire behavior characteristics are elevation, slope and aspect.

### **FIRE BEHAVIOR CHARACTERISTICS**

Fire behavior characteristics provided in this report include:

- **Characteristic Rate of Spread**
- **Characteristic Flame Length**
- **Characteristic Fire Intensity Scale**
- **Fire Type - Extreme**

# Characteristic Rate of Spread

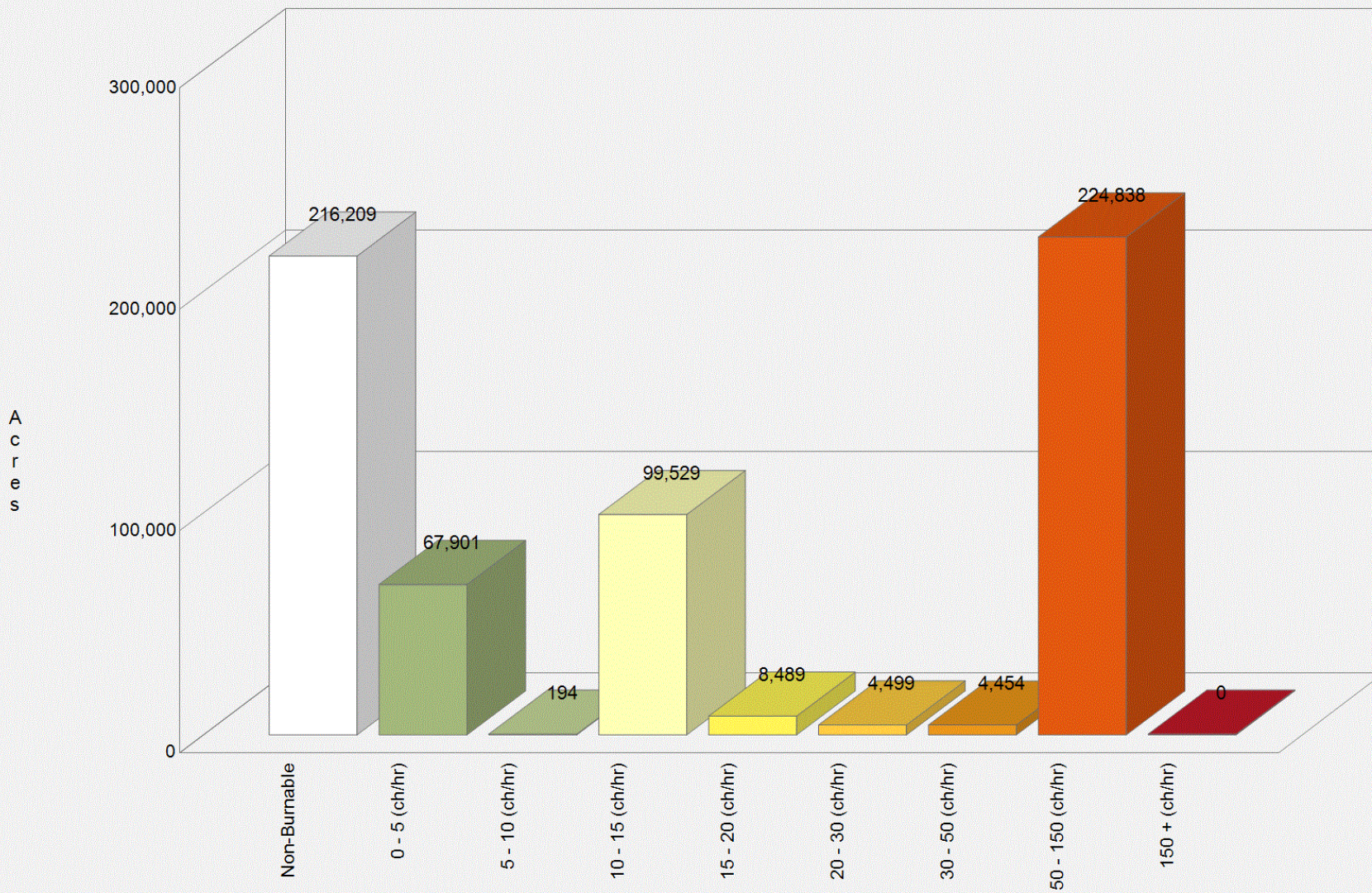
## Description

**Characteristic Rate of Spread is the typical or representative rate of spread of a potential fire based on a weighted average of four percentile weather categories.** Rate of spread is the speed with which a fire moves in a horizontal direction across the landscape, usually expressed in chains per hour (ch/hr) or feet per minute (ft/min). For purposes of the Texas Wildfire Risk Assessment, this measurement represents the maximum rate of spread of the fire front. Rate of Spread is the metric used to derive the Community Protection Zones.

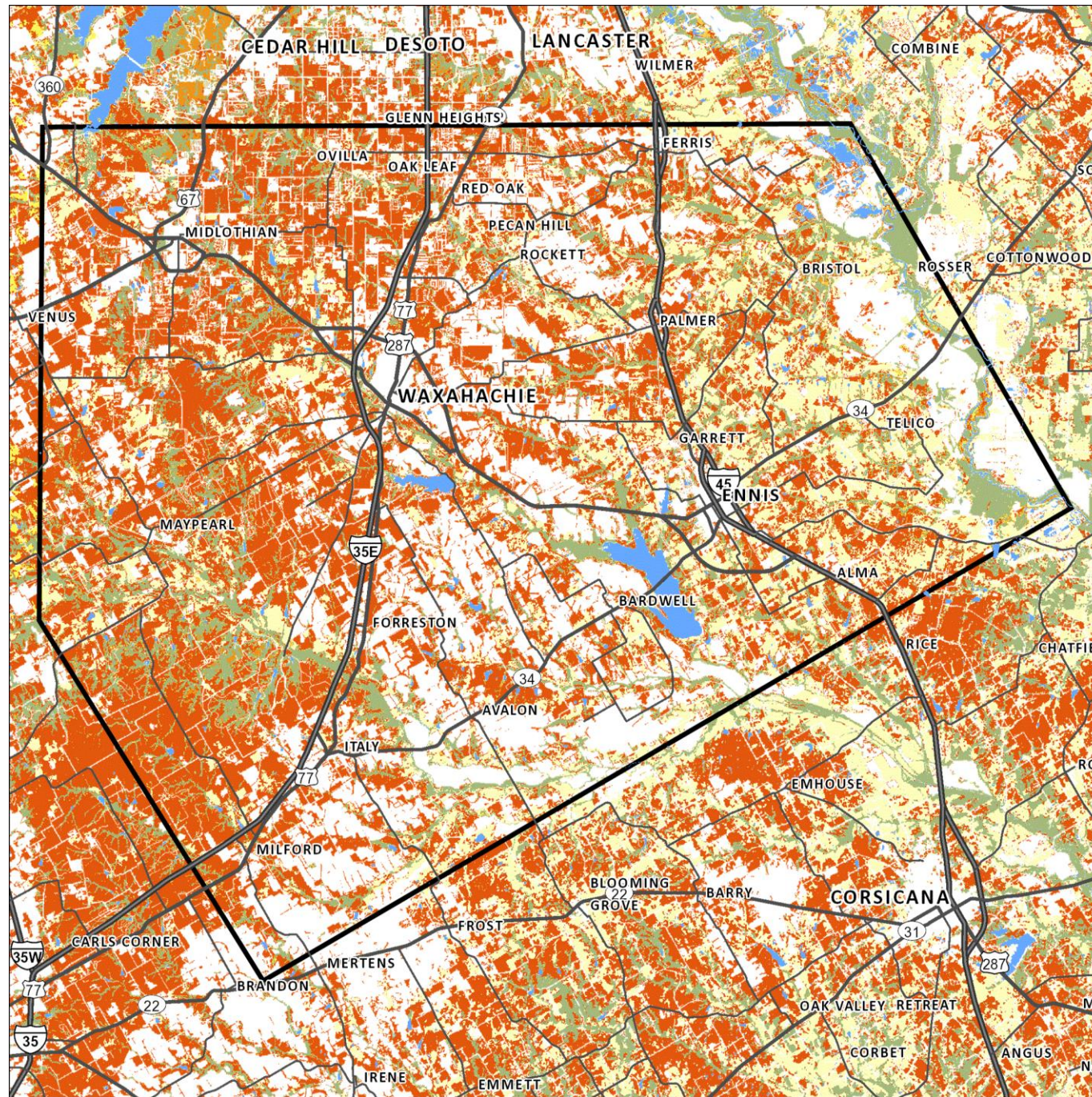
Rate of spread is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in Texas. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform. There are 22 weather influence zones in Texas.

Rate of Spread	Acres	Percent
Non-Burnable	216,209	34.5 %
0 - 5 (ch/hr)	67,901	10.8 %
5 - 10 (ch/hr)	194	0.0 %
10 - 15 (ch/hr)	99,529	15.9 %
15 - 20 (ch/hr)	8,489	1.4 %
20 - 30 (ch/hr)	4,499	0.7 %
30 - 50 (ch/hr)	4,454	0.7 %
50 - 150 (ch/hr)	224,838	35.9 %
150 + (ch/hr)	0	0.0 %
<b>Total</b>	<b>626,113</b>	<b>100.0 %</b>

ellis county  
Characteristic Rate of Spread







ellis county

**Characteristic Rate of Spread**

- Non-Burnable
- 0 - 5 ch/hr
- 5 - 10 ch/hr
- 10 - 15 ch/hr
- 15 - 20 ch/hr
- 20 - 30 ch/hr
- 30 - 50 ch/hr
- 50 - 150 ch/hr
- 150+ ch/hr



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# Characteristic Flame Length

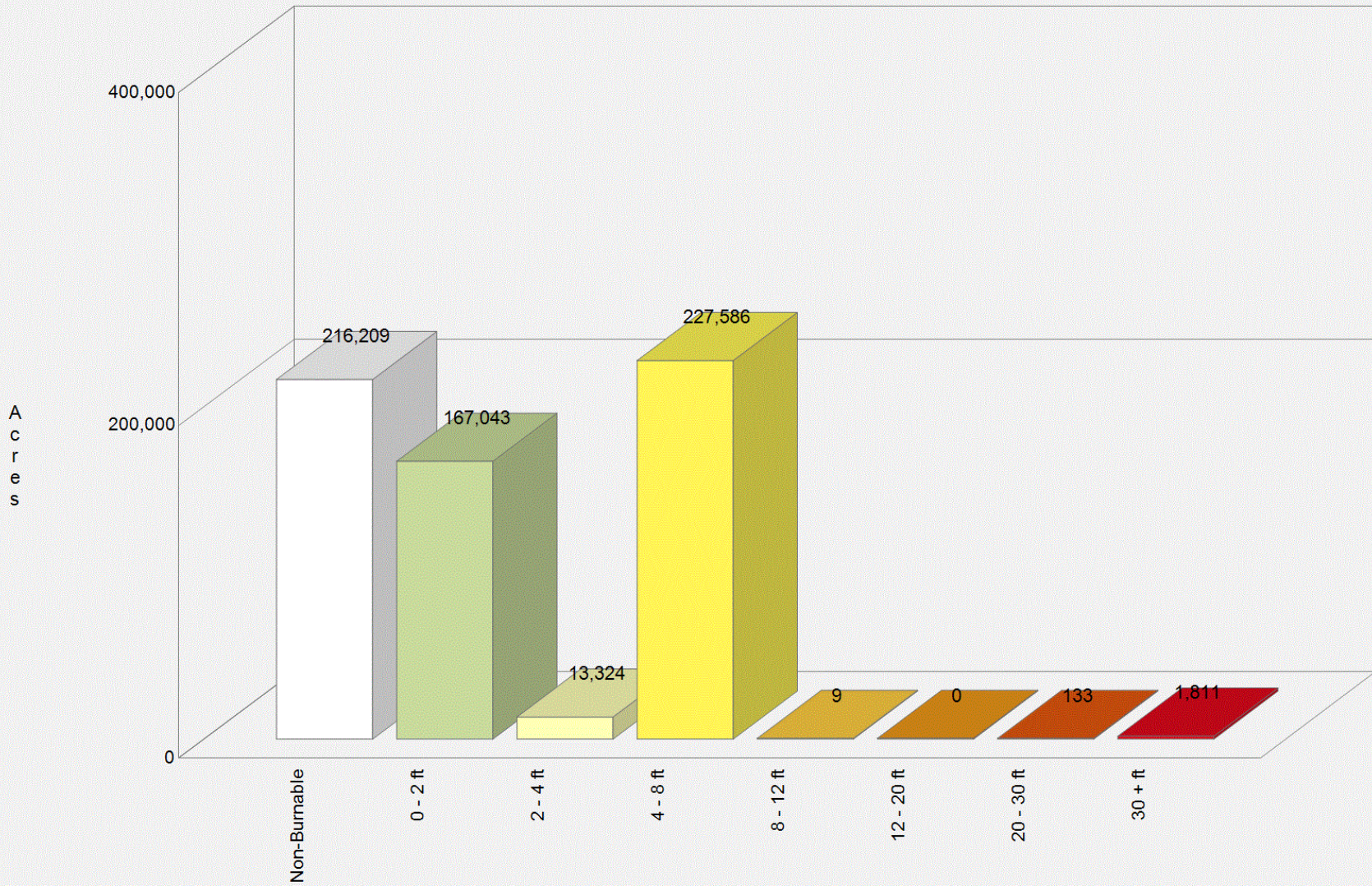
## Description

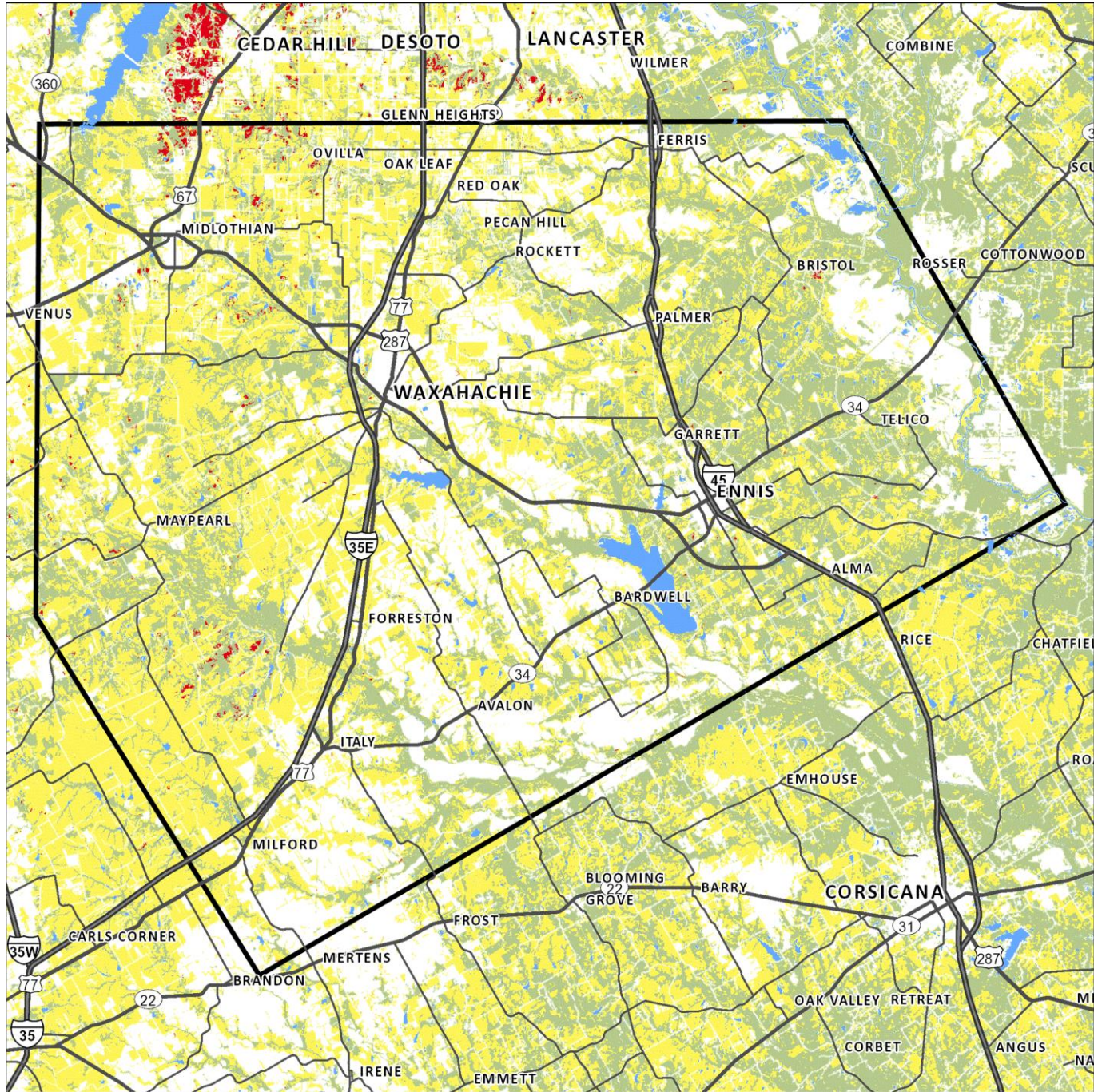
**Characteristic Flame Length is the typical or representative flame length of a potential fire based on a weighted average of four percentile weather categories.** Flame Length is defined as the distance between the flame tip and the midpoint of the flame depth at the base of the flame, which is generally the ground surface. It is an indicator of fire intensity and is often used to estimate how much heat the fire is generating. Flame length is typically measured in feet (ft). Flame length is the measure of fire intensity used to generate the response index outputs for the TWRA.

Flame length is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in Texas. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform. There are 22 weather influence zones in Texas.

Flame Length	Acres	Percent
Non-Burnable	216,209	34.5 %
0 - 2 ft	167,043	26.7 %
2 - 4 ft	13,324	2.1 %
4 - 8 ft	227,586	36.3 %
8 - 12 ft	9	0.0 %
12 - 20 ft	0	0.0 %
20 - 30 ft	133	0.0 %
30 + ft	1,811	0.3 %
<b>Total</b>	<b>626,115</b>	<b>100.0 %</b>

ellis county  
Characteristic Flame Length





ellis county

**Characteristic Flame Length**

- Non-Burnable
- 0 - 2 ft
- 2 - 4 ft
- 4 - 8 ft
- 8 - 12 ft
- 12 - 20 ft
- 20 - 30 ft
- 30+ ft



Texas Wildfire Risk Assessment  
<http://www.texaswildfirerisk.com>

# Characteristic Fire Intensity Scale

## Description

**Characteristic Fire Intensity Scale (FIS) specifically identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist based on a weighted average of four percentile weather categories.** Similar to the Richter scale for earthquakes, FIS provides a standard scale to measure potential wildfire intensity. FIS consist of 5 classes where the order of magnitude between classes is ten-fold. The minimum class, Class 1, represents very low wildfire intensities and the maximum class, Class 5, represents very high wildfire intensities. Refer to descriptions below.

- **Class 1, Very Low:**  
Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.
- **Class 2, Low:**  
Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.
- **Class 3, Moderate:**  
Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.

- **Class 4, High:**  
Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
- **Class 5, Very High:**  
Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

To aid in viewing on the map, FIS is presented in 1/2 class increments. Please consult the TxWRAP User Manual for a more detailed description of the FIS class descriptions.

Wildfire Threat and Fire Intensity Scale are designed to complement each other. Unlike Wildfire Threat, the Fire Intensity Scale does not incorporate historical occurrence information. It only evaluates the potential fire behavior for an area, regardless if any fires have occurred there in the past. This additional information allows mitigation planners to quickly identify areas where dangerous fire behavior potential exists in relationship to nearby homes or other valued assets.

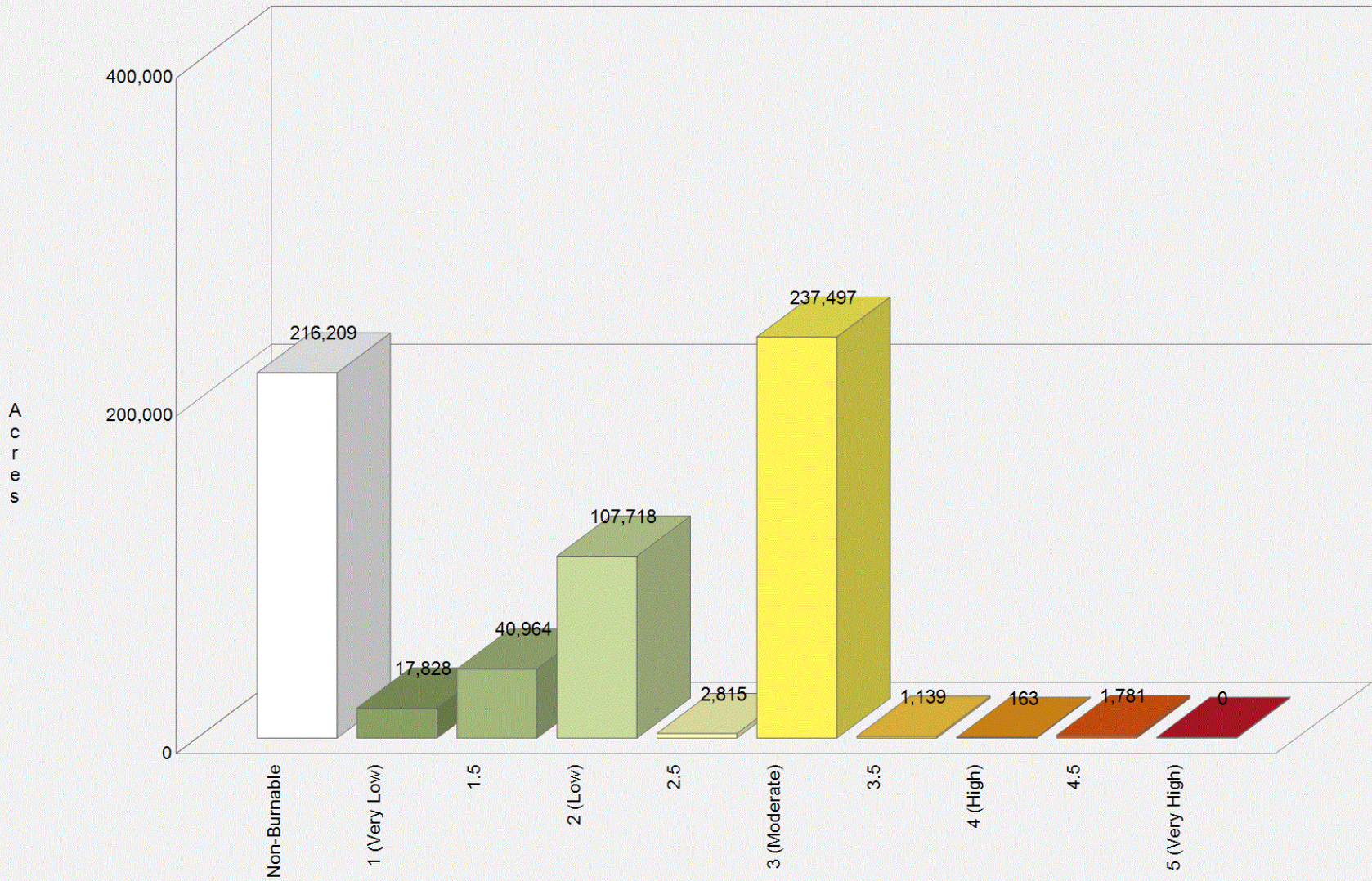
Since all areas in Texas have fire intensity scale calculated consistently, it allows for comparison and ordination of areas across the entire state. For example, a high fire intensity area in East Texas is equivalent to a high fire intensity area in West Texas.

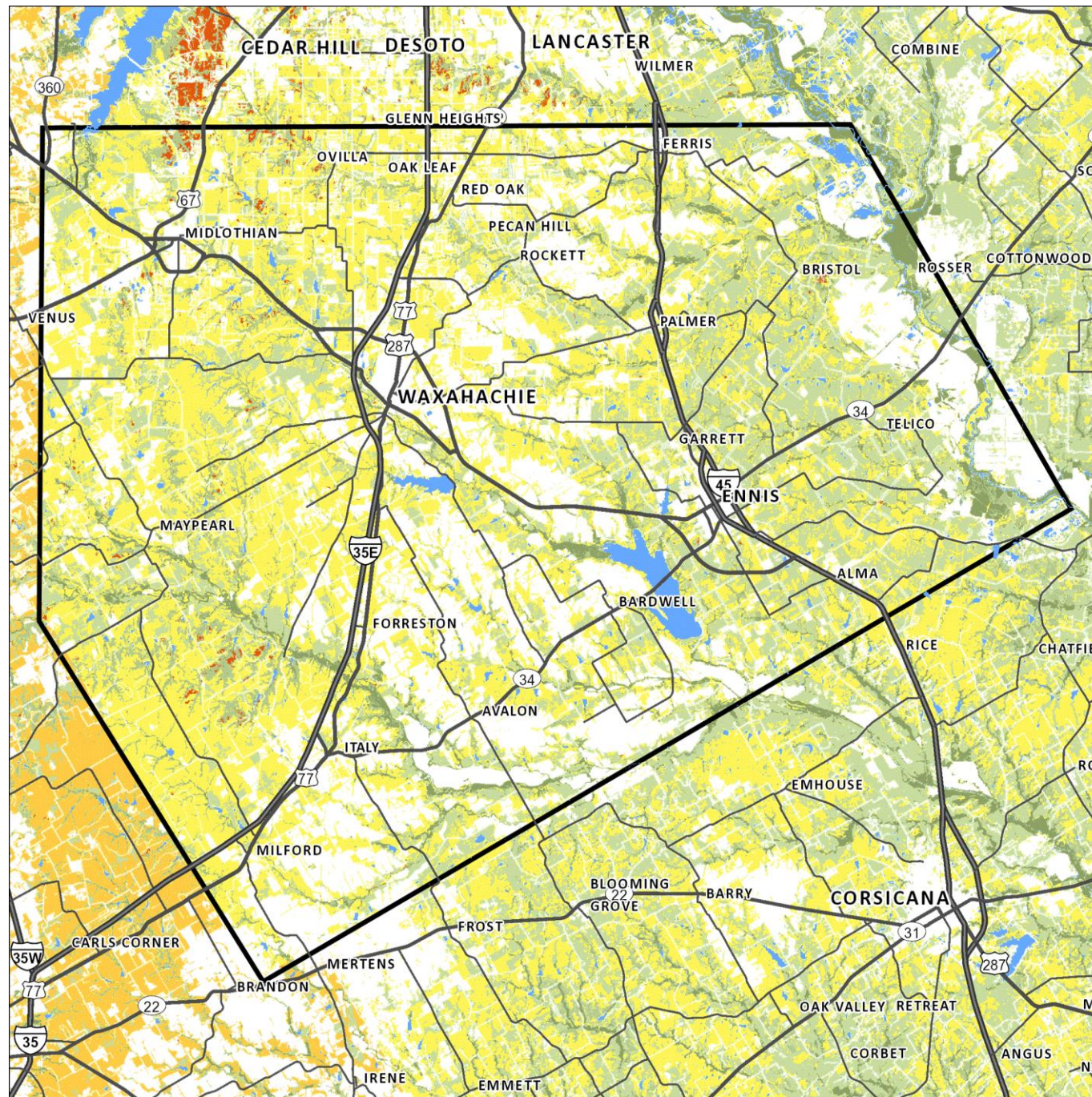
Fire intensity scale is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in Texas. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform. There are 22 weather influence zones in Texas.

The fire intensity scale map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local planning efforts.

Class	Acres	Percent
Non-Burnable	216,209	34.5 %
1 (Very Low)	17,828	2.8 %
1.5	40,964	6.5 %
2 (Low)	107,718	17.2 %
2.5	2,815	0.4 %
3 (Moderate)	237,497	37.9 %
3.5	1,139	0.2 %
4 (High)	163	0.0 %
4.5	1,781	0.3 %
5 (Very High)	0	0.0 %
<b>Total</b>	<b>626,114</b>	<b>100.0 %</b>

ellis county  
Characteristic Fire Intensity Scale





ellis county

**Characteristic FIS**

- Non-Burnable
- 1 (Very Low)
- 1.5
- 2 (Low)
- 2.5
- 3 (Moderate)
- 3.5
- 4 (High)
- 4.5
- 5 (Very High)

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Texas Wildfire Risk Assessment  
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# Fire Type – Extreme

## Description

There are two primary fire types – surface fire and canopy fire. Canopy fire can be further subdivided into passive canopy fire and active canopy fire. A short description of each of these is provided below.

### Surface Fire

A fire that spreads through surface fuel without consuming any overlying canopy fuel. Surface fuels include grass, timber litter, shrub/brush, slash and other dead or live vegetation within about 6 feet of the ground.



### Passive Canopy Fire

A type of crown fire in which the crowns of individual trees or small groups of trees burn, but solid flaming in the canopy cannot be maintained except for short periods (Scott & Reinhardt, 2001).



### Active Canopy Fire

A crown fire in which the entire fuel complex (canopy) is involved in flame, but the crowning phase remains dependent on heat released from surface fuel for continued spread (Scott & Reinhardt, 2001).



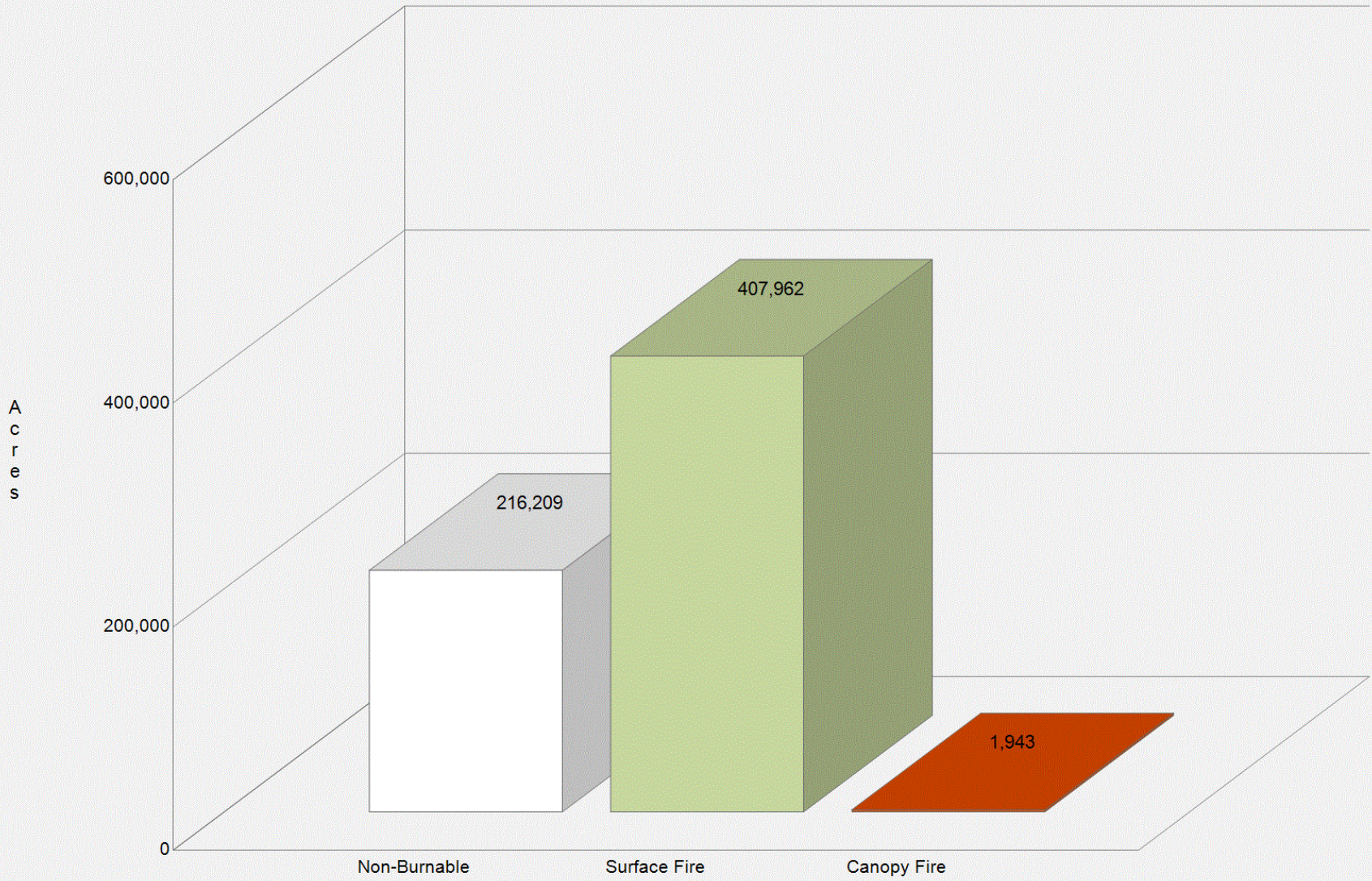
**Fire Type – Extreme represents the potential fire type under the extreme percentile weather category.** The extreme percentile weather category represents the average weather based on the top three percent fire weather days in the analysis period. It is not intended to represent a worst case scenario weather event. Accordingly, the potential fire type is based on fuel conditions, extreme percentile weather, and topography.

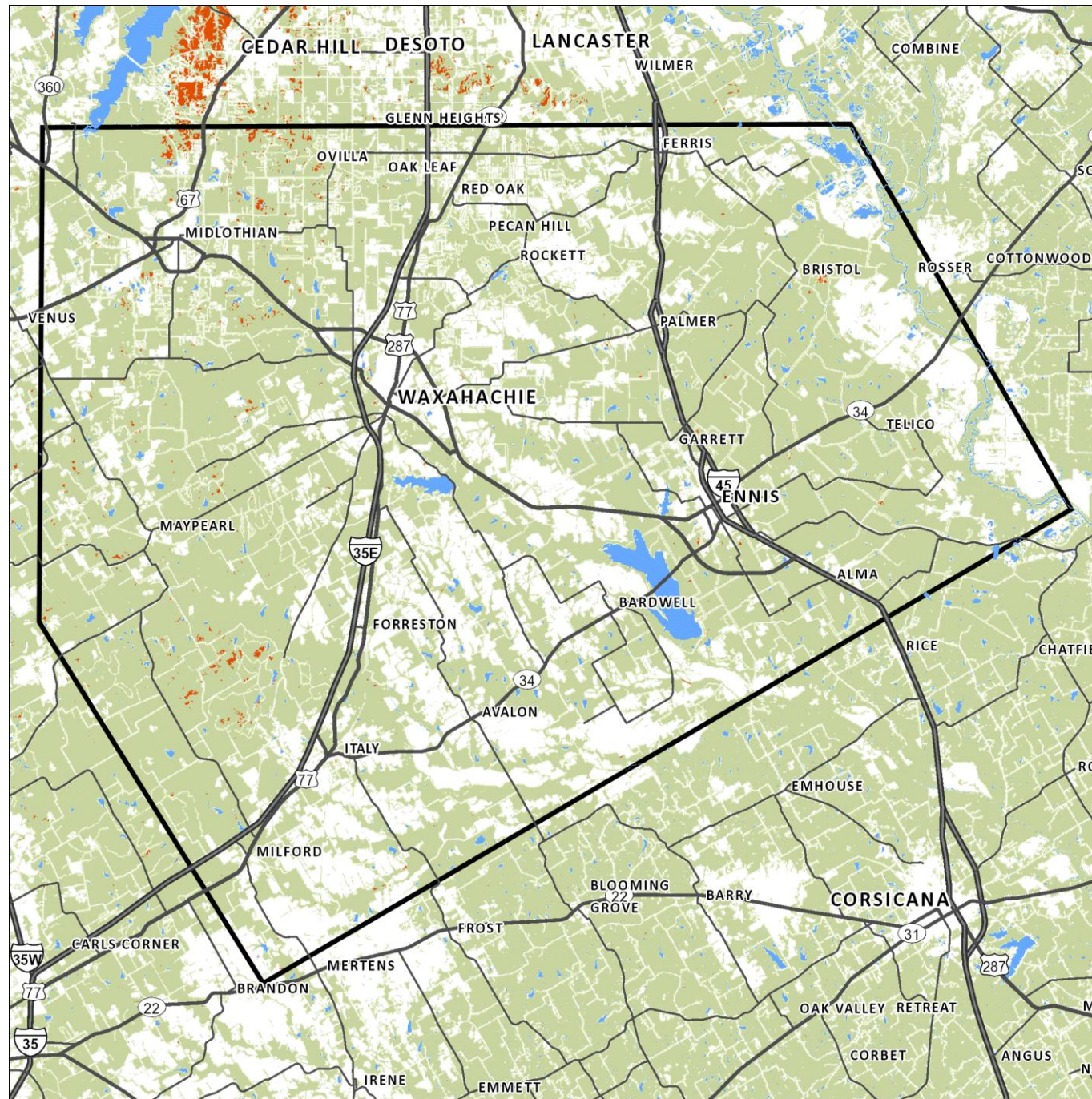
Canopy fires are very dangerous, destructive and difficult to control due to their increased fire intensity. From a planning perspective, it is important to identify where these conditions are likely to occur on the landscape so that special preparedness measure can be taken if necessary. The Fire Type – Extreme layer shows the footprint of where these areas are most likely to occur. However, it is important to note that canopy fires are not restricted to these areas. Under the right conditions, it can occur in other canopied areas.

The fire type - extreme map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local planning efforts.

Fire Type	Acres	Percent
Non-Burnable	216,209	34.5 %
Surface Fire	407,962	65.2 %
Canopy Fire	1,943	0.3 %
<b>Total</b>	<b>626,114</b>	<b>100.0 %</b>

ellis county  
Fire Type - Extreme





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- Fire Type**  
**Extreme Weather Percentile**
- Non-Burnable
  - Surface Fire
  - Canopy Fire



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# Surface Fuels

## Description

**Surface fuels, or fire behavior fuel models as they are technically referred to, contain the parameters needed by the Rothermel (1972) surface fire spread model to compute surface fire behavior characteristics, such as rate of spread, flame length, fireline intensity, and other fire behavior metrics.** As the name might suggest, surface fuels only account for the surface fire potential. Canopy fire potential is computed through a separate but linked process. The Texas Wildfire Risk Assessment accounts for both surface and canopy fire potential in the fire behavior outputs. This represents a significant enhancement over the Southern Wildfire Risk Assessment (SWRA) where only the surface fire potential was considered.

Surface fuels are typically categorized into one of four primary fuel types based on the primary carrier of the surface fire: 1) grass, 2) shrub/brush, 3) timber litter and 4) slash. There are two standard fire behavior fuel model sets published for use. The Fire Behavior Prediction System 1982 Fuel Model Set contains 13 fuel models and the Fire Behavior Prediction System 2005 Fuel Model Set contains 40 fuel models. The TWRA uses fuel models from both sets, as well as two additional custom fuel models devised by Texas A&M Forest Service. The two custom fire behavior fuel models include 9PPL and 9HWD, both of which are a variation of Fuel Model 9 from the 1982 Fuel Model Set. For a complete list of the fuel models utilized in the TWRA refer to the following table.

9PPL is intended to model elevated fire behavior associated with dense pine plantations/ pine stands that have an increased timber litter fuel bed depth as compared to a standard Fuel Model 9. *(Note that Fuel Model 7 from the 1982 Fuel Model Set exists in localized areas in southeast Texas, but is not included in the fuel model list. The reason is that it could not be accurately mapped due to technical limitations. Areas of Fuel Model 7 will be mapped as 9PPL, which exhibits the closest fire behavior characteristics.)*

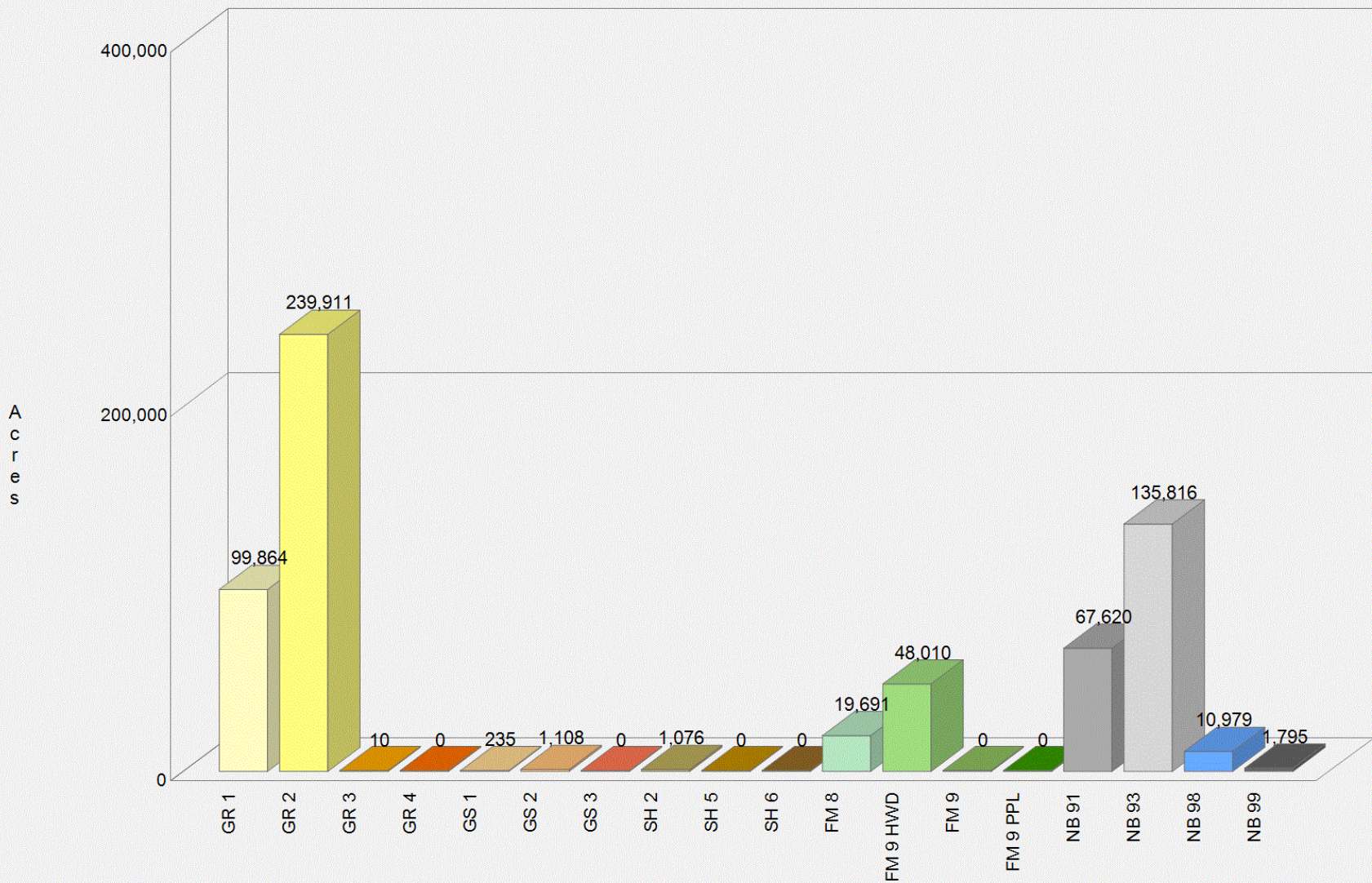
9HWD is intended to model lower fire behavior for hardwood stands with a fluffy litter layer. The main difference from a Fuel Model 9 is the absence of pine litter in the fuel bed component.

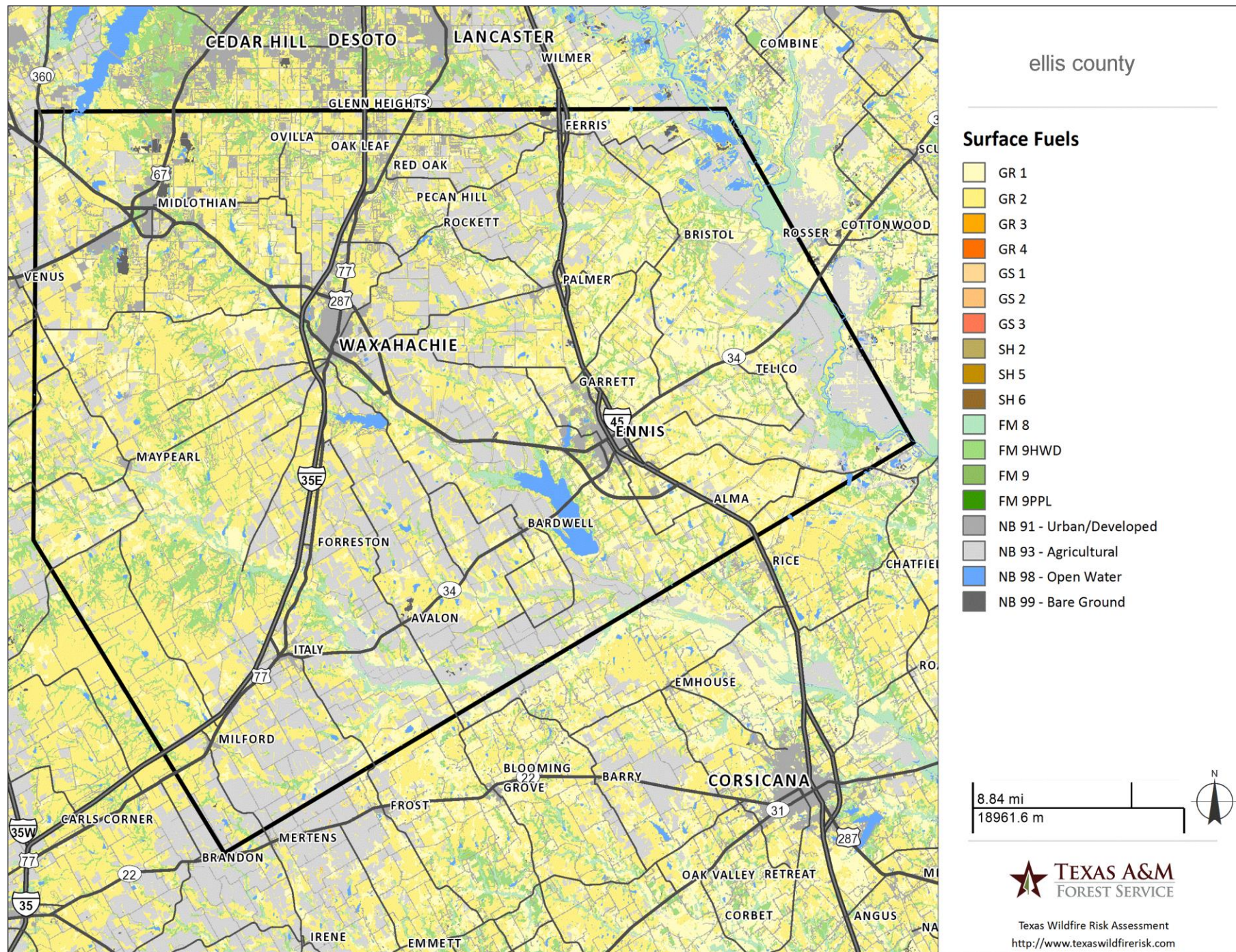
Creation of the 30-meter statewide surface fuels dataset is a compilation of three datasets:

1. A Texas modified version of Landfire National ([www.landfire.gov](http://www.landfire.gov)) was used as the foundation for the surface fuels map. Using Landfire data and methods, a team of fire behavior and vegetation experts met in Texas to recalibrate the surface fuels dataset in order to create a version specific to Texas. Satellite imagery used in the classification is circa 2001.
2. The East Texas Fuels Classification Project sponsored by Texas A&M Forest Service supplied the surface fuels data for 65 counties in East Texas. Satellite imagery used in the classification is circa 2007.
3. Specific evergreen vegetation classes (i.e. juniper, mixed juniper, and live oak) were extracted for Central Texas from the Texas Ecological Systems Classification Project - Phase 1 and cross-walked to surface fuel models as these areas weren't distinctly mapped by Landfire. This project is sponsored by Texas Parks and Wildlife and contracted to Missouri Resource Assessment Partnership. Satellite imagery used in the classification is circa 2007/2008.

Model	Surface Fuels Category	FBPS Fuel Model Set	Acres	Percent
GR1	Short, Sparse Dry Climate Grass (Dynamic)	2005	99,864	15.9 %
GR2	Low Load, Dry Climate Grass (Dynamic)	2005	239,911	38.3 %
GR3	Low Load, Very Coarse, Humid Climate Grass (Dynamic)	2005	10	0.0 %
GR4	Moderate Load, Dry Climate Grass (Dynamic)	2005	0	0.0 %
GS1	Low Load, Dry Climate Grass-Shrub (Dynamic)	2005	235	0.0 %
GS2	Moderate Load, Dry Climate Grass-Shrub (Dynamic)	2005	1,108	0.2 %
GS3	Moderate Load, Humid Climate Grass-Shrub (Dynamic)	2005	0	0.0 %
SH2	Moderate Load Dry Climate Shrub	2005	1,076	0.2 %
SH5	High Load, Dry Climate Shrub	2005	0	0.0 %
SH6	Low Load, Humid Climate Shrub	2005	0	0.0 %
FM8	Closed timber litter (compact)	2005	19,691	3.1 %
FM9 HWD	Hardwood litter (fluffy) - Low Load for Texas	2005	48,010	7.7 %
FM9	Long-needle (pine litter) or hardwood litter	2005	0	0.0 %
FM9 PPL	Long-needle (pine litter, plantations) - High Load for Texas	2005	0	0.0 %
NB91	Urban/Developed	2005	67,620	10.8 %
NB93	Agricultural	2005	135,816	21.7 %
NB98	Open Water	2005	10,979	1.8 %
NB99	Bare Ground	2005	1,795	0.3 %
<b>Total</b>			<b>626,115</b>	<b>100.0 %</b>

ellis county  
Surface Fuels









# Vegetation

## Description

**The Vegetation map describes the general vegetation and landcover types across the state of Texas.** In the Texas Wildfire Risk Assessment (TWRA), the Vegetation dataset is used to support the development of the Surface Fuels, Canopy Cover, Canopy Stand Height, Canopy Base Height, and Canopy Bulk Density datasets. The vegetation classes with descriptions are shown in the following table.

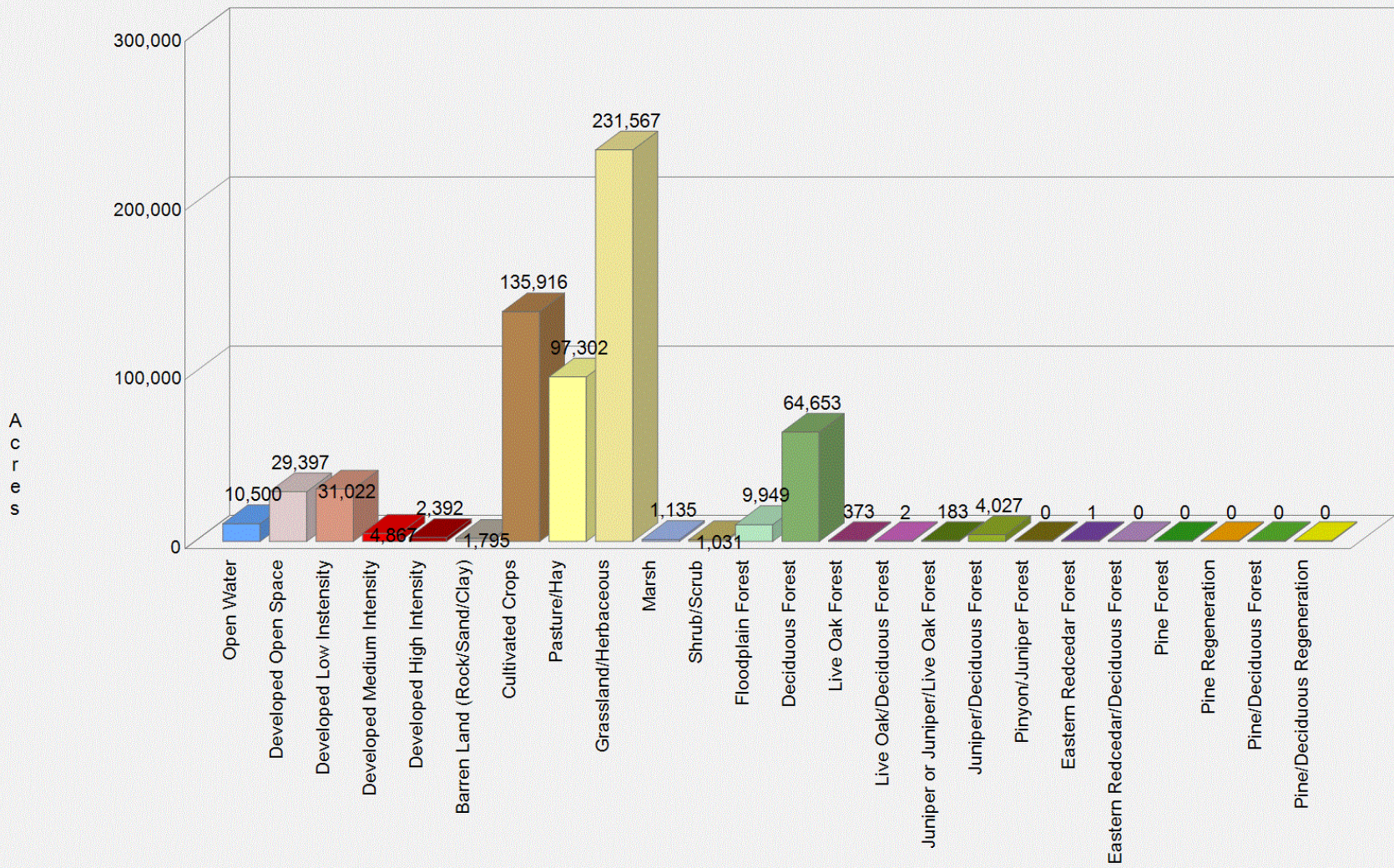
For the purposes of the TWRA, special consideration was given to mapping of evergreen forest types (i.e. pine, redcedar, juniper, live oak, and pinyon) due to their potential to support passive and active crowning.

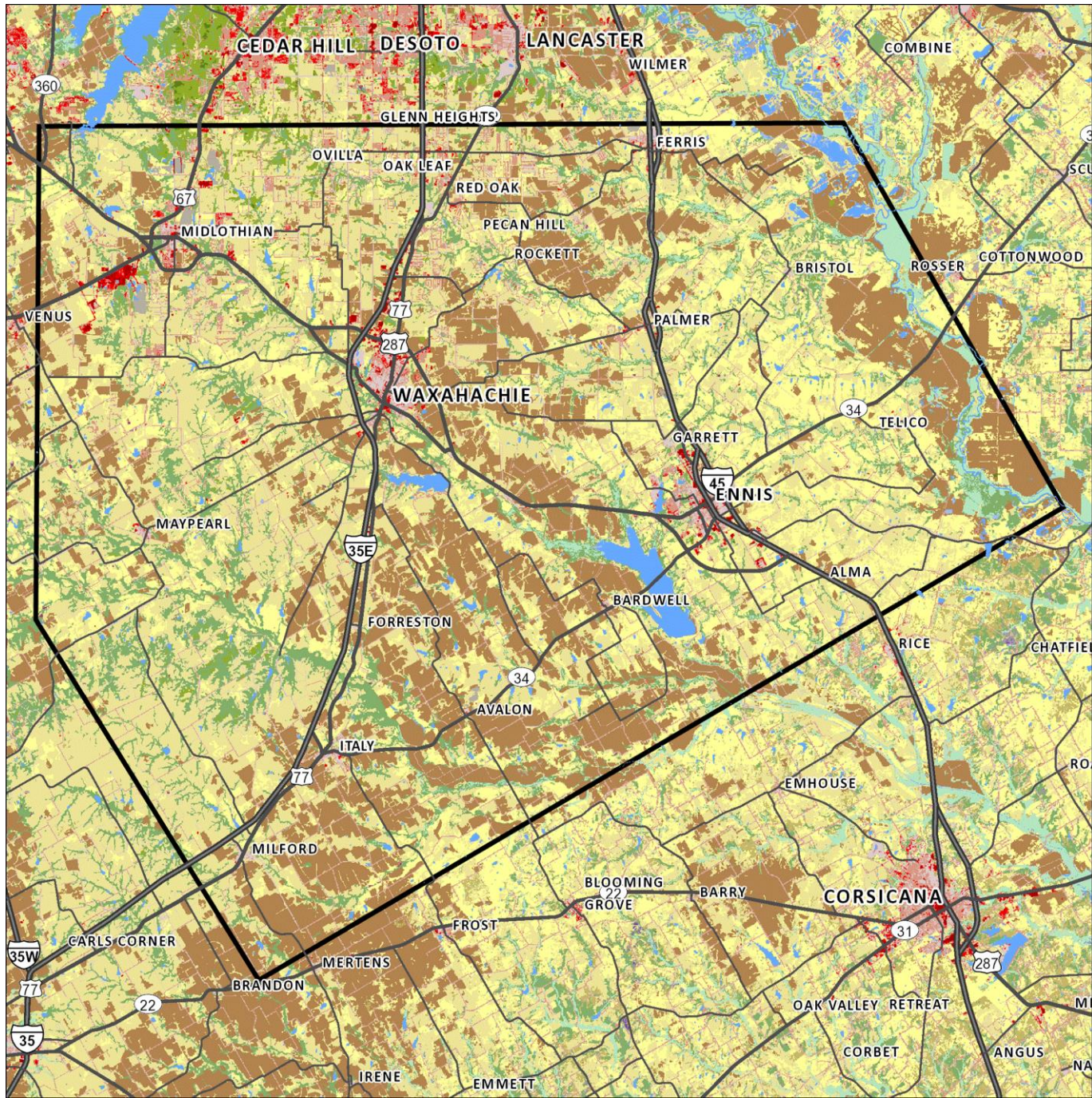
Creation of the 30-meter statewide vegetation dataset was created from a compilation of three datasets:

1. National Landcover Dataset 2001, sponsored by the US Geological Survey (USGS), formed the foundation for the vegetation map. Satellite imagery used in the classification is circa 2001.
2. East Texas Fuels Classification Project, sponsored by Texas A&M Forest Service, supplied the vegetation data for 65 counties in East Texas. Satellite imagery used in the classification is circa 2007.
3. Specific evergreen vegetation classes (i.e. juniper, mixed juniper, and live oak) were extracted for Central Texas from the Texas Ecological Systems Classification Project - Phase 1 to enhance the vegetation map. This project is sponsored by Texas Parks and Wildlife and contracted to Missouri Resource Assessment Partnership. Satellite imagery used in the classification is circa 2007/2008.

Class	Description	Acres	Percent
Open Water	All areas of open water, generally with < 25% cover of vegetation or soil	10,500	1.7 %
Developed Open Space	Impervious surfaces account for < 20% of total cover (i.e. golf courses, parks, etc...)	29,397	4.7 %
Developed Low Intensity	Impervious surfaces account for 20-49% of total cover	31,022	5.0 %
Developed Medium Intensity	Impervious surfaces account for 50-79% of total cover	4,867	0.8 %
Developed High Intensity	Impervious surfaces account for 80-100% of total cover	2,392	0.4 %
Barren Land (Rock/Sand/Clay)	Vegetation generally accounts for <15% of total cover	1,795	0.3 %
Cultivated Crops	Areas used for the production of annual crops, includes land being actively tilled	135,916	21.7 %
Pasture/Hay	Areas of grasses and/or legumes planted for livestock grazing or hay production	97,302	15.5 %
Grassland/Herbaceous	Areas dominated (> 80%) by grammanoid or herbaceous vegetation, can be grazed	231,567	37.0 %
Marsh	Low wet areas dominated (>80%) by herbaceous vegetation	1,135	0.2 %
Shrub/Scrub	Areas dominated by shrubs/trees < 5 meters tall, shrub canopy > than 20% of total vegetation	1,031	0.2 %
Floodplain Forest	> 20% tree cover, the soil is periodically covered or saturated with water	9,949	1.6 %
Deciduous Forest	> 20% tree cover, >75% of tree species shed leaves in response to seasonal change	64,653	10.3 %
Live Oak Forest	> 20% tree cover, live oak species represent >75% of the total tree cover	373	0.1 %
Live Oak/Deciduous Forest	> 20% tree cover, neither live oak or deciduous species represent >75% of the total tree cover	2	0.0 %
Juniper or Juniper/Live Oak Forest	> 20% tree cover, juniper or juniper/live oak species represent > 75% of the total tree cover	183	0.0 %
Juniper/Deciduous Forest	> 20% tree cover, neither juniper or deciduous species represent > 75% of the total tree cover	4,027	0.6 %
Pinyon/Juniper Forest	> 20% tree cover, pinyon or juniper species represent > 75% of the total tree cover	0	0.0 %
Eastern Redcedar Forest	> 20% tree cover, eastern redcedar represents > 75% of the total tree cover	1	0.0 %
Eastern Redcedar/Deciduous Forest	> 20% tree cover, neither eastern redcedar or deciduous species represent > 75% of the total tree cover	0	0.0 %
Pine Forest	> 20% tree cover, pine species represent > 75% of the total tree cover	0	0.0 %
Pine Regeneration	Areas of pine forest in an early successional or transitional stage	0	0.0 %
Pine/Deciduous Forest	> 20% tree cover, neither pine or deciduous species represent > 75% of the total tree cover	0	0.0 %
Pine/Deciduous Regeneration	Areas of pine or pine/deciduous forest in an early successional or transitional stage	0	0.0 %
<b>Total</b>		<b>626,112</b>	<b>100.0 %</b>

ellis county  
Vegetation





ellis county

### Vegetation

- Open Water
- Developed Open Space
- Developed Low Intensity
- Developed Medium Intensity
- Developed High Intensity
- Barren Land (Rock/Sand/Clay)
- Cultivated Crops
- Pasture/Hay
- Grassland/Herbaceous
- Marsh
- Shrub/Scrub
- Floodplain Forest
- Deciduous Forest
- Live Oak Forest
- Live Oak/Deciduous Forest
- Juniper or Juniper/Live Oak Forest
- Juniper/Deciduous Forest
- Pinyon/Juniper Forest
- Eastern Redcedar Forest
- Eastern Redcedar/Deciduous Forest
- Pine Forest
- Pine Regeneration
- Pine/Deciduous Forest
- Pine/Deciduous Regeneration



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# Pine Age

## Description

**Pine Age is a map of pine and mixed pine/deciduous stands in 2007.** Pine age is one the key inputs used to assist with the development of several fuel datasets including, surface fuels, canopy ceiling height/stand height, canopy base height and canopy bulk density. The age classes are as follows: 0-3 years, 4-6 years, 7-9 years, 10-12 years, 13-15 years, 16-18 years, 19-21 years, 22-30 years, and 30 + years.



In the pine forests of East Texas, pine stands are an important consideration in the overall wildfire management of the area. Many stands are planted and managed as a financial investment by private landowners, timber companies, timber management

investment organizations (TIMOs), or real estate investment trusts (REITs). Other stands may be used for recreation and/or represent prime wildlife habitat for critical or endangered species.



As wildland fire managers, it is our job to ensure these areas are properly protected from wildfires. Age is often a good indicator of the potential fire behavior and value associated with pine stands, as well as the susceptibility of the stand to be damaged from wildfire. For example, young stands mixed with grass and smaller-sized trees have the potential to exhibit extreme fire behavior and are very susceptible to damage. However, these young stands typically have less value associated with them as compared to more mature pine stands. As a pine stand ages it typically becomes less susceptible to damage from wildfires.



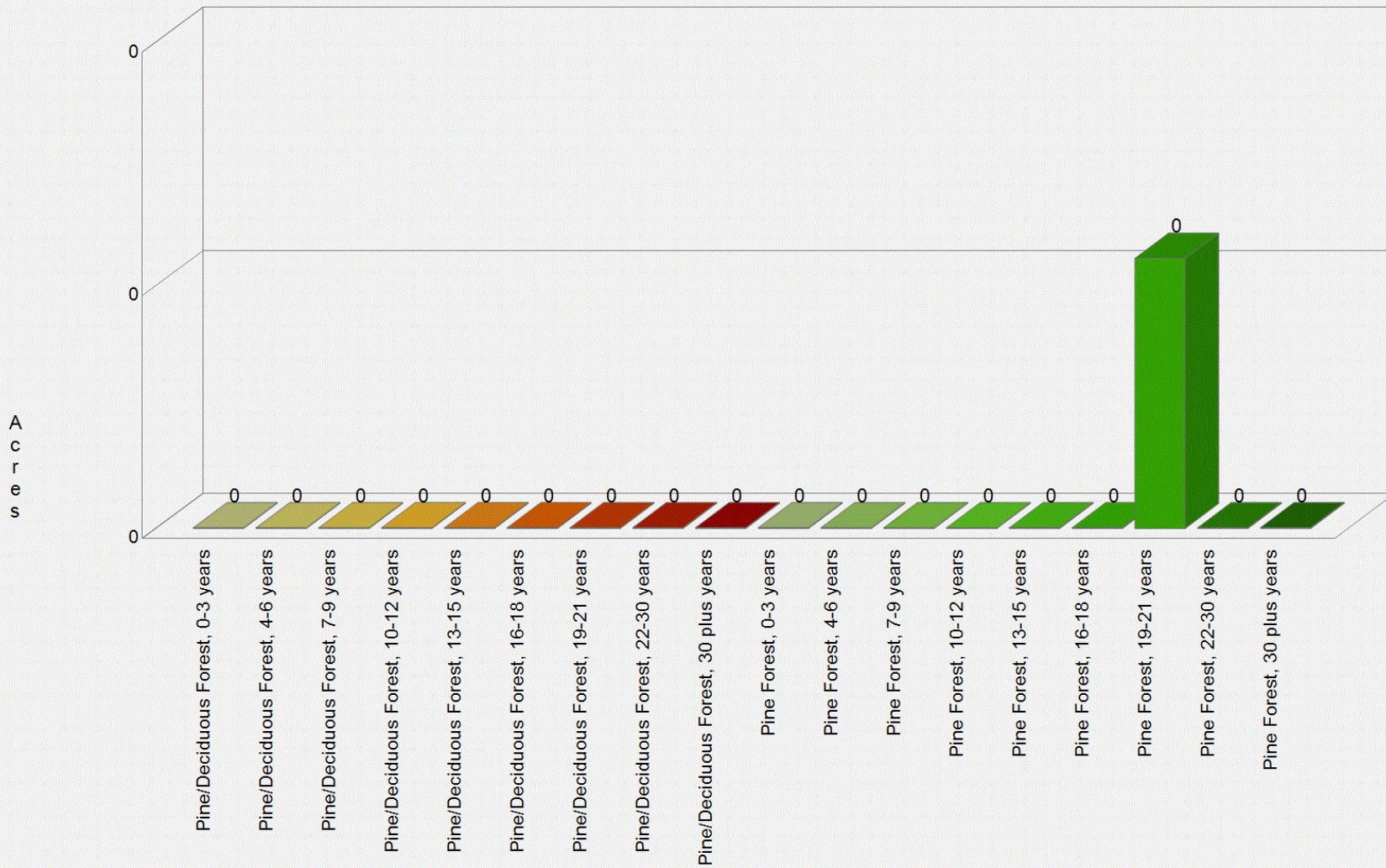
The pine age map is used to determine the age distribution and area for each age class, as well as their location on the landscape. Planners can quickly identify possible areas where these age classes of interest are located for further analysis.

Pine Age was produced as part the East Texas Fuels Classification Project sponsored by Texas A&M Forest Service. The Pine Age map was created by analyzing a time series of satellite images collected between 1972 and 2007. The process involves monitoring the growth and removal of timber stands on a three-year cycle. Once a timber stand is recorded as removed, it is tagged as zero to three years old. From this point, the stand is grown forward for each subsequent cycle in order to determine the age of the stand.

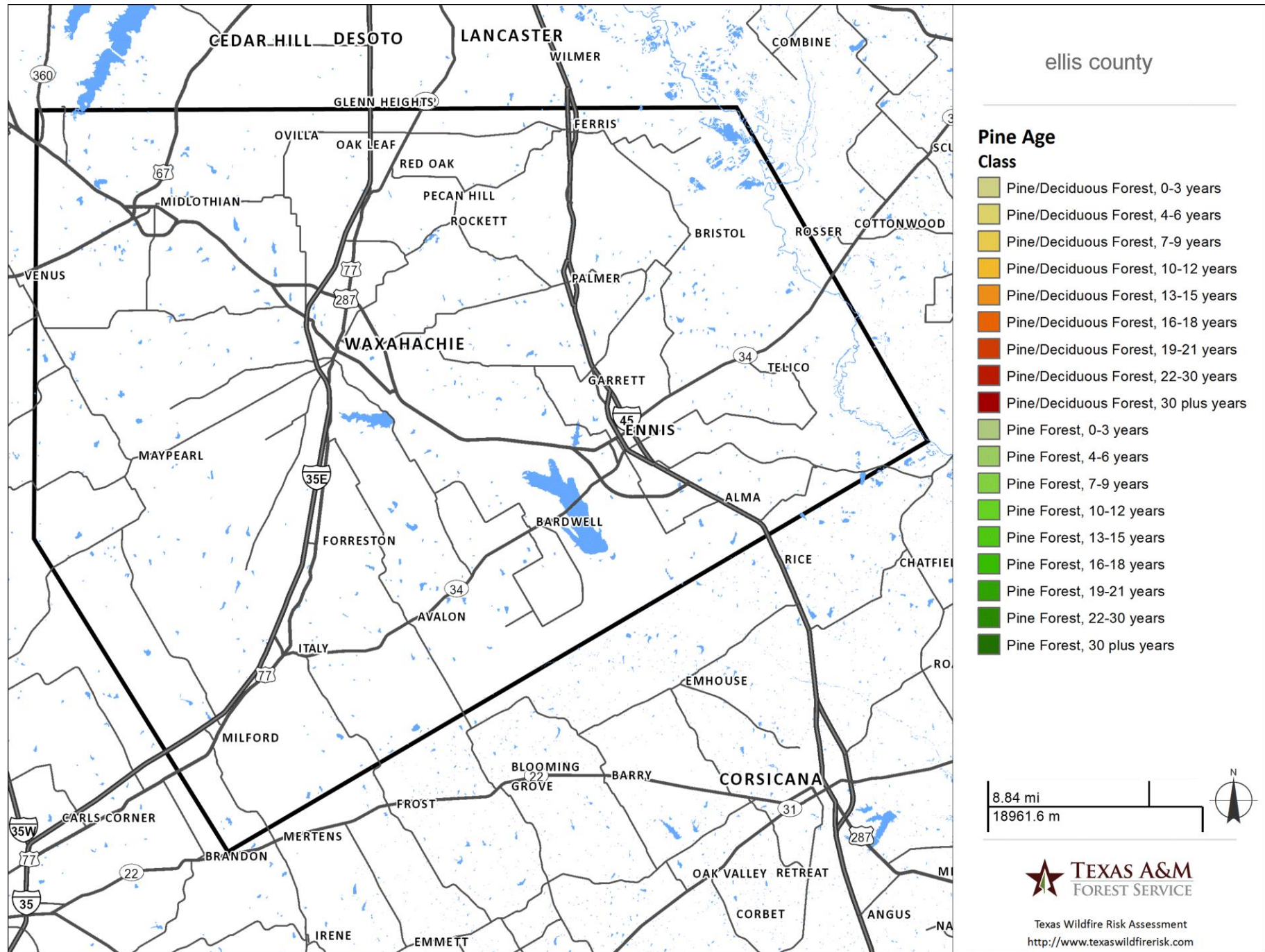
Discrimination between pine stands and mixed pine stands younger than 10 years of age is very difficult using 30-meter satellite imagery due to the lack of identifiable canopy at those ages. These stands are typically categorized as “transitional” forest, but for the purposes of the ETFCP, a distinction was made between the two. This distinction was made using probability algorithms based on previous vegetation and ownership patterns.

Class	Acres	Percent
Pine/Deciduous Forest, 0-3 years		
Pine/Deciduous Forest, 4-6 years		
Pine/Deciduous Forest, 7-9 years		
Pine/Deciduous Forest, 10-12 years		
Pine/Deciduous Forest, 13-15 years		
Pine/Deciduous Forest, 16-18 years		
Pine/Deciduous Forest, 19-21 years		
Pine/Deciduous Forest, 22-30 years		
Pine/Deciduous Forest, 30 plus years		
Pine Forest, 0-3 years		
Pine Forest, 4-6 years		
Pine Forest, 7-9 years		
Pine Forest, 10-12 years		
Pine Forest, 13-15 years		
Pine Forest, 16-18 years		
Pine Forest, 19-21 years		
Pine Forest, 22-30 years		
Pine Forest, 30 plus years		
<b>Total</b>	<b>No Data</b>	<b>No Data</b>

ellis county  
Pine Age







# Pine Plantation

## Description

**Pine plantations are pine stands that are planted and actively managed for financial gain or other economic reasons.** For the purpose of the Texas Wildfire Risk Assessment (TWRA), pine plantations are a key input to the Values Response Index. The Pine Plantation map represents conditions in 2007.

The forest sector in Texas has a major impact to the Texas economy. It is the 3rd most important agricultural commodity in Texas, and the most important in 28 out of the 43 East Texas counties. It produces \$22 billion in industry outputs and employs 80,000 workers. Managed plantations have a significant role in the forest sector, because they supply the majority of the timber needed by the mills to produce paper and lumber products.



Plantations are planted by private landowners, timber companies, timber management investment organizations (TIMOs), and real estate investment trusts (REITs). As wildland fire managers, it is our job to ensure these investments are properly protected. The Pine Plantation map is used to identify where plantations are located on the landscape. Planners can use this map to quickly determine where additional planning and analysis may be required to protect this valuable resource.

The Pine Plantation 2007 map was produced as part the East Texas Fuels Classification Project sponsored by Texas A&M Forest Service. It was created by analyzing satellite imagery, modeling the Pine Age 2007 dataset, and utilizing Forest Inventory and Analysis (FIA) statistics.

The Pine Plantation 2007 dataset is comprised of three classes, primarily based on age and canopy cover.

- **Pine Plantation (Established)** – These stands are less than 30 years old and can be detected as pine via satellite remote sensing techniques. FIA statistics indicate that stands 30 years old or less have an extremely good chance (greater than 75%) of being a plantation and that stands older than 30 years have a good chance (greater than 75%) of being a natural stand.
- **Pine Regeneration** – These stands are less than 10 years old and do not possess sufficient canopy to be detectable as pine plantation via satellite remote sensing techniques; however, the probability is high for this class to be considered pine plantation. This distinction is made using probability algorithms based on previous vegetation and ownership patterns. The typical age for this class is between 0 – 6 years.
- **Pine/Deciduous Regeneration** - These stands are less than 10 years old and do not possess sufficient canopy to be detectable as pine plantation via satellite remote sensing techniques; however, the probability is moderate for this class to be considered pine plantation. This distinction is made using probability algorithms based on previous vegetation and ownership patterns. The typical age for this class is between 0 – 6 years.

Discrimination between pine stands and mixed pine stands younger than 10 years of age is very difficult using 30-meter satellite imagery due to the lack of identifiable canopy at those ages. These stands are typically categorized as “transitional” or regeneration forest. For the purposes of the TWRA, however, a distinction is made between the two.

**The designated project area does not contain  
Pine Plantation data**



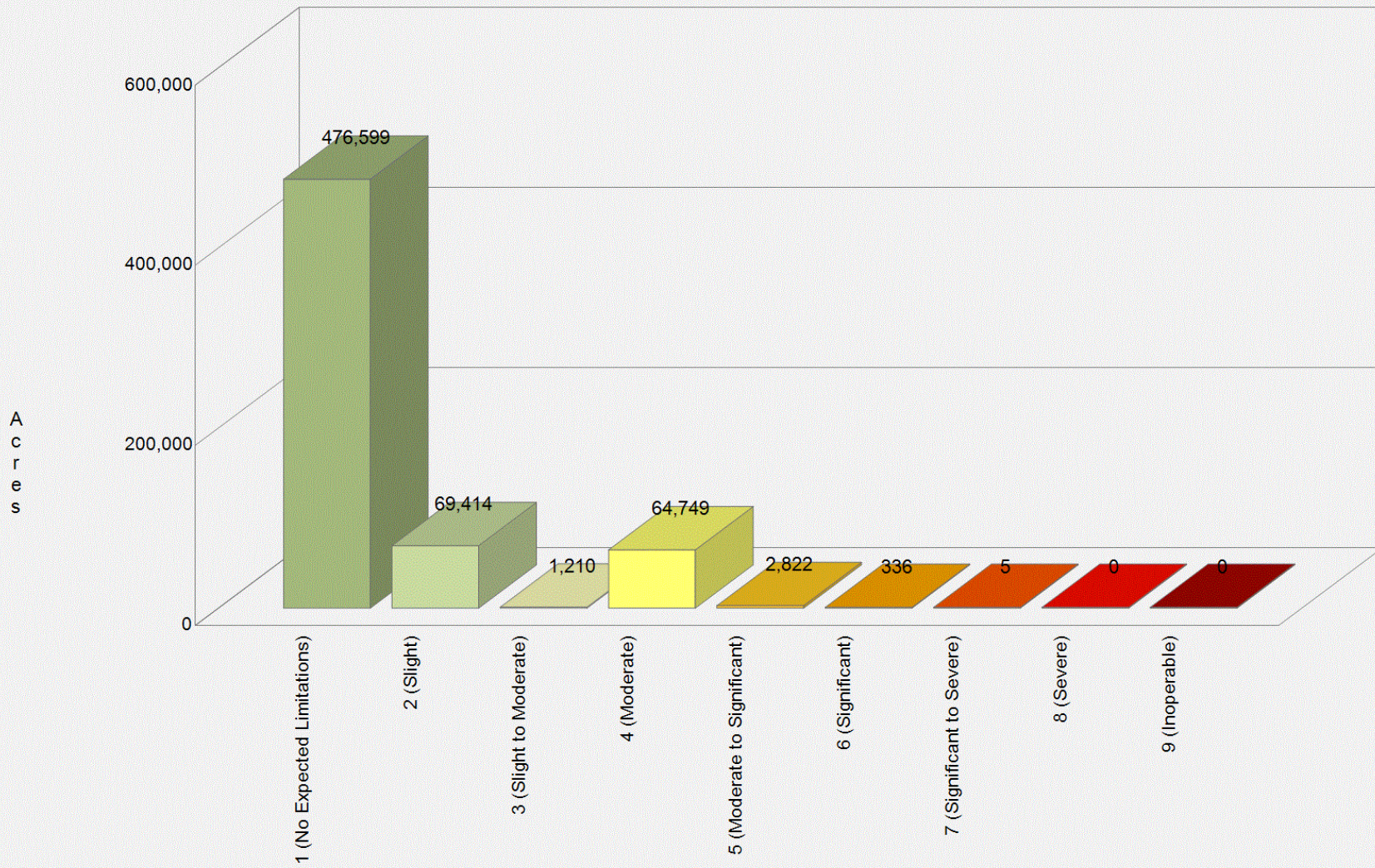
# Dozer Operability Rating

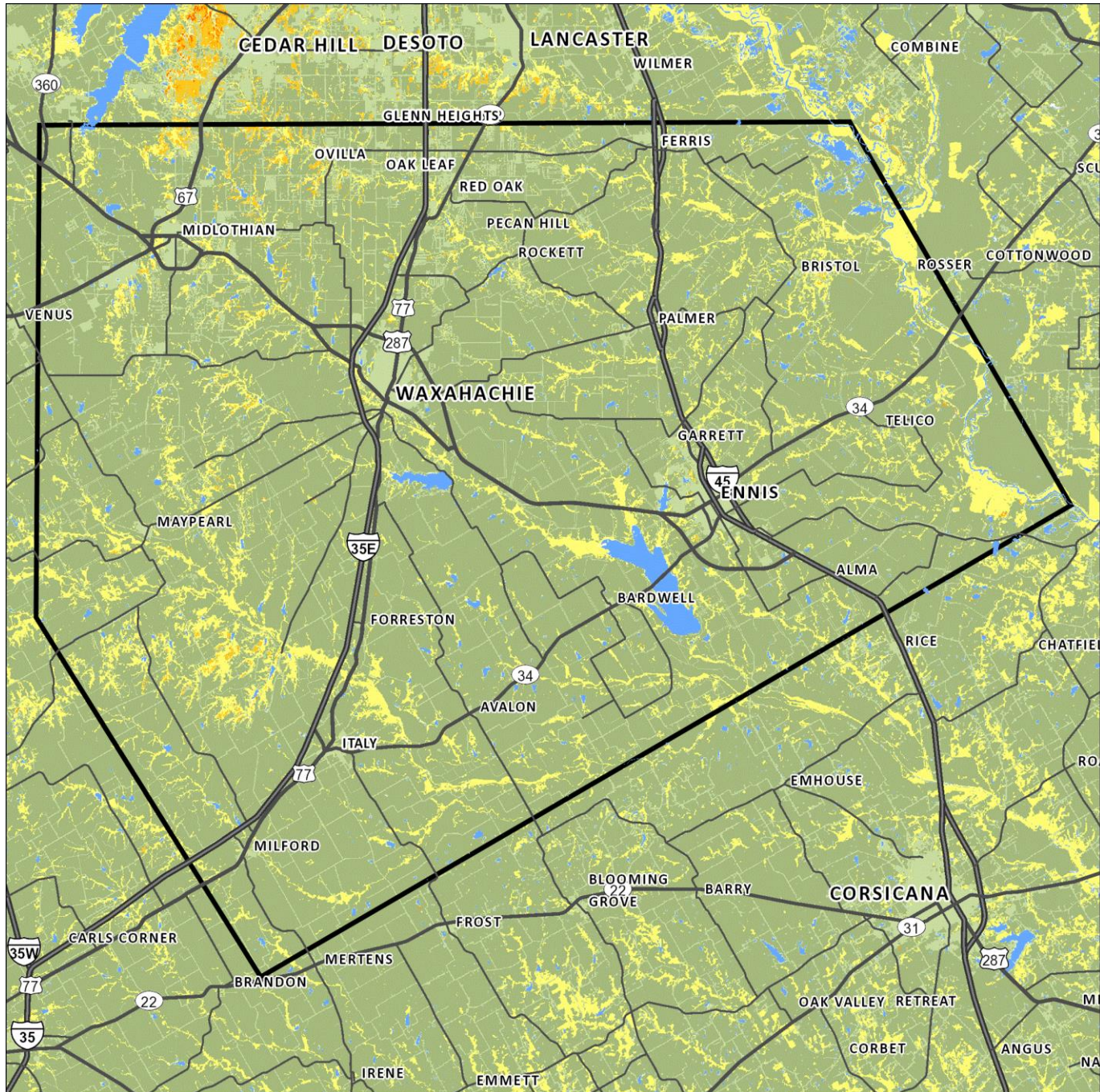
## Description

The Dozer Operability Rating (DOR) expresses how difficult it is to operate a dozer in an area based on limitations associated with slope and vegetation/fuel type. Using the fireline production rates published in the NWCG Fireline Handbook 3 (PMS 410-1) as a guide, operability values were assigned to a matrix based on 6 slope classes and 10 vegetation/fuels classes. The possible values range from 1 to 9, with 1 representing no limitations and 9 being inoperable.

Class	Acres	Percent
1 (No Expected Limitations)	476,599	77.5 %
2 (Slight)	69,414	11.3 %
3 (Slight to Moderate)	1,210	0.2 %
4 (Moderate)	64,749	10.5 %
5 (Moderate to Significant)	2,822	0.5 %
6 (Significant)	336	0.1 %
7 (Significant to Severe)	5	0.0 %
8 (Severe)	0	0.0 %
9 (Inoperable)	0	0.0 %
<b>Total</b>	<b>615,135</b>	<b>100.0 %</b>

ellis county  
Dozer Operability Rating





ellis county

**Dozer Operability Rating**

- 1 (No Expected Limitations)
- 2 (Slight)
- 3 (Slight to Moderate)
- 4 (Moderate)
- 5 (Moderate to Significant)
- 6 (Significant)
- 7 (Significant to Severe)
- 8 (Severe)
- 9 (Inoperable)



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