

Navarro County Hazard Mitigation Plan 2024



North Central Texas
Council of Governments

Executive Summary

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 Navarro 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.”¹ 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.²

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 Navarro 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.

¹ State of Texas Mitigation Handbook, page 1-1.

² Natural Hazard Mitigation Saves: 2017 Interim Report, page 1.

Common Acronyms

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

NCOEM- Navarro County Office of Emergency Management

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

1.1 Overview

The Navarro 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.

With a growing emphasis from the federal government on hazard mitigation, participating jurisdictions prioritized the update of this plan in order to remain eligible for non-disaster funds. They plan on focusing on more disaster resilient methods in future operations of local government and future development.

Participating jurisdictions understand that they are not liable to complete the actions identified in their mitigation strategy. These actions will be implemented as capabilities and priorities allow.

Upon receipt of FEMA's "Approvable Pending Adoption" notice, each participating jurisdiction will take the HMP to their governing body for final public comment and local adoption.

Once approved by FEMA, a copy of the approval letter and the adoption resolutions from all participating jurisdictions will be inserted at the back of this plan and held on file at the North Central Texas Council of Governments.

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 Navarro County Hazard Mitigation Plan was developed by the Navarro 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 Navarro 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 Planning Area

This plan identifies natural hazards that could threaten life and property in the participating jurisdictions and describes long-term mitigation strategies to mitigate the hazards. The participating jurisdictions that make up the planning area include the following:

- City of Blooming Grove
- City of Corsicana
- City of Kerens
- Navarro County Unincorporated



All jurisdictions were participants in the 2015 plan except for Blooming Grove. The following map shows a more detailed look of the county.



Figure 1: Navarro County³

³ [Navarro County \(tshaonline.org\)](http://tshaonline.org)

Chapter 2: Planning 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 (LPT), comprised of local staff that could contribute to development of this mitigation plan. The leaders of each of these LPT's comprised the Navarro 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 Navarro County HMPT members and stakeholders throughout the process.

2.1.1 Hazard Mitigation Planning Team

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

Table 1: Navarro County HMPT Members

Jurisdiction	Job Title	Role in the HMPT
Blooming Grove	City Secretary	Jurisdictional information and LPT Lead
Corsicana	Emergency Management Coordinator	Jurisdictional information and LPT Lead
Kerens	City Secretary	Jurisdictional information and LPT Lead
Navarro County Unincorporated	Emergency Management Coordinator	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 B.

2.1.2 Stakeholders

The following stakeholders were invited to participate in the planning process, via email, and included neighboring communities, agencies that work directly with and/or provide support to underserved communities and socially vulnerable populations, 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 organizations. While these stakeholders did not respond to our invitations, the Planning Team collected data from these agencies’ websites.

Table 2: Stakeholders

Organization Represented	Position
Kaufman County	Emergency Management Coordinator
Ellis County	Emergency Management Coordinator
Dallas County	Emergency Management Coordinator
Tarrant County	Emergency Management Coordinator
Navarro 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
Oil City Iron Works, Inc.	President
Corsicana ISD	School Board
Navarro College	School Board
Corsicana Rotary Club	Administration
American Legion	Administration
Navarro County Historical Commission	Administration

2.1.3 Public Involvement

The Hazard Mitigation Planning Team used a mitigation survey to collect feedback from the public. This method has been proven to reach the most people, as it can reach home-bound, hearing or vision-impaired individuals and individuals without a mode of transportation. The survey was shared via jurisdiction’s official websites and social media platforms (see Figure 2).

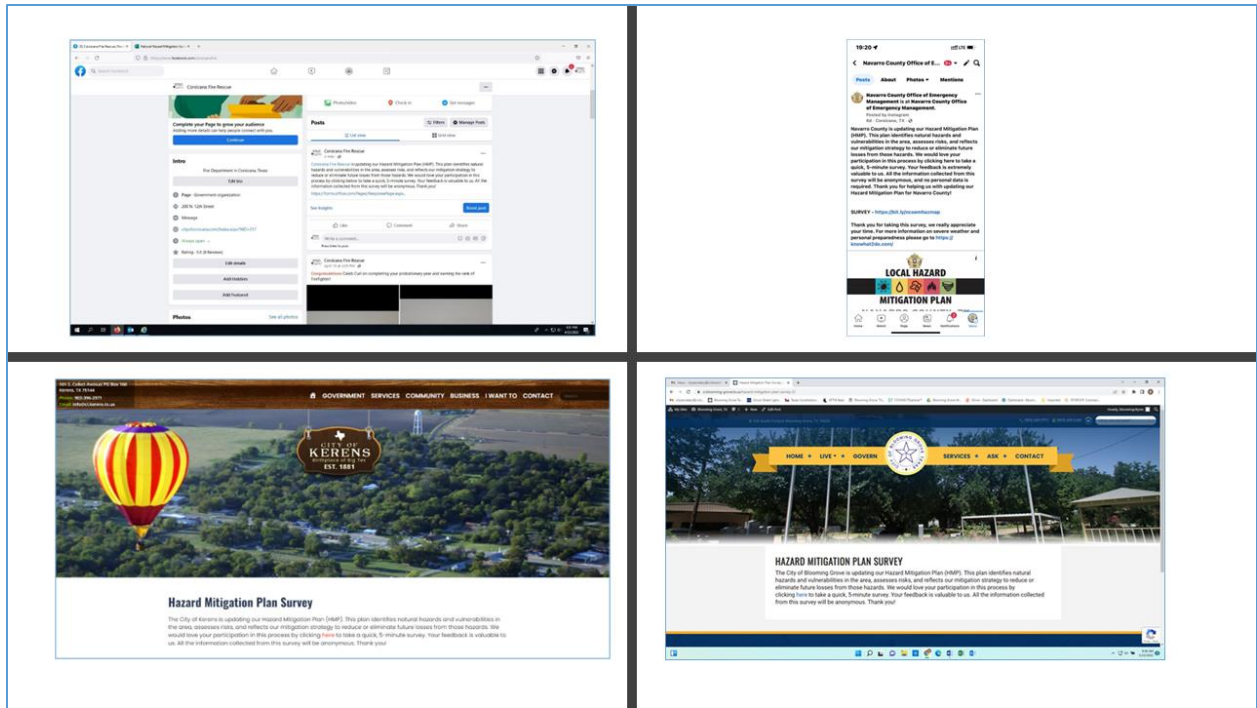


Figure 2: Survey Announcements

The responses from the survey were used by the Local Planning Teams to influence the risk assessment and decision making on their mitigation actions.

The public was also given an opportunity to review the final draft of this plan. The planning team carefully considered their feedback and made edits to the draft as necessary.

The HMPT will look for more outreach strategies to use when maintaining this plan, once adopted, and pre-plan their strategy for the next update in order to garner more valuable feedback and reach more socially vulnerable populations and underserved communities that are identified further on in this plan.

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:

Table 3: Existing Data and Plans Used

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

Data Source	Data Incorporation	Purpose
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 Navarro 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 Navarro County Hazard Mitigation Plan was approximately two years. The table below is the timeline followed.

Table 4: Planning Timeframe

Activity	Time Period
Kickoff meeting	July 2021
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
Create and review HMP Draft	March 2022
Send HMP to TDEM/make revisions as needed	May 2022-January 2024*
Send to FEMA/ make revisions as needed	To be determined
Adoption & signatures	Once "Approved Pending Adoption" designated received.

**Please note that due to staff changes and miscommunication between NCTCOG and TDEM, the Draft had to be sent back and updated to meet the new 2023 FEMA Local Mitigation Planning Policy Guide.*

These activities were conducted to review and update every section of the 2015 HMP with current information, address current priorities, and to meet FEMA planning requirements. The public was invited to participate in every activity.

The mitigation plan shall be viewed as an evolving, dynamic document.

Chapter 3: Hazard Identification and Risk Assessment

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.

Table 5: Major Disaster Declarations

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 02, 2018	February 25, 2019
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 Navarro 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

Each of these hazards has impacted, or can potentially impact, all participating jurisdictions and there are no natural hazards unique to any one jurisdiction.

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. There are no hazards that are unique to Navarro County.

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:

Table 6: Hazard Summary Definitions

Location: Location is the geographic area within the jurisdiction that is affected by the hazard.
<ul style="list-style-type: none"> • Negligible- Less than 10% of planning area would be impacted by a single event. • Limited- 10 to 25% of planning area would be impacted by a single event. • Significant- 26 to 99% of planning area would be impacted by a single event. • Extensive- 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.
Probability of Future Events: This information was based on historic events and changing climate.
<ul style="list-style-type: none"> • Unlikely- Less than 1% annual probability.

<ul style="list-style-type: none"> • Possible- Between 1 and 10% annual probability. 	
<ul style="list-style-type: none"> • Likely- Between 10 and 100% annual probability. 	
<ul style="list-style-type: none"> • Highly Likely- 100% annual probability. 	
<p>Level of Possible Damage: Based on historic events and future probability.</p>	
<ul style="list-style-type: none"> • Minor- Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities. Very few injuries, if any. 	
<ul style="list-style-type: none"> • Limited- More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day. Minor injuries possible. 	
<ul style="list-style-type: none"> • Critical- More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week. Multiple deaths/injuries. 	
<ul style="list-style-type: none"> • Catastrophic- 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. 	
<p>Maximum Probable Extent: Based on historic events and future probability.</p>	
<ul style="list-style-type: none"> • Minor- Minor classification on the scientific scale. 	
<ul style="list-style-type: none"> • Medium- Medium classification on the scientific scale. 	
<ul style="list-style-type: none"> • Major- Major classification on the scientific scale. 	
Hazard & Scale	Maximum Probable Extent
Drought (National Drought Mitigation Center)	<ul style="list-style-type: none"> • Minor: D0 • Medium: D1 • Major: D2-D4
Earthquakes (Modified Mercalli Intensity Scale; Richter Scale)	<ul style="list-style-type: none"> • Minor: I-IV; 3-4.9 magnitude • Medium: V-VII; 5-6.9 magnitude • Major: VIII-X; >7.0 magnitude
Expansive Soils (Expansion Index Test)	<ul style="list-style-type: none"> • Minor: EI 0-50 • Medium: EI 51-90 • Major: EI >91
Extreme Heat (NWS Heat Index)	<ul style="list-style-type: none"> • Minor: Heat Index <91°F • Medium: Heat Index 91-103°F • Major: Heat Index > 103°F
Flooding (Estimated Base Flood Elevation)	<ul style="list-style-type: none"> • Minor: < 2 feet • Medium: 3-5 feet • Major: > 5 feet
Thunderstorms (Extreme Weather Madness Chart)	<ul style="list-style-type: none"> • Minor: TS1 • Medium: TS2-TS3 • Major: Moderate-High, TS4-5
Tornadoes (Enhanced Fujita (EF) Scale)	<ul style="list-style-type: none"> • Minor: EF0-EF1 • Medium: EF2-EF3 • Major: EF4-EF5
Wildfires (Fire Intensity Scale (FIS))	<ul style="list-style-type: none"> • Minor: FIS Class 1-2 • Medium: FIS Class 3 • Major: FIS Class 4-5

Winter Storms (Winter Storm Severity Index (WSSI); SPIA Index)	<ul style="list-style-type: none"> • Minor: WSSI Minor, SPIA 0-1 • Medium: WSSI Moderate, SPIA 2-3 • Major: WSSI Major-Extreme, SPIA 4-5
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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 *Navarro 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 *Navarro (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.

Table 7: Summary of Historical Events and Dollar Losses

Historical Dollar Losses, 2012-2021				
Hazard	# of Events	Property Loss	Crop Loss	Total
Drought	25	\$1,000	\$26,500	\$27,500
Extreme Heat	2	-	-	-
Flooding	13	\$31,000	-	\$31,000
Thunderstorms (hail, wind, lightning)	32	\$169,500	\$2,000	\$171,500
Tornadoes	1	\$500,000	-	\$500,000
Winter Storms	7	\$2.9M	-	\$2.9 M
Total Damage Costs				\$3.63 M

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

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. The county's climate is characterized by hot and dry summers, which can lead to water scarcity and increased wildfire risk. This type of hazard has no geographic boundaries.

When drought conditions exist, a burn ban can be put in place by the county judge or county Commissioners Court prohibiting or restricting outdoor burning for public safety.⁴

Navarro County is part of the [Region C Water Planning Group \(RCWPG\)](#), one of 16 regional water planning groups created by the Texas Water Development Board (TWDB) to help develop a comprehensive water plan for Texas through 2070. The RCWPG is made up of voting members representing a variety of interest groups, including agriculture, counties, electric-generating utilities, environment, groundwater management areas, industry, municipalities, public, river authorities, small business, water districts and water utilities. The RCWPG adopted a [2021 Regional Water Plan](#) that provides regional information and data into the [2022 State Water Plan](#).

In addition to the TWDB regulating state water planning, the Tarrant Regional Water District (TRWD) provides raw water to more than 30 wholesale customers in 11 North Texas counties, including Navarro County. Navarro County and its jurisdictions follow water restrictions identified in the [TRWD Water Conservation and Drought Contingency Plan](#) and the City of Corsicana has a Water Conservation Plan in their Code of Ordinance. All drought contingency plans are consistent with the Texas Commission on Environmental Quality (TCEQ) rules.

Navarro Mills Lake, Lake Halbert, Richland Chambers Reservoir (TCRWD) are sources of water for the participating jurisdictions.

The following Drought Intensity Scale describes the drought monitoring indices and a description of the possible impacts and severity of drought.

⁴ Fire Danger: Texas Burn Bans. Texas A&M Forest Service. 2018.
<<http://texasforestservice.tamu.edu/TexasBurnBans/>>

Drought Severity	Return Period (years)	Description of Possible Impacts	Drought Monitoring Indices		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
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

Figure 3: Drought Intensity Scale

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

As shown in the following graph from the [United States Drought Monitor](#) , the years 2011-2012 had the greatest severity and longest time period of extreme drought conditions in Navarro County. Besides major crop damage, these extreme drought conditions have the potential to put Navarro County in extreme fire danger and could cause widespread water shortage and restrictions, creating a water emergency.

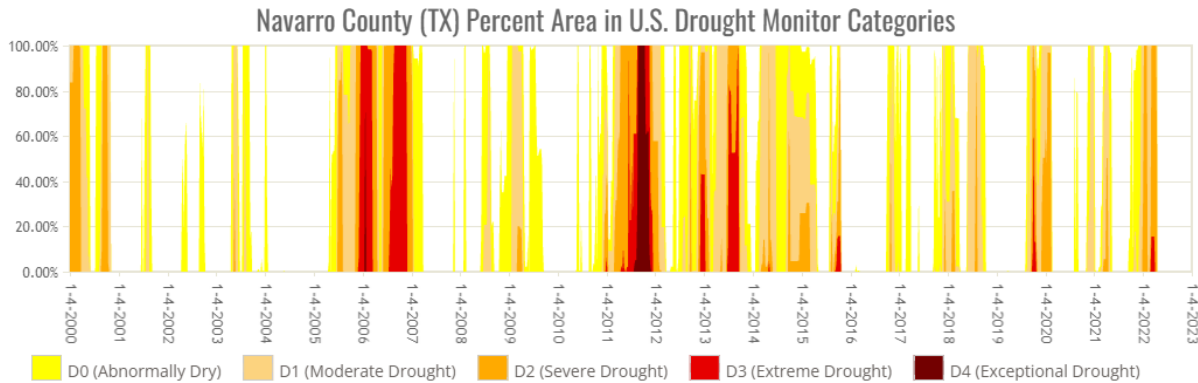


Figure 4: Historical Events- Drought

Due to the nature of drought, the Texas climate, and the effects of climate change, drought is expected to be a continual threat to the planning area.

The Long-Term Multi-Indicator Drought Index (MIDI) approximates drought impacts from changes in precipitation and moisture over a long-term timeframe (up to 5 years), such as impacts to irrigated agriculture, groundwater, and reservoir levels. Reflected in, drought is predicted to have a lasting effect on Navarro County.

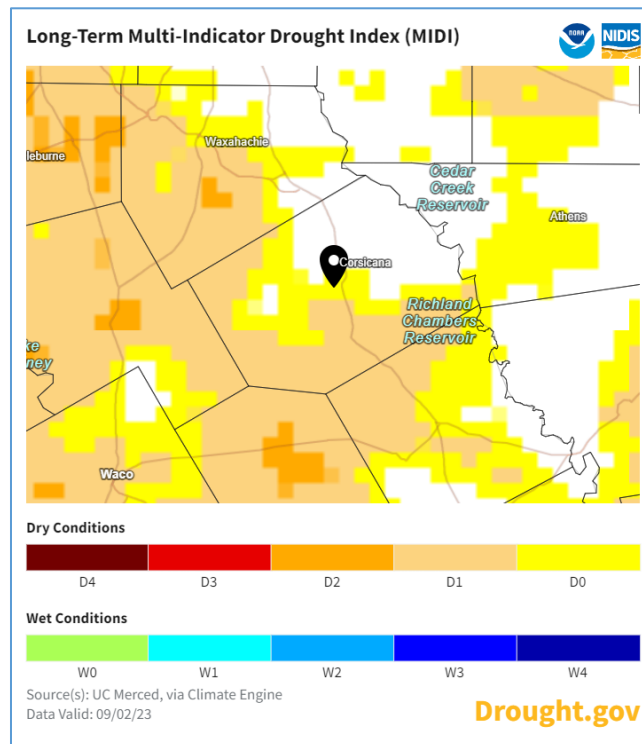


Figure 5: Long-Term MIDI⁵

⁵ [Navarro County Conditions | Drought.gov](https://www.drought.gov/Navarro-County-Conditions)

Hazard Summary

The following table reflects the profile summary for drought within the planning area.

Table 8: Drought Summary

Drought				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Blooming Grove	Extensive	Highly Likely	Minor	Major
Corsicana	Extensive	Highly Likely	Critical	Major
Kerens	Extensive	Highly Likely	Critical	Major
Navarro County Unincorporated	Extensive	Highly Likely	Critical	Major

3.2.2 Earthquakes

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.

Earthquakes are measured by both magnitude and intensity. The following table reflects the relationship between magnitude and intensity that are typically observed at locations near the epicenter of earthquakes.

Table 9: Magnitude and Intensity Relationship

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](#)

Magnitude measures the energy released at the source of the earthquake and is determined from measurements on seismographs.

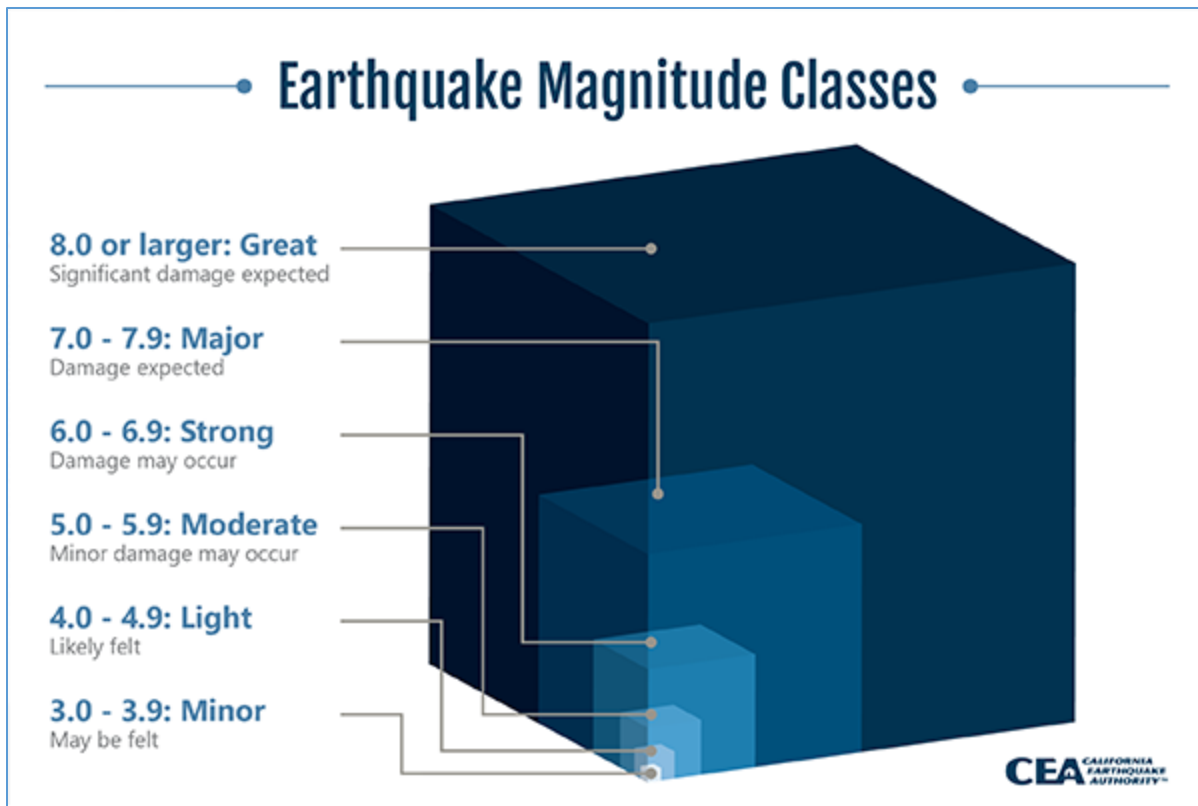


Figure 6: Earthquake Magnitude Class⁶

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 measures intensity and classifies earthquakes by the amount of damage inflicted. It quantifies a quake’s effects on the land’s surface, people, and structures involved.

⁶ [How are Earthquakes Measured? Magnitude & Intensity Scales | CEA \(earthquakeauthority.com\)](https://www.earthquakeauthority.com)

Earthquake Intensity Scale Modified Mercalli Intensity (MMI)








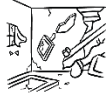


	INTENSITY	SHAKING	DESCRIPTION
	I	Not Felt	Not felt except by a very few under especially favorable conditions.
	II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
	III	Weak	Felt quite noticeable by persons indoors. Many people do not recognize it as an earthquake. Standing cars may rock slightly, vibrations are similar to a passing truck.
	IV	Light	Felt indoors by many, outdoors by few. At night, some are awakened. Dishes, windows, and doors are disturbed. Sensation like a heavy truck striking a building. Standing cars rock noticeably.
	V	Moderate	Felt by nearly everyone; many awakened. Dishes and windows are broken. Unstable objects are overturned. Pendulum clocks may stop.
	VI	Strong	Felt by all; many frightened. Some heavy furniture moved. A few instances of fallen plaster. Damage is slight.
	VII	Very Strong	Negligible damage to buildings of good design/construction. Slight to moderate damage in well-built/ordinary construction. Considerable damage in poorly built/ordinary structures. Some chimneys broken.
	VIII	Severe	Slight damage to specially designed structures. Considerable damage to ordinary construction, including partial collapse. Damage is great in poorly built structures. Fall of chimneys, columns, monuments, and walls. Heavy furniture overturned.
	IX	Violent	Considerable damage to specially designed structures; well-designed frame structures are thrown out of plumb. Damage is great in substantial buildings, with partial collapse. Buildings shifted off foundations.
	X+	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures with foundations are destroyed. Rails are bent.

Figure 7: Earthquake Intensity Scale⁷

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

⁷ [Earthquake Intensity Scale | U.S. Geological Survey \(usgs.gov\)](https://www.usgs.gov/learn/earthquake-intensity-scale)

- Increase in traffic accidents
- Building collapse
- Natural gas leak
- Misplaced residents
- Power outages
- Natural environments damage, to include protected species and critical habitats

According to the United States Geological Survey (USGS) [Earthquake Catalog](#), there have been no earthquakes between 2012-2021 in Navarro County.

The map below shows how often scientists expect damaging earthquake shaking in the United States over the next 10,000 years. The USGS says that damaging shakes are possible in all fifty states, but it is an extremely low possibility in Navarro County. On the map the cooler color areas, like grey, are low hazard.

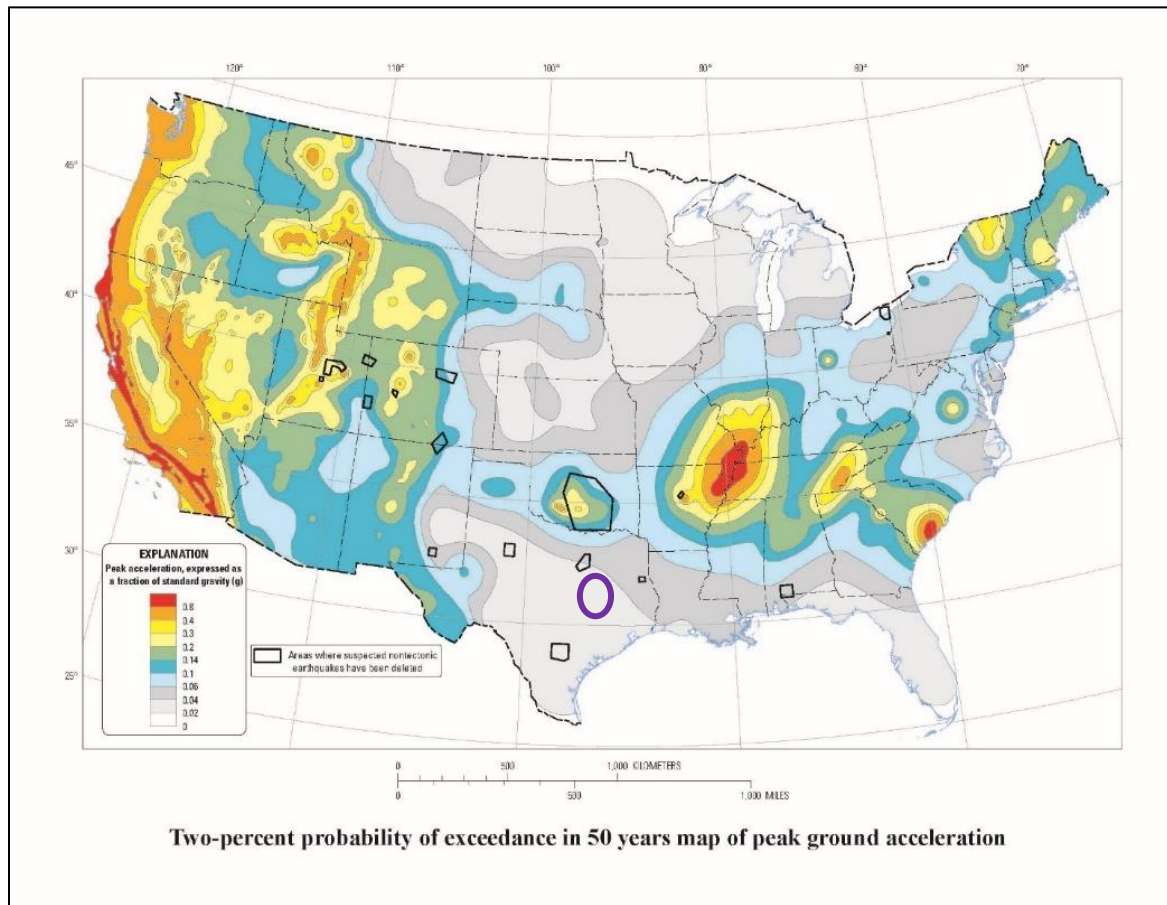


Figure 8: Earthquake Prediction Map

Hazard Summary

The following table reflects the profile summary for earthquakes within the planning area.

Table 10: Earthquake Summary

Earthquakes				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Blooming Grove	Extensive	Unlikely	Minor	Minor
Corsicana	Extensive	Unlikely	Limited	Minor
Kerens	Extensive	Unlikely	Limited	Minor
Navarro County Unincorporated	Extensive	Unlikely	Limited	Minor

3.2.3 Expansive Soils

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. 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

Damage from expansive soils is most prevalent when periods of moderate to high precipitation are followed by drought and then again by periods of heavy rainfall. Potential impacts from expansive soils include:

- Water contamination or loss via broken pipes
- Road damage
- Transportation delays due to road condition
- 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.

The county covers 1,068 square miles of level and rolling blacklands and has some woodland areas of oak, hickory and pine, but is mainly open and gently rolling prairies. The valley, or bottom, soil is black loam with a mixture of some sand and is very rich.⁸

The following Expansive Soils Map shows how Navarro County consists of a mix of soils with clays of high swelling potential.

⁸ Julie G. Miller, "Navarro County," *Handbook of Texas Online*, accessed April 22, 2022, <https://www.tshaonline.org/handbook/entries/navarro-county>. Published by the Texas State Historical Association.

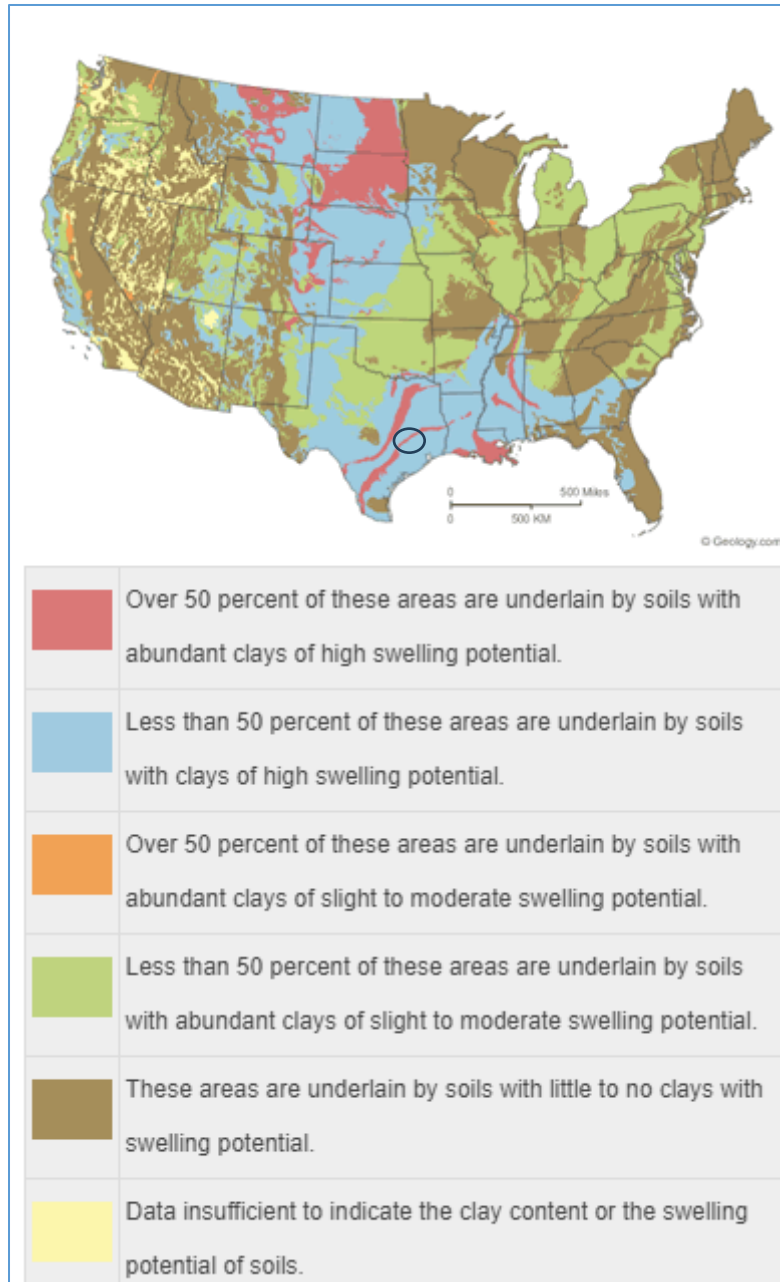


Figure 9: Expansive Soils Map⁹

⁹ The Expansive Soils Map is based upon "Swelling Clays Map of the Conterminous United States" by W. Olive, A. Chleborad, C. Frahme, J. Shlocker, R. Schneider and R. Schuster. It was published in 1989 as Map I-1940 in the USGS Miscellaneous Investigations Series. This map was generalized for display on the web by Bradley Cole of Geology.com using a base map licensed from MapResources.

Both the International Building Code and International Residential code adopted the Expansion Index (EI) test to identify expansive soils and its swelling potential.¹⁰

Table 11: Expansion Index Test

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

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.

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.

Due to the nature of expansive soils, existing soil type in the planning area, and the current methods of engineering and structure development, expansive soils is expected to be a continual threat to the planning area.

Hazard Summary

The following table reflects the profile summary for expansive soils within the planning area.

Table 12: Expansive Soils Summary

Expansive Soils				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Blooming Grove	Extensive	Possible	Minor	Medium
Corsicana	Extensive	Likely	Limited	Medium
Kerens	Extensive	Likely	Limited	Medium
Navarro County Unincorporated	Extensive	Likely	Limited	Medium

¹⁰ *Soil expansion index chart.* (n.d.). Bing.
<https://www.bing.com/search?q=soil+expansion+index+chart&FORM=HDRSC1>

3.2.4 Extreme Heat

Extreme heat is characterized by a combination of very high temperatures and exceptionally humid conditions. When persisting over a period of time, it is called a heat wave.

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.

The National Weather Service (NWS) measure how hot weather feels on the body by utilizing the Heat Index values (Figure 10). The values in this index are for SHADE only. You can add up to 15°F to these values if you are in direct sunlight.

To read the NWS Heat Index, look for the temperature across the top, then find the relative humidity on the left. The point where they intersect on the chart tells you the Heat Index, color-coded by likelihood of a heat disorder. For example, look at an air temperature of 100°F and Relative Humidity of 40%. The chart shows the Heat Index (*how hot it feels*) as 109°F, which is in the orange range for DANGER.

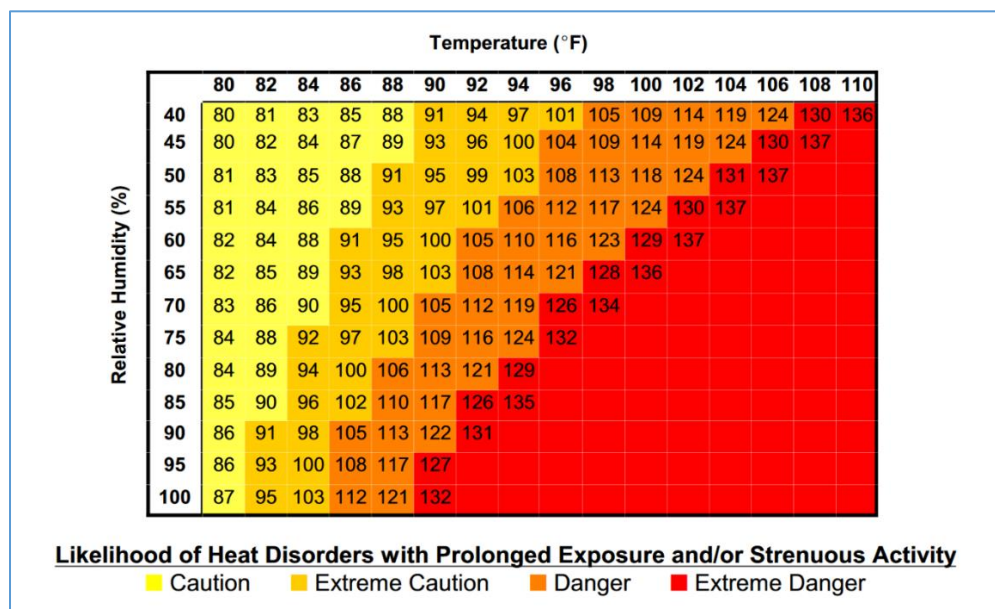


Figure 10: NWS Heat Index

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. Additional potential impacts from extreme heat include:

- Property damage
- Loss of water supply
- Increases grassfire potential and intensity
- Road and train track buckling
- Disruption in critical infrastructure operations
- Vehicle engine failure

- Damage to crops

During the summer season, the participating jurisdictions host various outdoor events, including holiday celebrations, airshows, festivals, and sporting events. Only the City of Corsicana has reported treating four heat exposures at their stadiums since 2012.

The following table lists excessive heat events and impacts from 2012-2021 recorded by the National Weather Service.

Table 13: Historical Events- Extreme Heat

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
NAVARRO (ZONE)	06/19/2019	Excessive Heat		0	0	0.00K	0.00K
NAVARRO (ZONE)	08/28/2020	Excessive Heat		0	0	0.00K	0.00K
Totals:				0	0	0.00K	0.00K

Source: [NOAA National Centers for Environmental Information](#)

Extreme heat is a significant hazard in Navarro County, Texas, with a high probability of occurrence. The county's climate is characterized by hot and dry summers, which can lead to heat waves and heat-related illnesses. The probability of extreme heat events is expected to increase in the future.

Hazard Summary

The following table reflects the profile summary for extreme heat within the planning area.

Table 14: Extreme Heat Summary

Extreme Heat				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Blooming Grove	Extensive	Highly Likely	Minor	Major
Corsicana	Extensive	Highly Likely	Critical	Major
Kerens	Extensive	Highly Likely	Critical	Major
Navarro County Unincorporated	Extensive	Highly Likely	Critical	Major

3.2.5 Flooding

Flooding is defined as *the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands*. A 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. 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 within the 100-year floodplain. The following tables reflect their data.

Table 15: Land Parcels in 100-YR Floodplain

Jurisdiction	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
Blooming Grove	Navarro County Appraisal District Website	12	3	.86%	0	0%
Corsicana	City of Corsicana GIS Files	2056	1006	10.63	323	13.36

Flooding can occur anywhere with low-lying areas, clogged drains, and/or intense rain.

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.

Dam failure flooding is flooding from 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:

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 internal erosion caused by seepage of soil particles that continue to progress and form sink holes in the dam. 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 following questions address the overall flooding issues within the participating jurisdictions of Navarro County.

Table 16: Flood-Related Questions

What rivers, creeks, and/or lakes are in your jurisdiction?
<p>Blooming Grove: None</p> <p>Corsicana: Post Oak Creek and Lake Halbert</p> <p>Kerens: Cemetery Creek & Indian Creek</p> <p>Navarro County Unincorporated: There are various rivers, creeks, and lakes in the area.</p>
Which of these water sources have a history of flooding?
<p>Blooming Grove: N/A</p> <p>Corsicana: Post Oak Creek</p> <p>Kerens: Indian Creek</p> <p>Navarro County Unincorporated: All water sources have a history of flooding.</p>
Name any streets or intersections that experience flooding or flash flooding:
<p>Blooming Grove: None</p> <p>Corsicana: Oaklawn between Beverly and N 13th ST, & N Bus 45 under the RR Crossing North of E 1st Ave, the intersection near N 35th ST and W 3rd Ave, Fairfax and Mimosa in the 1700 Blocks, Bunert ST 500-600 Block, S 15th ST 1500-2200 Blocks, All I-45 Underpasses</p> <p>Kerens: S. Bonner & SW 7th</p> <p>Navarro County Unincorporated: 71% of roads in Navarro County have experienced flood impacts since 2012, especially during the flooding events of 2015.</p>
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?
<p>100% of dams and 100% wastewater treatment facilities are at risk from the 100-year flood event. Many of these structures are designed to traverse or be located within the floodplain due to unavoidable circumstances. Additionally, treated wastewater is typically discharged towards streams, which makes portions of wastewater treatment facilities likely to be located within the floodplain.</p>
In the event of a wildfire, will flooding and erosion be an issue in restoring destroyed forested slopes?
No

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. Additional 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
- 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

The Flood Hazard Boundary Map (FHBM) and Flood Insurance Rate Map (FIRM) show Flood Insurance Risk Zones that indicate the magnitude of the flood hazard in specific areas of a community. The zone categories are described in the table below:

Table 17: Flood Insurance Risk Zones

High Risk Area	Description
In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones.	
Zone A	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.
Zone AE	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.
Zone A1-30	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).
Zone AO	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.
Zone AH	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.
Zone AH	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.
Zone AH	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.
Zone A99	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.
Zone A99	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.	

<p>Zone B and Zone X (shaded)</p>	<p>Areas of 500-year flood; areas subject to the 100-year flood with average depths of less than 1 foot or with contributing drainage area less than 1 square mile; and areas protected by levees from the base flood.</p> <p>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.</p>
<p>Zone C and Zone X (un-shaded)</p>	<p>Areas determined to be outside the 500-year floodplain.</p> <p>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.</p>
<p>Undetermined Risk Area</p>	<p>Description</p>
<p>Zone D</p>	<p>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.</p>

The FIRM panels of the planning area, showing maximum extent, are provided below:

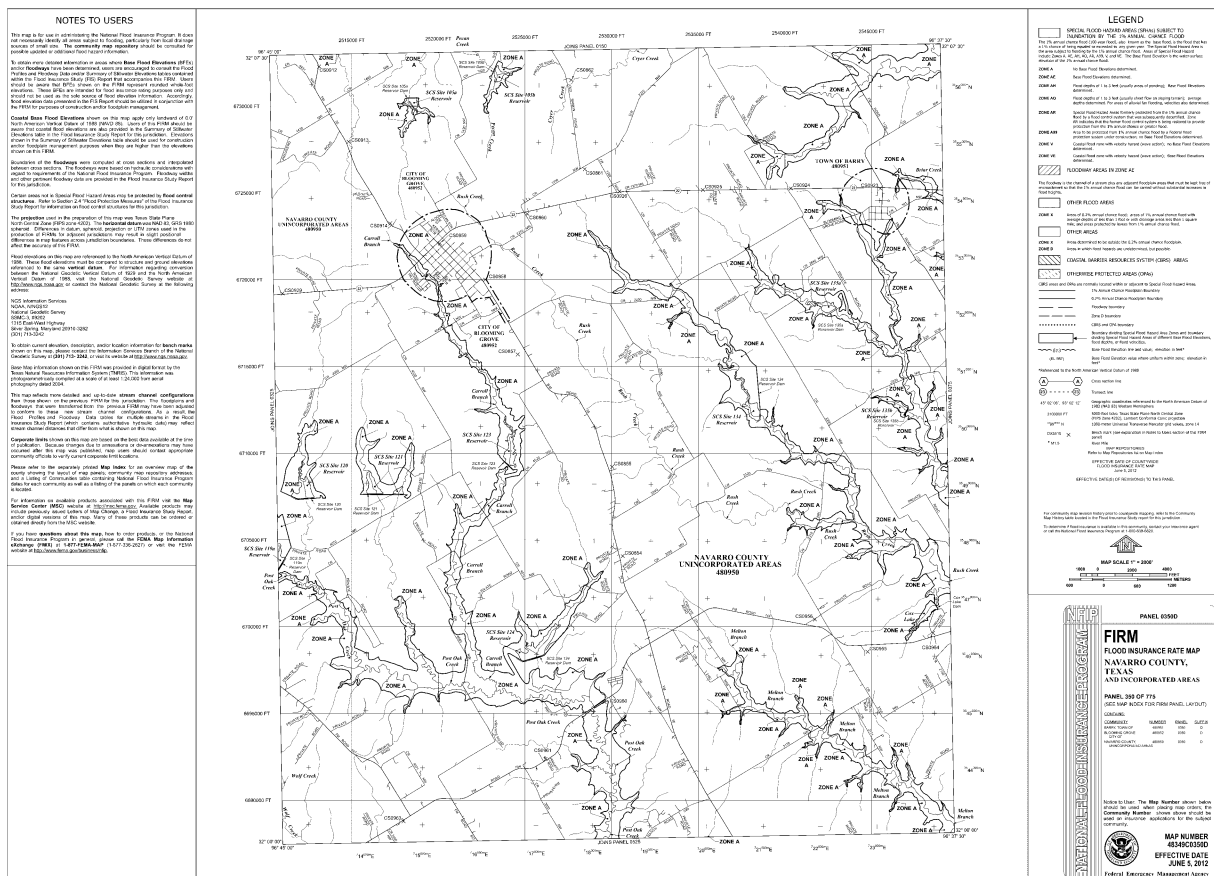


Figure 11: City of Blooming Grove FIRM

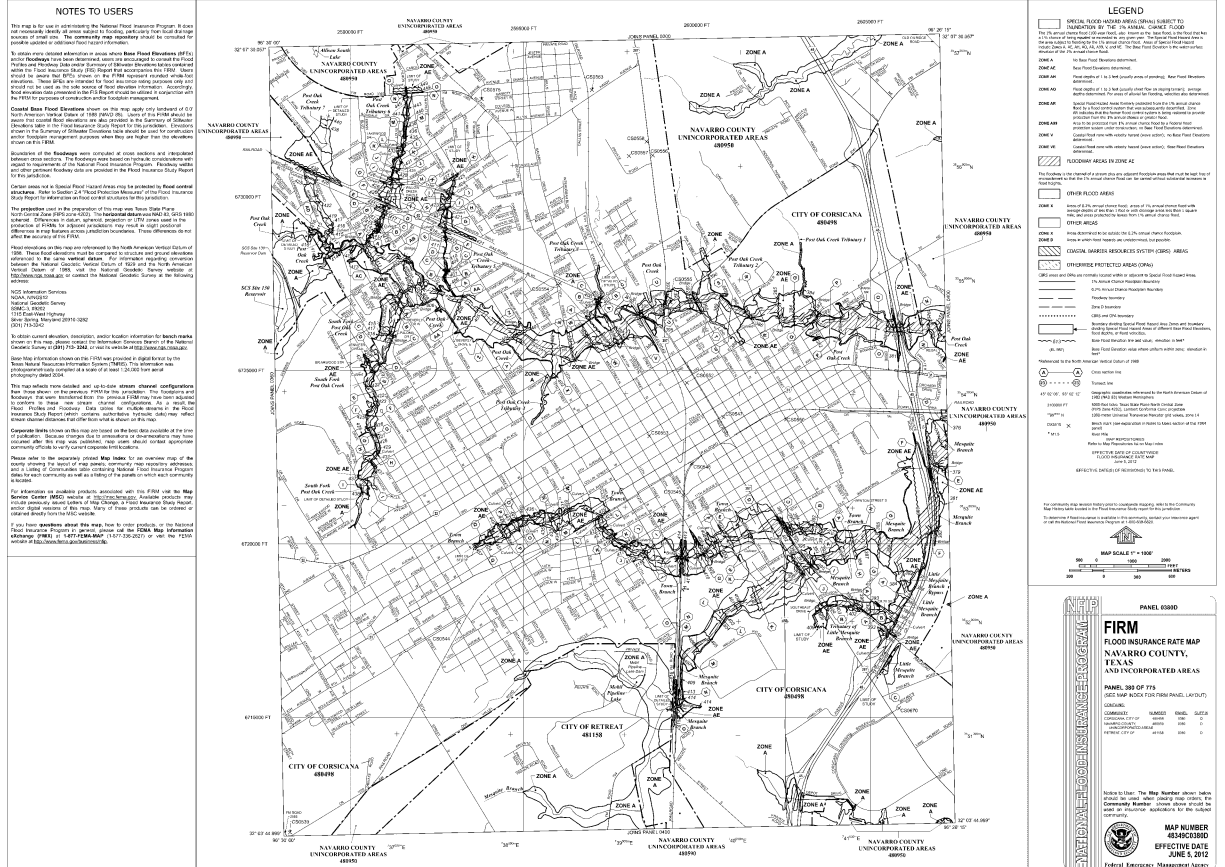


Figure 12: City of Corsicana FIRM

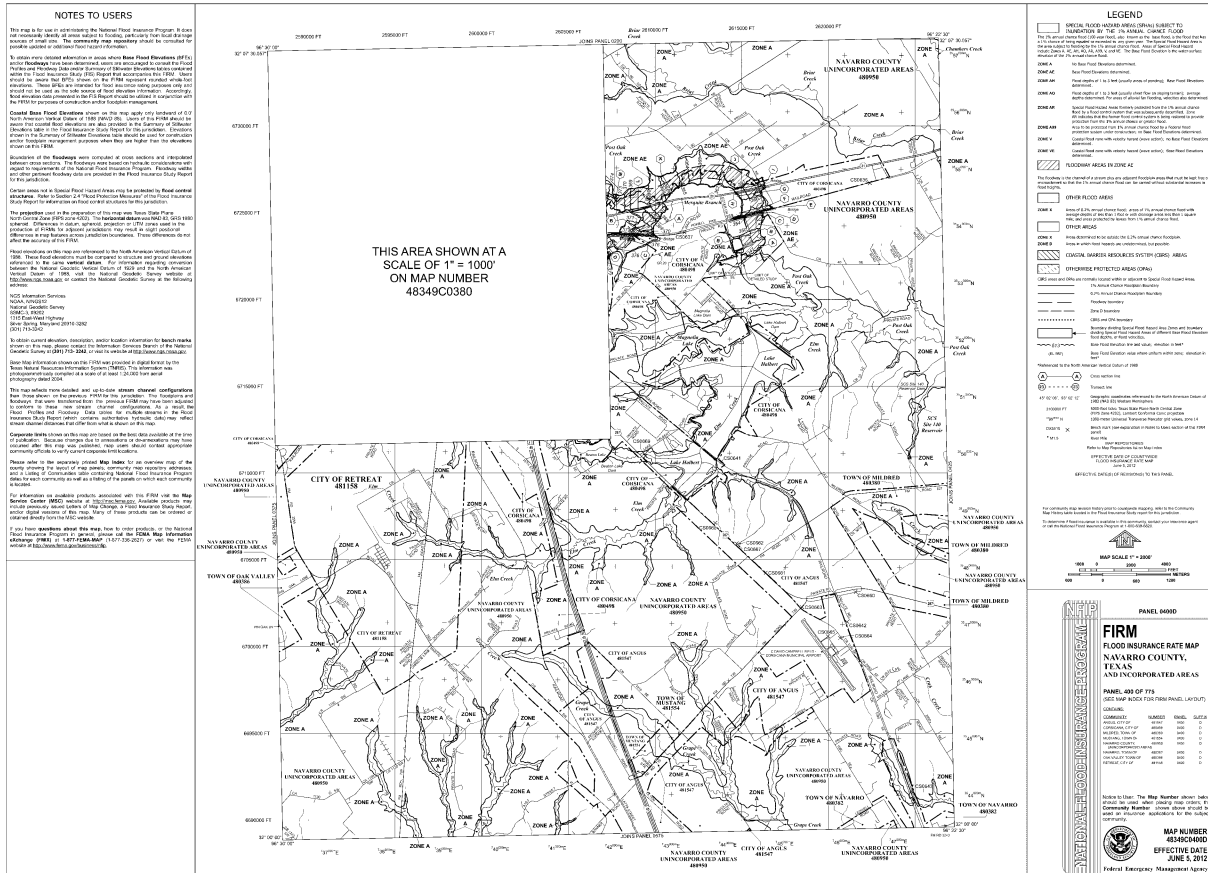


Figure 14: Navarro County FIRM

Dams have three different levels of classification from low to high potential. The following descriptions of these classifications are provided by the Texas Commission on Environmental Quality (TCEQ), the state regulating agency in Texas.

Dam Classifications:¹¹

- **Low (Green)**
 - No loss of life expected (based off surrounding populated area)
 - Minimal economic impact
- **Significant (Yellow)**
 - Loss of life possible (1-2 homes based off surrounding populated area)
 - Appreciable economic impact
- **High (Red)**
 - Loss of life expected (>3 homes based off surrounding populated area)
 - Excessive economic impact

¹¹ Session. "2022 Dam Safety Workshop." Texas.gov, <https://www.tceq.texas.gov/downloads/compliance/enforcement/dam-safety/workshop-session-1.pdf>.

The map below from the U.S. Army Corps of Engineers (USACE) National Inventory of Dams (NID) shows the 117 total dams in Navarro County, with seven high-hazard potential dams (HHPDs) mapped in red.

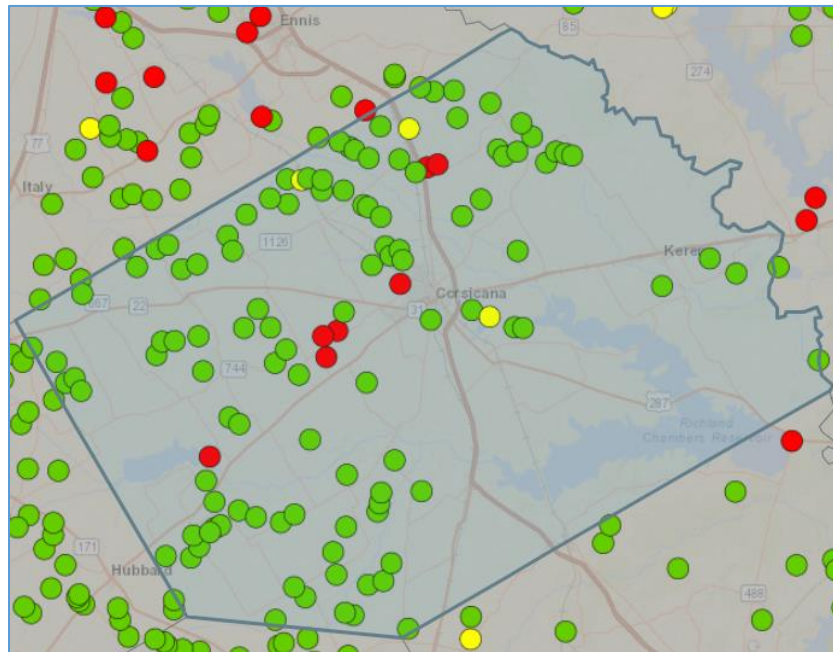


Figure 15: Dam Classifications in Navarro County¹²

Potential impacts from dam failure flooding include property and crop damage, transportation delays, and injury or death within the inundation zone. The inundation zone is the drainage area (by square miles) listed in the HHPD table.

¹² [National Inventory of Dams \(army.mil\)](http://www.army.mil)

Table 18: HHPDs in Navarro County

Dam Name	NID ID	Owner Names	City	River or Stream Name	Dam Height (Ft)	Dam Length (Ft)	Volume (Cubic Yards)	Drainage Area (Sq Miles)
Navarro Mills Dam	TX00009	USACE - Fort Worth District	RICHLAND	RICHLAND CREEK	82	7570	2315000	320
Chambers Creek WS SCS Site 139 Dam	TX02564	CITY OF CORSICANA; NAVARRO COUNTY; NAVARRO SWCD	CORSICANA	TR-POST OAK CREEK	25	4695	0	2.98
Chambers Creek WS SCS Site 129 Dam	TX02572	NAVARRO COUNTY; NAVARRO SWCD		LOCKHEART BRANCH	25	1840	85800	3.22
Chambers Creek WS SCS Site 128 Dam	TX02574	NAVARRO COUNTY; NAVARRO SWCD		RICE BRANCH	27	2163	121060	5.12
Richland Creek WS SCS Site 137g Dam	TX02582	NAVARRO COUNTY; NAVARRO SWCD		BRIAR CREEK	29	2658	134070	9.21
Richland Creek WS SCS Site 138 Dam	TX02584	NAVARRO COUNTY; NAVARRO SWCD		TR-BRIAR CREEK	39.4	1870	83230	5.15
Richland Creek WS SCS Site 137a Dam	TX02585	NAVARRO COUNTY; NAVARRO SWCD		TR-BRIAR CREEK	29.1	1329	51850	1.24

HHPDs are required to have Emergency Actions Plans (EAPs), which include log sheets of changes, annual review checklists, plan review and update pages, and training records. And EAP should be the go-to document during a dam emergency.

Only the Navarro Mill Dam (TX00009) has a NID Risk Characterization Summary. This summary is provided below:

Although Navarro Mills Dam reduces the risk of flooding to downstream communities, the dam does not eliminate the risk of flooding. Navarro Mills Dam was designed to reduce the peak flooding levels downstream without risking the structural integrity of the dam. The U.S. Army Corps of Engineers (USACE) completed a risk assessment in April 2017 and classified the risks associated with the project as **very low**. This classification is based on an extremely unlikely flood event which could cause several equally unlikely scenarios including overtopping at a low spot in the embankment, water to seep through the dam and eventually weaken the dam, and inoperability of the spillway gates leading to overtopping of the gates.

In the remote event of a dam breach, the largest impacts would be to the City of Purdon, TX, located approximately 9 miles downstream of the dam. In any of these unlikely scenarios, downstream flooding in Purdon, TX would occur within 3 hours of breach and could be as deep as a two-story structure, destroying buildings and critical infrastructure. In addition, some evacuation routes would be under water, increasing evacuation distances.

The most likely scenario that could result in downstream flooding is high volume releases from Navarro Mills Dam through the gated spillway during high water events. These surcharge operational releases occur when the reservoir's flood storage capacity is exceeded and the spillway gates are opened to allow excess water to flow through the spillway. Surcharge releases through the spillway during the largest expected flood in the watershed would put thousands of people at risk and flood waters could be as deep as a one-story building.

Although the large downstream communities have well-practiced emergency action plans, and local emergency managers are aware of the unlikely potential for dam failure, breach of the dam would result in significant loss of life and severe economic damages.

The following maps show a more detailed look at the location of all the HHPDs in Navarro County. Please note that the inundation areas mapped are estimates only.

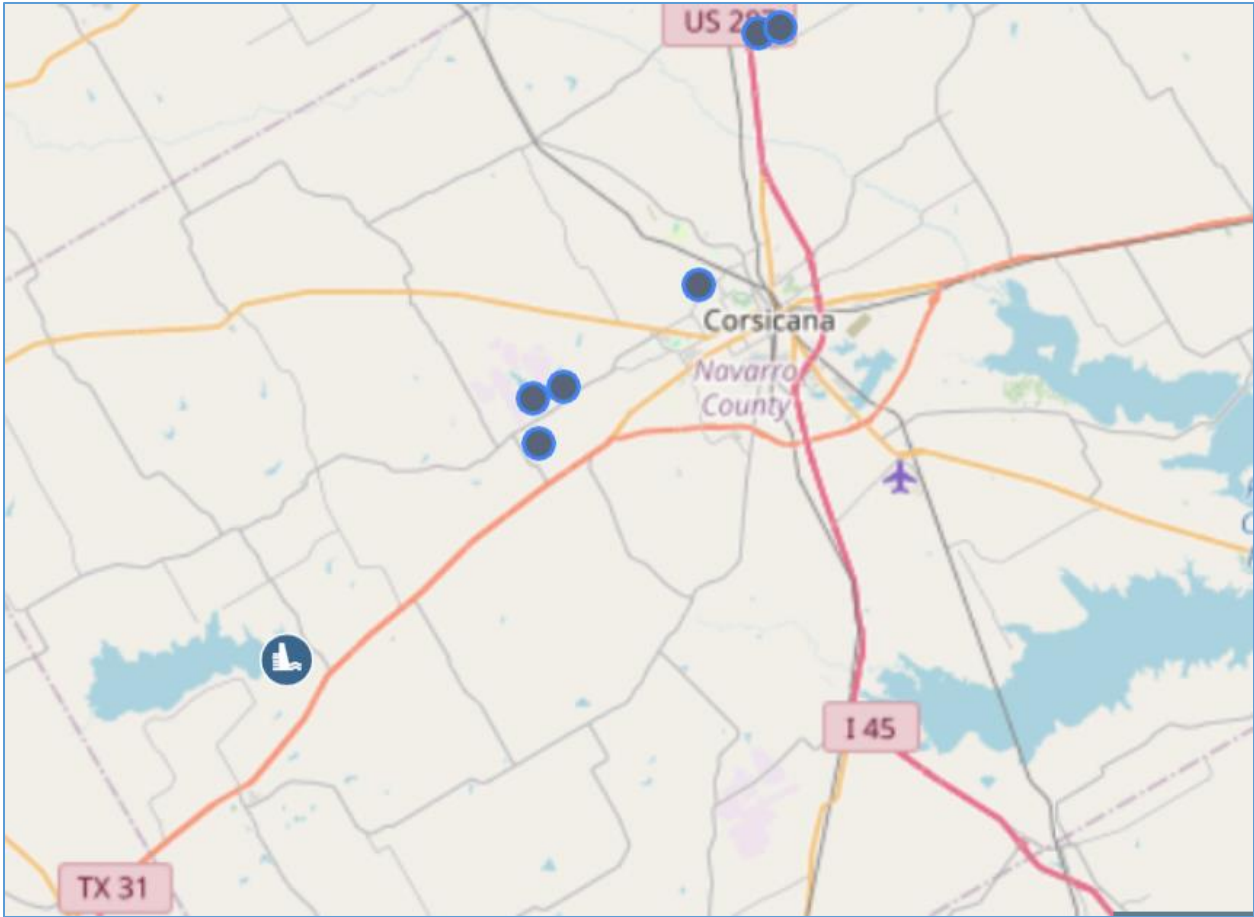


Figure 16: HHPD Locations

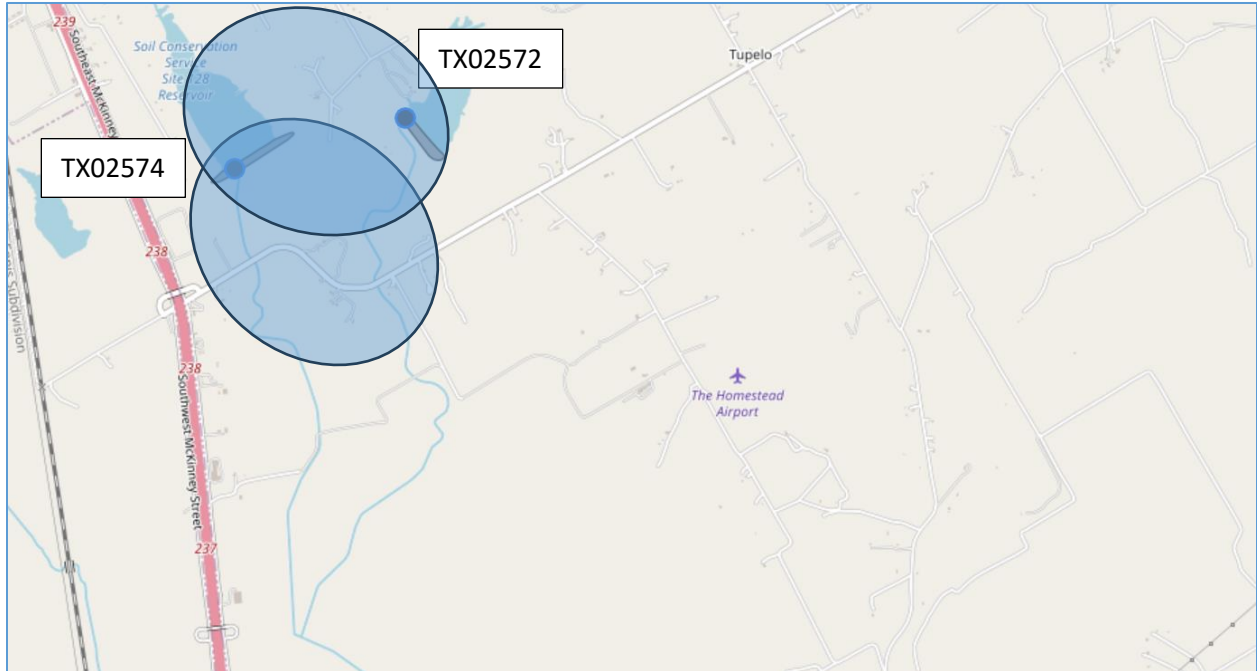


Figure 17: TX02574 and TX02572



Figure 18: TX02564



Figure 19: TX02584, TX02582, and TX02585

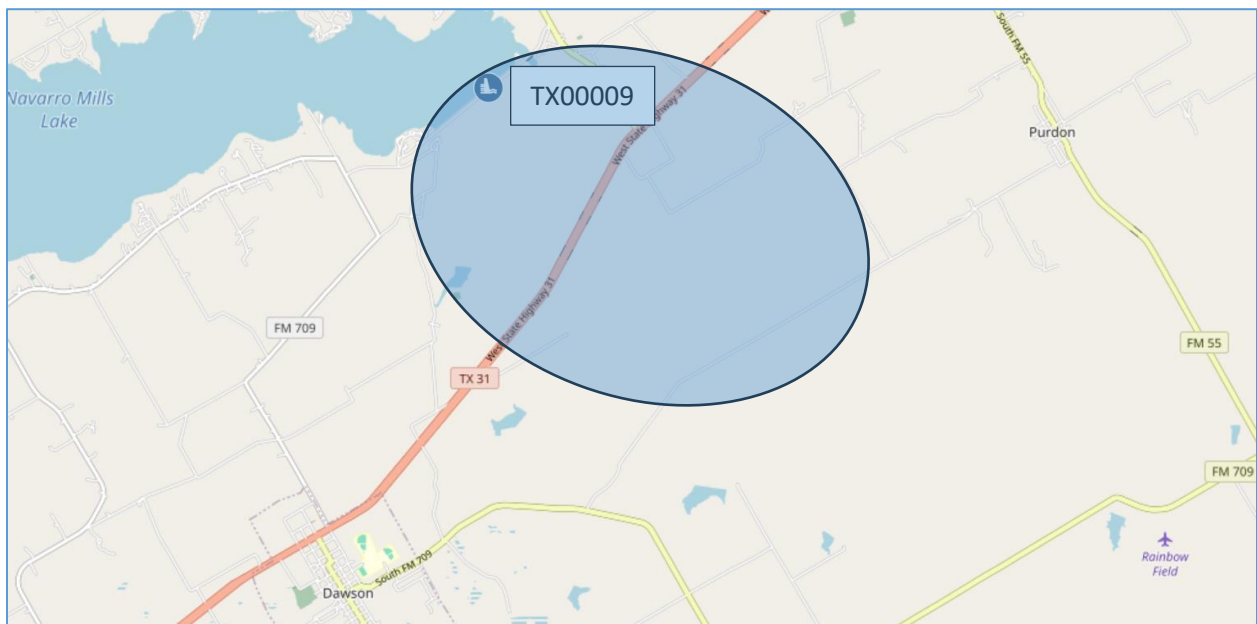


Figure 20: Navarro Mills Dam

There have been no reports of dam failure flooding in the participating jurisdictions.

To determine the maximum intensity of a flood event within the planning area, the HMPT reviewed the FEMA Estimated Base Flood Elevation. According to FEMA, this is the estimated elevation of flood water during 1% annual chance storm event (also referred to as a 100-year flood). Structures below the estimated water surface elevation may experience flooding.

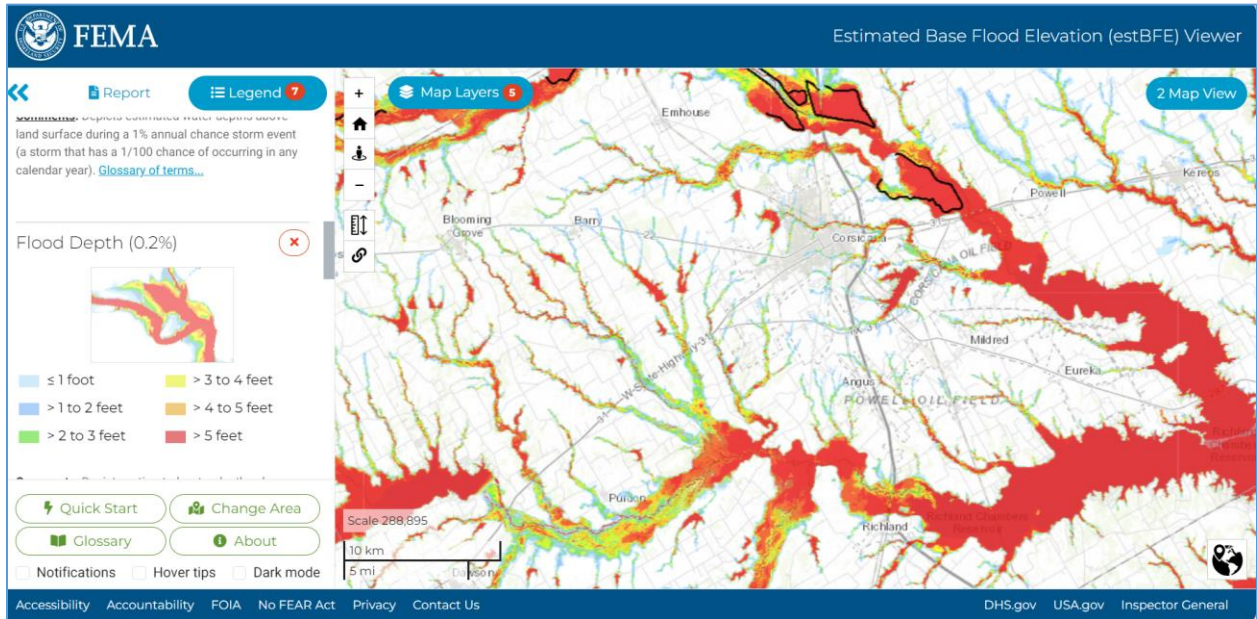


Figure 21: Estimated Base Flood Elevation Viewer

Historical flood data was gathered from the National Weather Service and is provided in the following table. The historical flood events and impacts are organized by year.

Table 19: Historical Events- Flooding

Location	Date	Type	Dth	Inj	PrD	CrD
CORSICANA ARPT	05/08/2014	Flash Flood	0	0	0.00K	0.00K
CORSICANA ARPT	06/25/2014	Flash Flood	0	0	10.00K	0.00K
NAVARRO MILLS LAKE	05/10/2015	Flash Flood	0	0	0.00K	0.00K
CORSICANA	05/10/2015	Flash Flood	0	0	0.00K	0.00K
CORSICANA	05/10/2015	Flash Flood	0	0	20.00K	0.00K
CORSICANA ARPT	06/17/2015	Flash Flood	0	0	0.00K	0.00K
BLOOMING GROVE	08/20/2015	Flash Flood	0	0	1.00K	0.00K
CORSICANA	11/06/2015	Flash Flood	0	0	0.00K	0.00K
CORSICANA ARPT	11/06/2015	Flash Flood	0	0	0.00K	0.00K
BLOOMING GROVE	06/13/2016	Flash Flood	0	0	0.00K	0.00K
CORSICANA	10/15/2018	Flood	0	0	0.00K	0.00K
CORSICANA	09/02/2020	Flood	0	0	0.00K	0.00K

Location	Date	Type	Dth	Inj	PrD	CrD
CORNICANA ARPT	07/03/2021	Flood	0	0	0.00K	0.00K
Totals:			0	0	31.00K	0.00K

Source: [NOAA National Centers for Environmental Information](#)

Future flooding events are expected to continue. [Headwater Economics](#) provided the following data for the number of days per year with precipitation above 1" over the next 10 years.

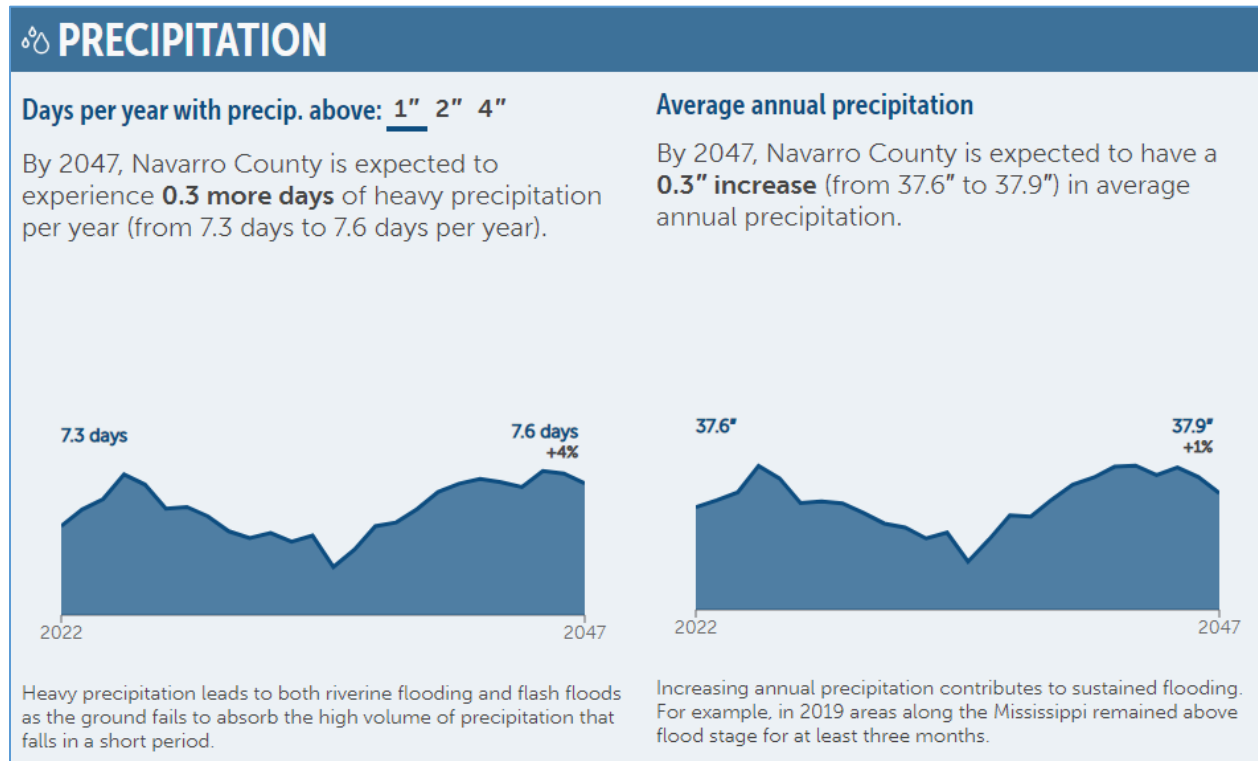


Figure 22: Future Precipitation Prediction

Hazard Summary

The following table reflects the profile summary for flooding within the planning area.

Table 20: Flooding Summary

Flooding				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Blooming Grove	Limited	Likely	Minor	Minor
Corsicana	Limited	Highly Likely	Critical	Minor
Kerens	Limited	Highly Likely	Critical	Minor
Navarro County Unincorporated	Extensive	Highly Likely	Critical	Major

In addition to profiling flooding, FEMA requests a profile for dam failure flooding. Only the City of Corsicana and Navarro County Unincorporated could be impacted by dam failure flooding from the HHPDs in the County; thus, the following table provides a profile for dam failure flooding for these jurisdictions based on historical information, climate change, and future conditions.

Table 21: Flooding Profile Summary

Dam Failure Flooding				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Corsicana	Negligible	Unlikely	Minor	Minor
Navarro County Unincorporated	Negligible	Unlikely	Minor	Minor

3.2.6 Thunderstorms

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 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.

Thunderstorms are not confined by geographic boundaries and can occur anywhere in the county.

The Thunderstorm Criteria in the Extreme Weather Madness Chart below, created by Senior Meteorologist Henry Margusity, describes the rainfall, maximum wind gust, hail size, and lightning frequency. This chart was used by the Local Planning Team to determine the maximum probably intensity in the planning area.

THUNDERSTORM TYPES	Rainfall Rate/hr	MAX WIND GUST	HAIL SIZE	PEAK TORNADO Possibility	LIGHTNING FREQUENCY (5 min Intervals)
T-1 – Weak thunderstorms or Thundershowers	.03-.10	< 25 MPH	None	None	Only a few strikes during the storm.
T-2 – Moderate Thunderstorms.	.10”-.25”	25-40 MPH	None	None	Occasional 1-10
T-3 – Heavy Thunderstorms 1. Singular or lines of storms.	.25”-.55”	40-57 MPH	1/4 “ to 3/4”	EF0	Occasional to Frequent 10-20
T-4 – Intense Thunderstorms 1. Weaker supercells 2. Bow Echos or lines of Storms	.55” – 1.25”	58 to 70 MPH	1” to 1.5”	EF0 to EF2	Frequent 20-30
T-5 – Extreme Thunderstorms 1. Supercells with family of tornadoes. 2. Derecho Windstorms	1.25” – 4”	Over 70 Mph	Over 1.5” to 4”	EF3 to EF5	Frequent to Continuous. > 30

Copyright 2010 AccuWeather.com by Sr. Meteorologist Henry Margusity

Figure 23: Extreme Weather Madness Chart- Thunderstorm Criteria

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.¹³ Additional potential impacts from thunderstorms include:

¹³ State of Texas Mitigation Plan. 2013, page 72.

- 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

The following table lists the historical thunderstorm events and impacts from 2012-2021 recorded by the National Weather Service. Hail, lightning, and thunderstorm wind events were compiled.

Due to the history of thunderstorms and the presence of climate change, thunderstorms are expected to be a continual threat to the planning area.

Table 22: Historical Events- Thunderstorms

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
CORSICANA	04/03/2012	Hail	0.88 in.	0	0	0.00K	0.00K
CORSICANA	06/06/2012	Hail	0.75 in.	0	0	0.00K	0.00K
CORSICANA ARPT	03/02/2014	Hail	0.88 in.	0	0	0.00K	0.00K
CORSICANA	03/16/2014	Hail	0.75 in.	0	0	0.00K	0.00K
CORSICANA	04/14/2014	Hail	2.00 in.	0	0	80.00K	0.00K
CORSICANA	04/14/2014	Hail	1.00 in.	0	0	0.00K	0.00K
CORSICANA	04/14/2014	Hail	1.75 in.	0	0	50.00K	0.00K
BLOOMING GROVE	05/27/2015	Hail	0.75 in.	0	0	0.00K	0.00K
KERENS	03/30/2016	Hail	0.75 in.	0	0	0.00K	0.00K
BLOOMING GROVE	04/02/2017	Hail	0.88 in.	0	0	0.00K	0.00K
KERENS	04/26/2017	Hail	1.00 in.	0	0	0.00K	0.00K
KERENS	04/26/2017	Hail	1.75 in.	0	0	0.00K	0.00K
CORSICANA ARPT	04/06/2018	Hail	1.00 in.	0	0	0.00K	0.00K
CORSICANA ARPT	04/13/2018	Hail	0.88 in.	0	0	0.00K	0.00K
CORSICANA ARPT	04/13/2018	Hail	0.75 in.	0	0	0.00K	0.00K
BLOOMING GROVE	04/13/2019	Hail	1.00 in.	0	0	0.00K	0.00K
CORSICANA	04/29/2020	Hail	1.25 in.	0	0	0.00K	0.00K
BLOOMING GROVE	04/09/2021	Hail	1.00 in.	0	0	0.00K	0.00K
CORSICANA	06/06/2012	Thunderstorm Wind	56 kts. EG	0	0	5.00K	0.00K
CORSICANA	07/26/2013	Thunderstorm Wind	56 kts. EG	0	0	0.00K	2.00K

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
BLOOMING GROVE	05/08/2014	Thunderstorm Wind	56 kts. EG	0	0	8.00K	0.00K
KERENS	10/02/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORSICANA	01/02/2017	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
CORSICANA	01/02/2017	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
CORSICANA	07/09/2017	Thunderstorm Wind	48 kts. EG	0	0	5.00K	0.00K
CORSICANA	04/13/2018	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CORSICANA	04/13/2019	Thunderstorm Wind	43 kts. EG	0	0	0.50K	0.00K
CORSICANA ARPT	06/01/2019	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORSICANA	06/01/2019	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
KERENS	10/21/2019	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
CORSICANA MUNI ARPT	04/12/2020	Thunderstorm Wind	50 kts. MG	0	0	0.00K	0.00K
CORSICANA MUNI ARPT	04/29/2020	Thunderstorm Wind	51 kts. MG	0	0	0.00K	0.00K
Total Hail:				0	0	130.00K	0.00K
Total Thunderstorm Wind:				0	0	39.50K	2.00K

Source: [NOAA National Centers for Environmental Information](#)

Hazard Summary

The following table reflects the profile summary for thunderstorms within the planning area.

Table 23: Thunderstorm Summary

Thunderstorms				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Bloomington Grove	Extensive	Highly Likely	Minor	Major
Corsicana	Extensive	Highly Likely	Critical	Major
Kerens	Extensive	Highly Likely	Critical	Major
Navarro County Unincorporated	Extensive	Highly Likely	Critical	Major

3.2.7 Tornadoes

A tornado is a narrow, violently rotating column of air that makes 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.

As part of “Tornado Alley,” which encompasses much of northern Texas northward through Oklahoma, Kansas, Nebraska and parts of New Mexico, South Dakota, Iowa, and eastern Colorado. Navarro County faces a high potential for tornado development. It’s important to keep in mind that tornadoes are not confined by geographic boundaries and can occur anywhere in the country.

The map below shows the average annual frequency of tornadoes in the United States between 1950-1995. According to the map, Navarro County averages 3-5 tornadoes per year.

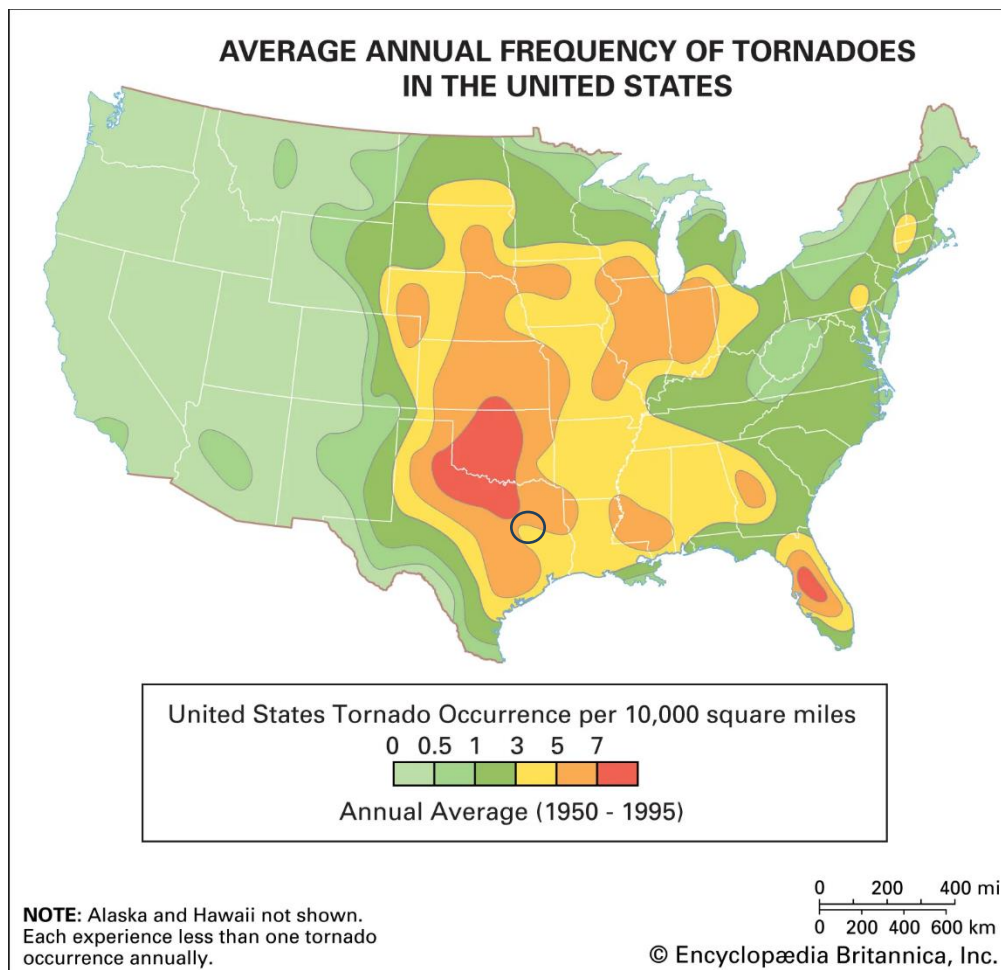


Figure 24: Average Annual Frequency of Tornadoes

The Enhanced Fujita (EF) Scale (Table 24) is used by the National Weather Service to determine the highest wind speed that occurred within the damage path. The NWS is the only federal agency with authority to provide 'official' tornado EF Scale ratings.

Table 24: EF Scale

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

After the NWS evaluator matches the construction or description of the building with the appropriate damage indicator (Table 25).

Table 25: EF Scale Damage Indicators

NUMBER <i>(Details Linked)</i>	DAMAGE INDICATOR	ABBREVIATION
1	Small barns, farm outbuildings	SBO
2	One- or two-family residences	FR12
3	Single-wide mobile home (MHSW)	MHSW
4	Double-wide mobile home	MHDW
5	Apt, condo, townhouse (3 stories or less)	ACT
6	Motel	M
7	Masonry apt. or motel	MAM
8	Small retail bldg. (fast food)	SRB
9	Small professional (doctor office, branch bank)	SPB
10	Strip mall	SM
11	Large shopping mall	LSM
12	Large, isolated ("big box") retail bldg.	LIRB
13	Automobile showroom	ASR
14	Automotive service building	ASB
15	School - 1-story elementary (interior or exterior halls)	ES
16	School - jr. or sr. high school	JHSH
17	Low-rise (1-4 story) bldg.	LRB
18	Mid-rise (5-20 story) bldg.	MRB
19	High-rise (over 20 stories)	HRB
20	Institutional bldg. (hospital, govt. or university)	IB
21	Metal building system	MBS
22	Service station canopy	SSC
23	Warehouse (tilt-up walls or heavy timber)	WHB

NUMBER <i>(Details Linked)</i>	DAMAGE INDICATOR	ABBREVIATION
24	Transmission line tower	TLT
25	Free-standing tower	FST
26	Free standing pole (light, flag, luminary)	FSP
27	Tree - hardwood	TH
28	Tree - softwood	TS

For each DI, there are eight degrees of damage (Table 26).

Table 26: Degree of Damage (DOD)

DOD	Damage Description	EXP	LB	UB
1	Threshold of visible damage	62	53	78
2	Loss of wood or metal roof panels	74	61	91
3	Collapse of doors	83	68	102
4	Major loss of roof panels	90	78	110
5	Uplift or collapse of roof structure	93	77	114
6	Collapse of walls	97	81	119
7	Overturning or sliding of entire structure	99	83	118
8	Total destruction of building	112	94	131

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

Since 2012, the National Weather Service has one reported tornado event within the planning area. On December 30, 2020, the City of Corsicana was struck by an EF0 tornado. According to reports, “At least 13 manufactured and frame-built homes sustained some damage to roofs, siding, and skirting. Two other homes were damaged by falling trees. Several large tree branches were also snapped off. The tornado dissipated shortly after exiting the trailer park. The tornado track was approximately 1 mile in length, with a maximum width of 75 yards. Damage at the softball complex and to some of the manufactured homes

was consistent with high end EF-0 intensity tornado winds, with top speeds estimated at 85 mph.”¹⁴ In total, the tornado caused \$500,000 worth of property damage.

The following figures from the [National Weather Service \(NWS\) Fort Worth Tornado Climatology](#) reflect historical tornado events in the county since 1880. Using this historical data, we can predict that there will be similar future tornado events in the county.

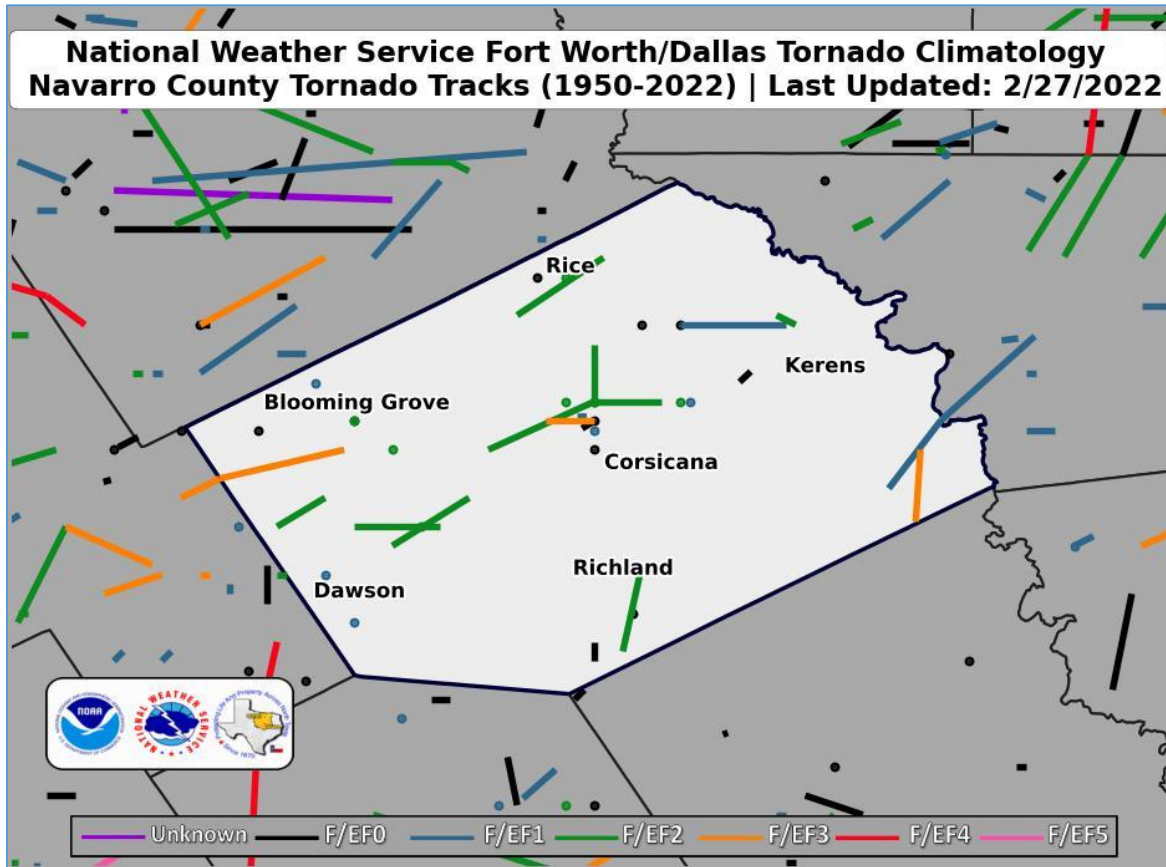


Figure 25: Tornado Tracks from 1950-2022

¹⁴ [Storm Events Database - Event Details | National Centers for Environmental Information \(noaa.gov\)](#)

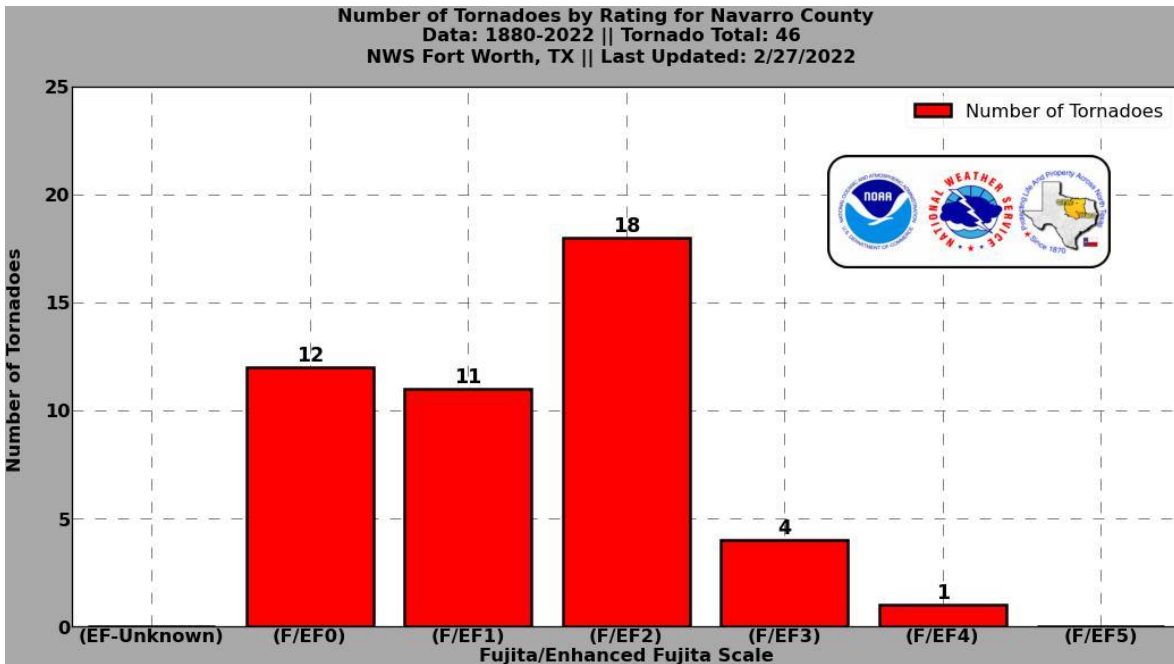


Figure 26: Number of Tornadoes by Rating

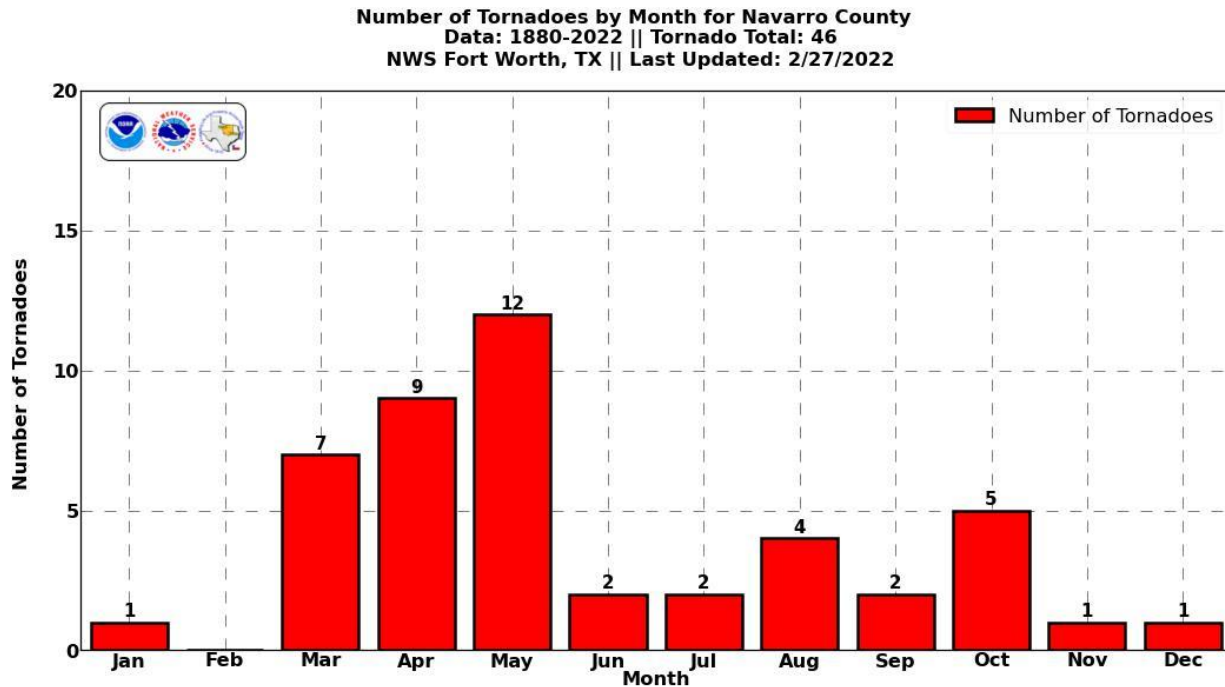


Figure 27: Number of Tornadoes by Month

Hazard Summary

The following table reflects the profile summary for tornadoes within the planning area.

Table 27: Tornado Summary

Tornadoes				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Blooming Grove	Extensive	Possible	Catastrophic	Major
Corsicana	Significant	Likely	Catastrophic	Major
Kerens	Extensive	Possible	Catastrophic	Major
Navarro County Unincorporated	Negligible	Likely	Catastrophic	Major

3.2.8 Wildfires

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 Navarro County. Pasture is most of the vegetation in the county and can be used for grazing.

Table 28: County Vegetation

Class	Description	Acres	Percent
Open Water	All areas of open water, generally with < 25% cover of vegetation or soil	51,779	7.4 %
Developed Open Space	Impervious surfaces account for < 20% of total cover (i.e. golf courses, parks, etc...)	35,764	5.1 %
Developed Low Intensity	Impervious surfaces account for 20-49% of total cover	47,743	6.8 %
Developed Medium Intensity	Impervious surfaces account for 50-79% of total cover	2,977	0.4 %
Developed High Intensity	Impervious surfaces account for 80-100% of total cover	1,195	0.2 %
Barren Land (Rock/Sand/Clay)	Vegetation generally accounts for <15% of total cover	1,135	0.2 %
Cultivated Crops	Areas used for the production of annual crops, includes land being actively tilled	61,262	8.7 %
Pasture/Hay	Areas of grasses and/or legumes planted for livestock grazing or hay production	182,374	26.0 %
Grassland/Herbaceous	Areas dominated (> 80%) by graminoid or herbaceous vegetation, can be grazed	139,422	19.9 %
Marsh	Low wet areas dominated (>80%) by herbaceous vegetation	446	0.1 %
Shrub/Scrub	Areas dominated by shrubs/trees < 5 meters tall, shrub canopy > than 20% of total vegetation	61,098	8.7 %
Floodplain Forest	> 20% tree cover, the soil is periodically covered or saturated with water	53,031	7.6 %

	Class	Description	Acres	Percent
	Deciduous Forest	> 20% tree cover, >75% of tree species shed leaves in response to seasonal change	60,150	8.6 %
	Live Oak Forest	> 20% tree cover, live oak species represent >75% of the total tree cover	37	0.0 %
	Live Oak/Deciduous Forest	> 20% tree cover, neither live oak or deciduous species represent >75% of the total tree cover	129	0.0 %
	Juniper or Juniper/Live Oak Forest	> 20% tree cover, juniper or juniper/live oak species represent > 75% of the total tree cover	89	0.0 %
	Juniper/Deciduous Forest	> 20% tree cover, neither juniper or deciduous species represent > 75% of the total tree cover	1	0.0 %
	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	614	0.1 %
	Eastern Redcedar/Deciduous Forest	> 20% tree cover, neither eastern redcedar or deciduous species represent > 75% of the total tree cover	1,370	0.2 %
	Pine Forest	> 20% tree cover, pine species represent > 75% of the total tree cover	10	0.0 %
	Pine Regeneration	Areas of pine forest in an early successional or transitional stage	3	0.0 %
	Pine/Deciduous Forest	> 20% tree cover, neither pine or deciduous species represent > 75% of the total tree cover	3	0.0 %
	Pine/Deciduous Regeneration	Areas of pine or pine/deciduous forest in an early successional or transitional stage	0	0.0 %
	Total		700,632	100.0 %

Source: Texas Wildfire Risk Assessment Portal Professional Viewer.

Characteristic Fire Intensity Scale (FIS) 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 consists 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.

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.

The FIS Map in Figure 28 shows that most of the county has an FIS score of Class 1-3.

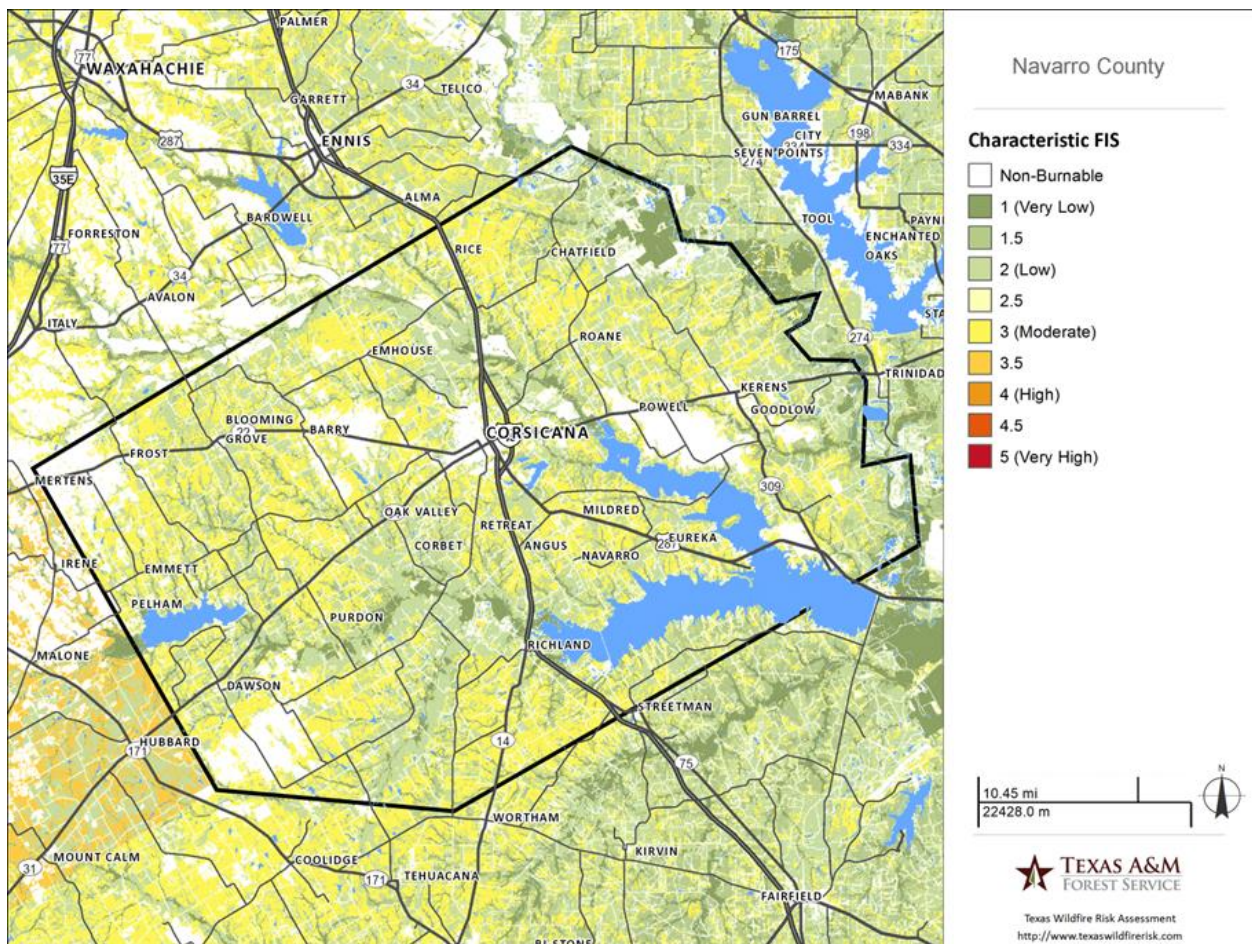


Figure 28: Fire Intensity Scale

The following graphs show a more detailed look at the FIS Class in the participating jurisdictions.

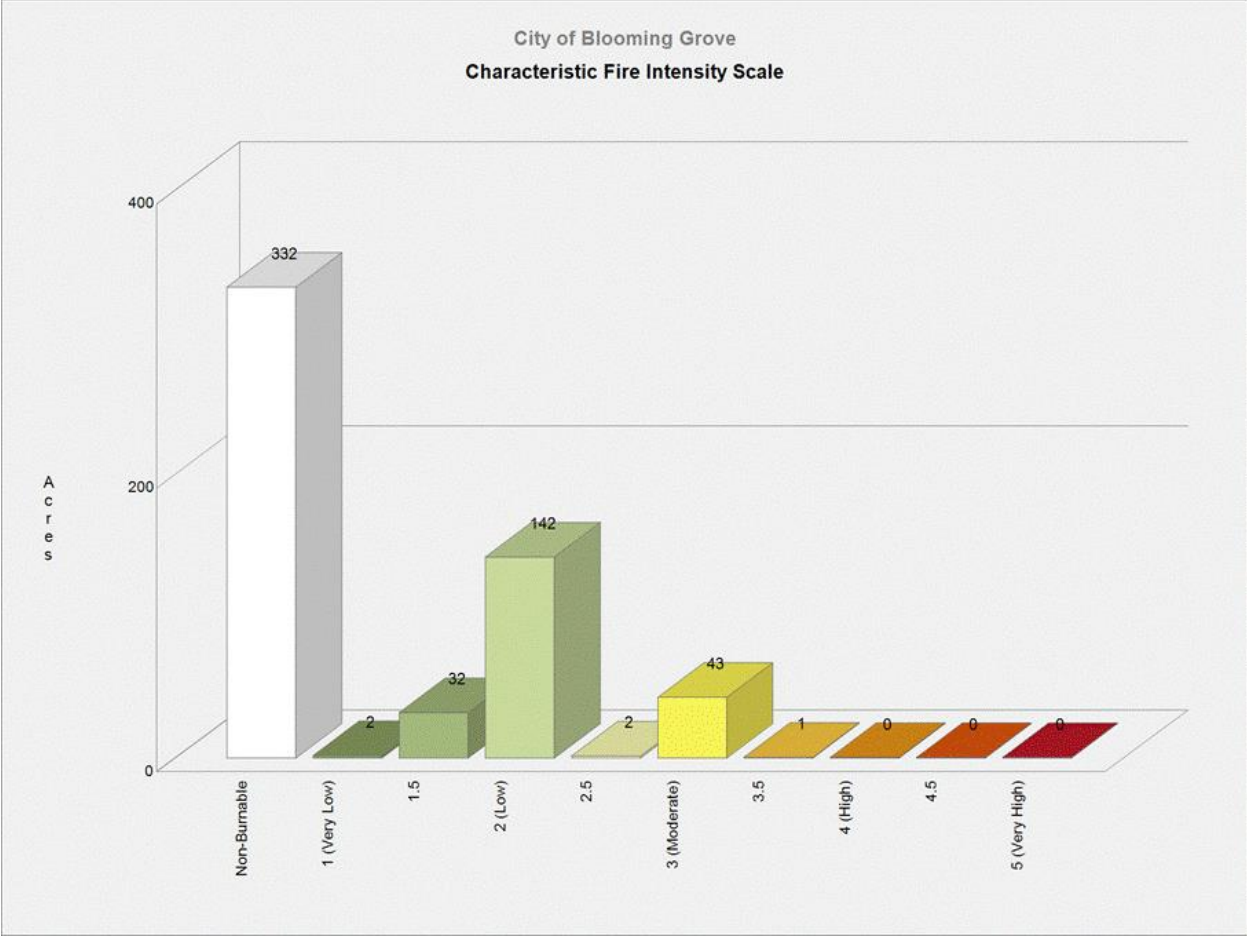


Figure 29: Blooming Grove FIS

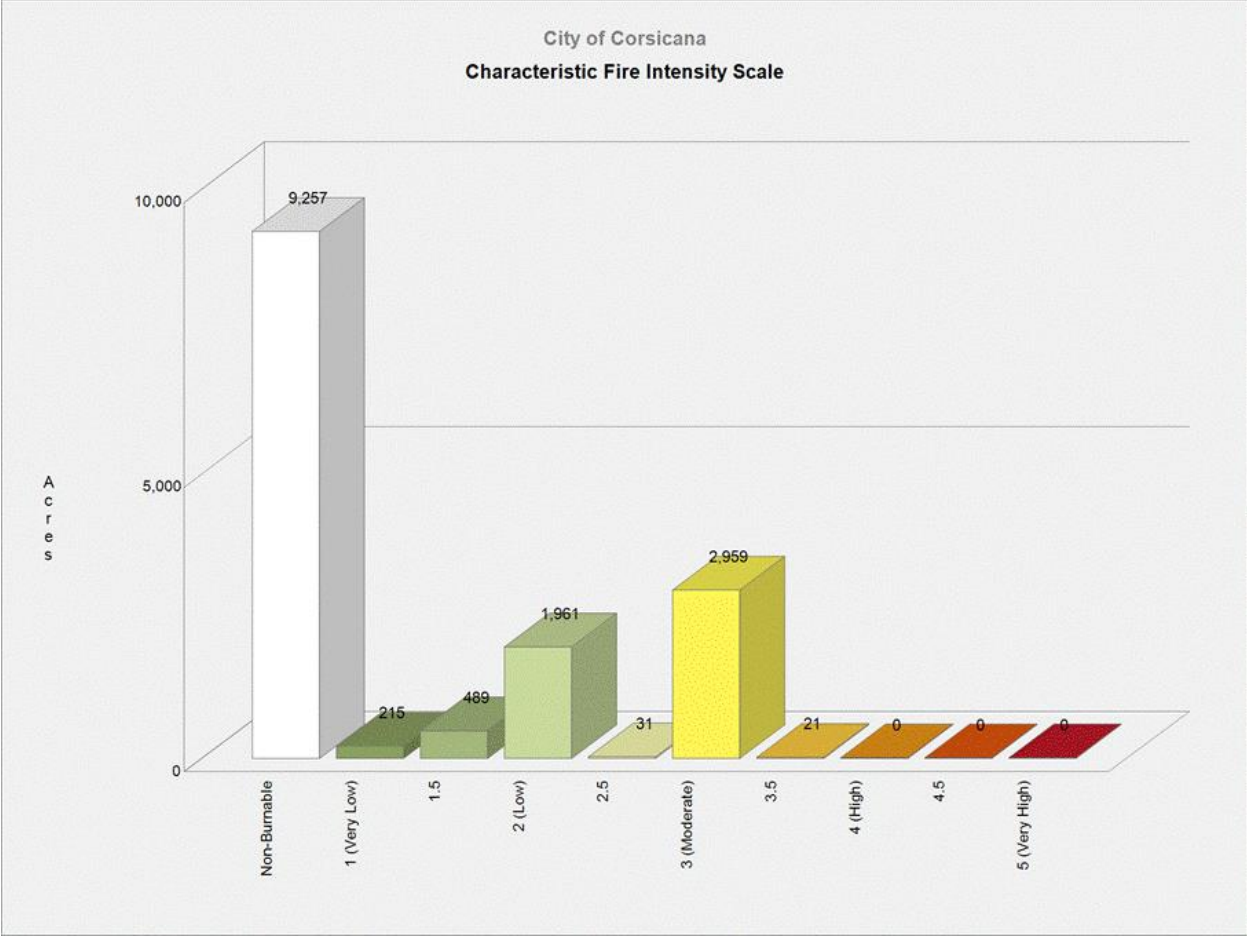


Figure 30: Corsicana FIS

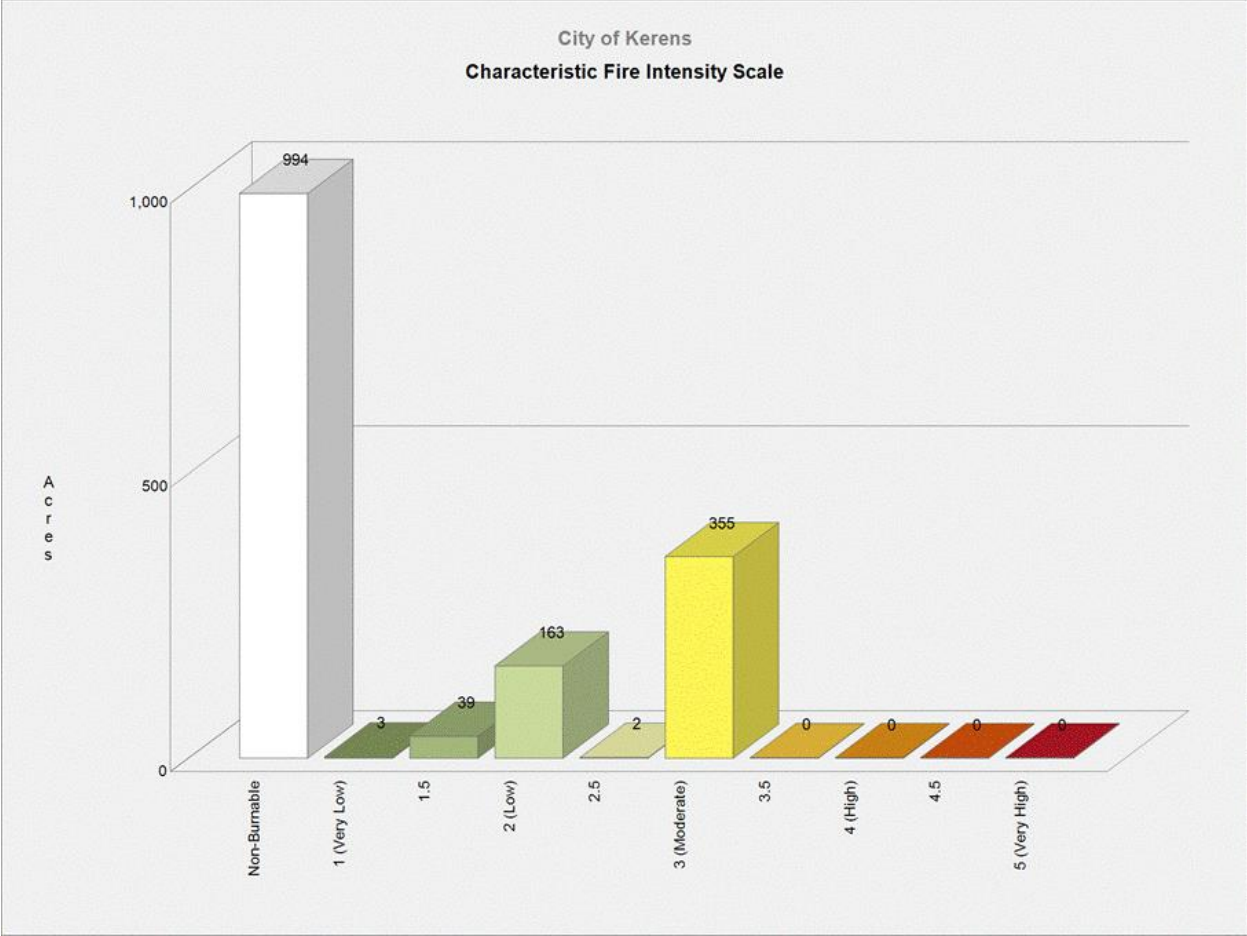


Figure 31: Kerens FIS

We can determine the possibility of wildfires by looking at Wildfire Threat. Wildfire Threat is the likelihood of a wildfire occurring or burning into an area. Threat is derived by combining several 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.

According to the map in Figure 32, the participating jurisdiction in this plan that is most threatened by wildfire is the City of Corsicana and Navarro County Unincorporated.

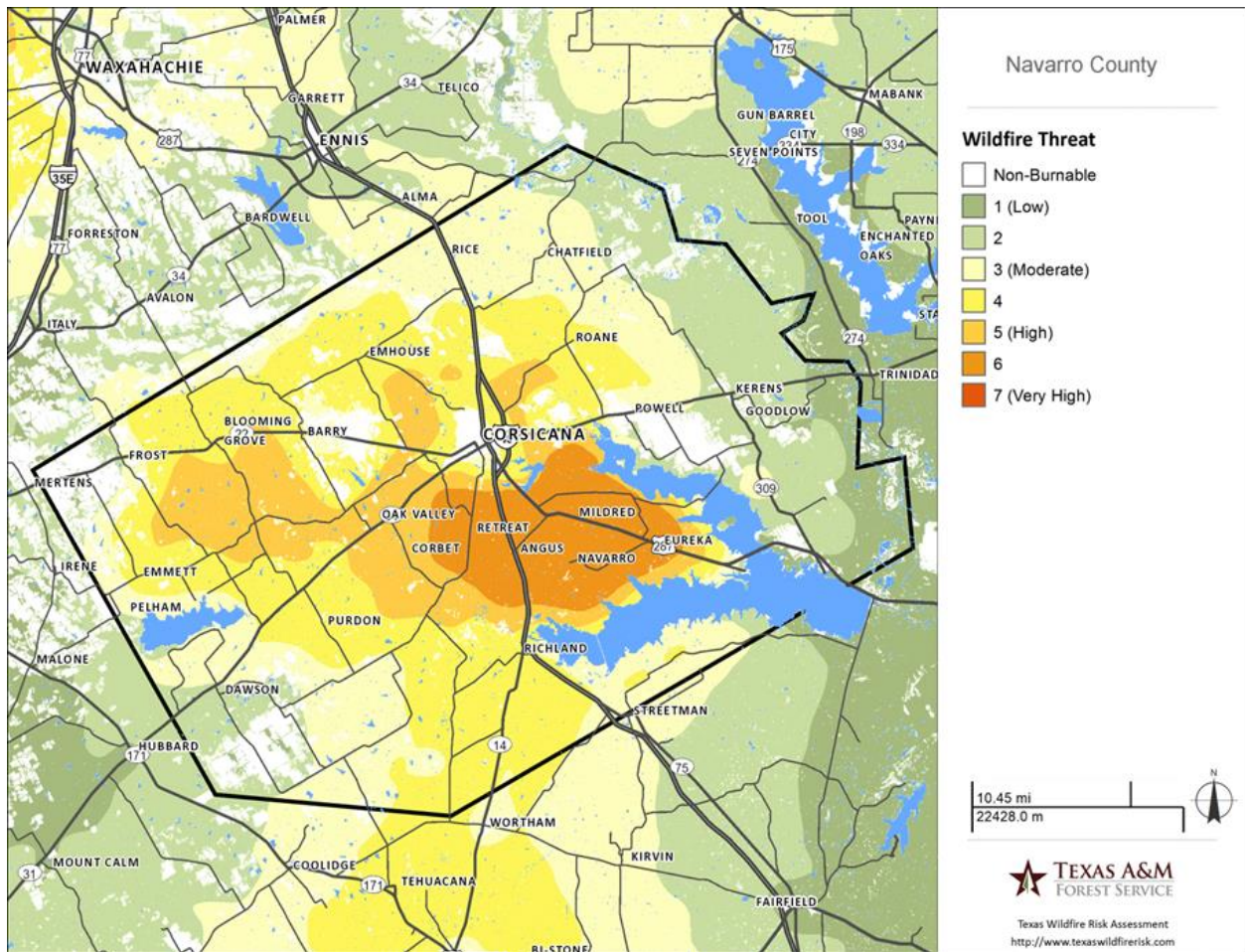


Figure 32: Wildfire Threat

The following maps show the wildfire threat for each participating jurisdiction.



Figure 33: Blooming Grove Wildfire Threat

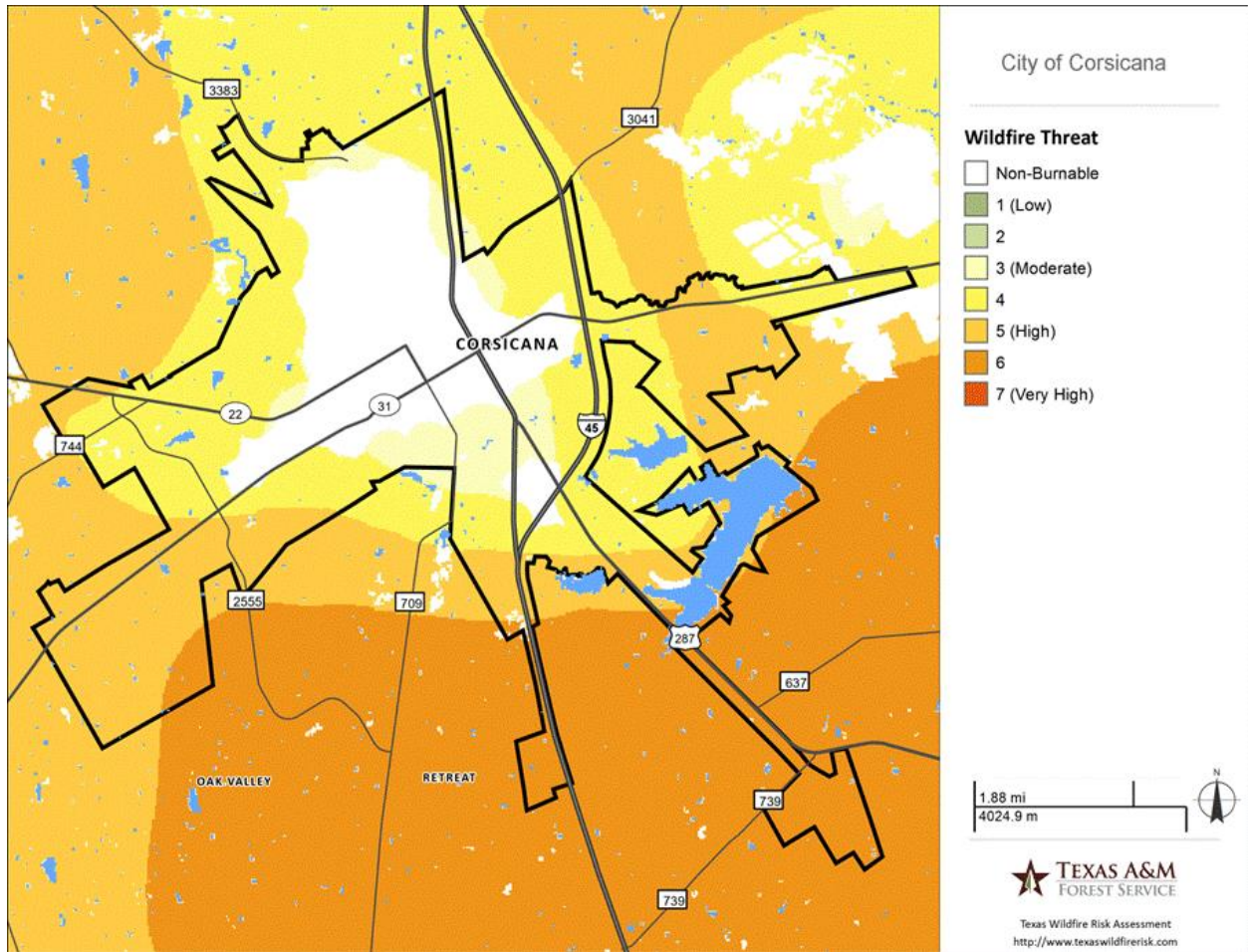


Figure 34: Corsicana Wildfire Threat

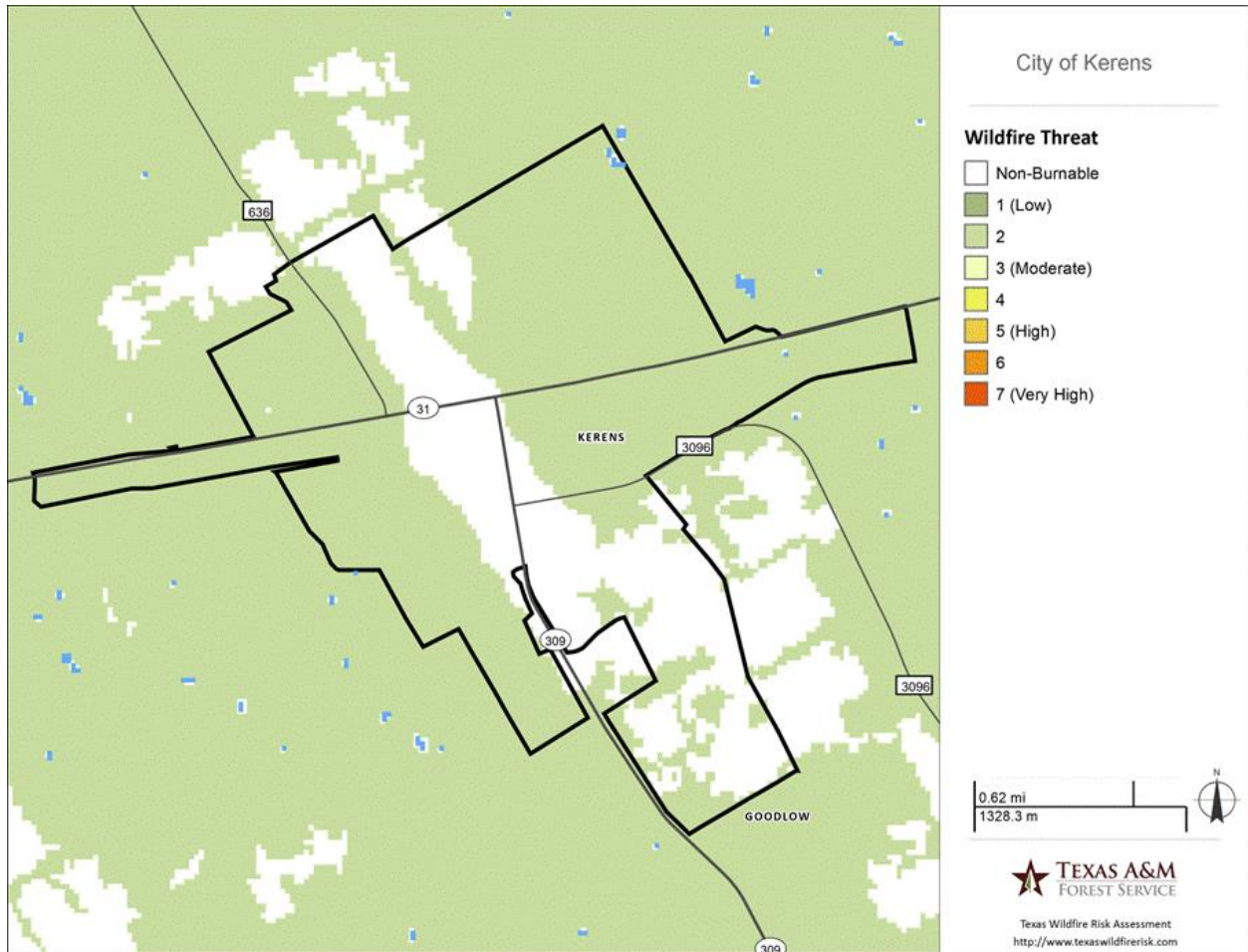


Figure 35: Kerens Wildfire Threat

One of the unique vulnerabilities to wildfires is the wildland-urban interface (WUI). The WUI is an area of development that is susceptible to wildfires due to the number 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. The WUI Map in Figure 36 reflects housing density depicting where humans and their structures meet or intermix with wildland fuels and shows that all participating jurisdictions in this plan have highly populated WUI areas in their communities.

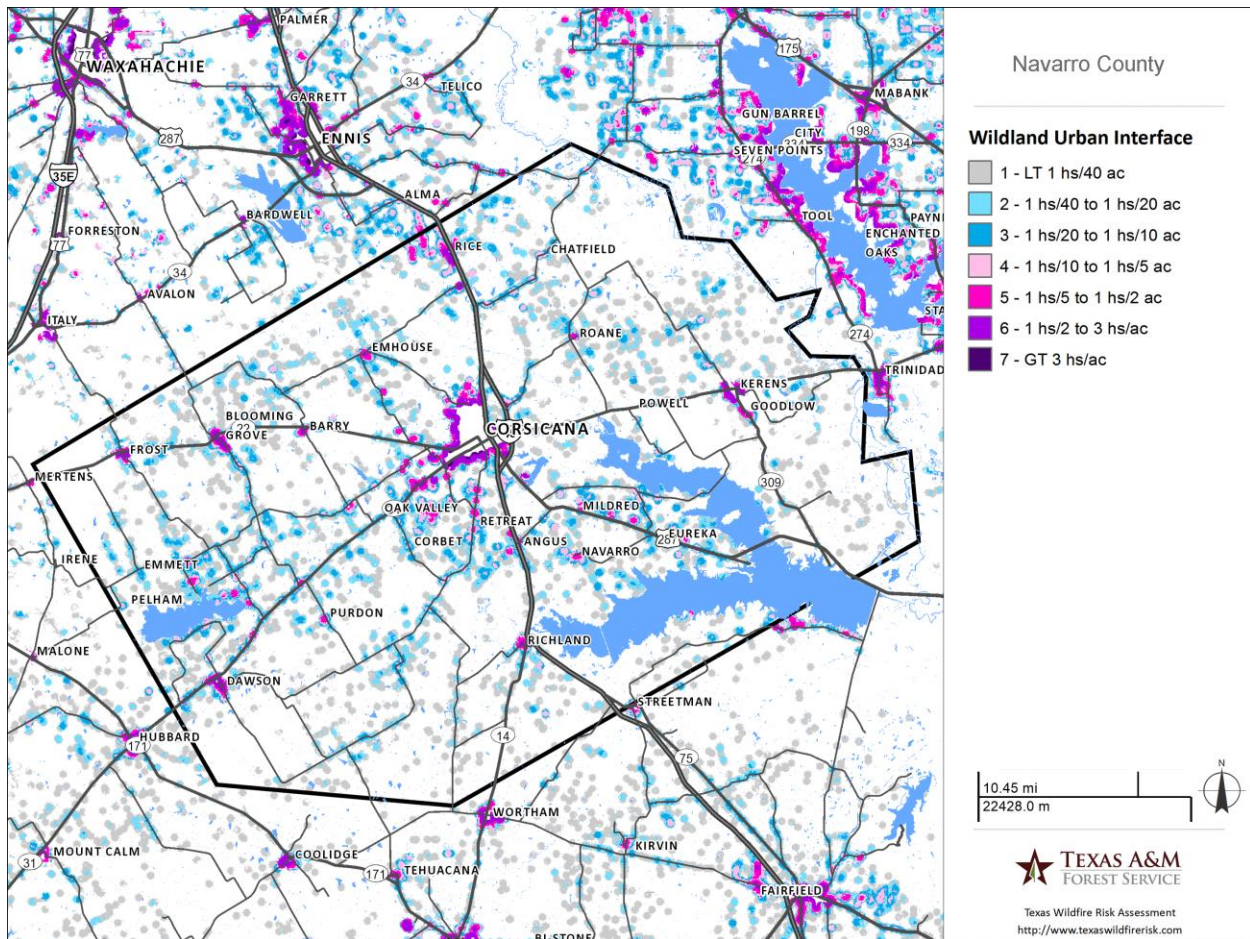


Figure 36: WUI Map

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 wildfire. By decreasing the amount of vegetation that the fire must 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 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.
- **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.
 - Currently, only properties in the unincorporated area of Navarro County allow prescribed burning.

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.

Wildfires can have a significant impact on the local economy. They can cause extensive damage to property and infrastructure, as well as loss of life. They can lead to reduced productivity and increased absenteeism, as well as increased demand for emergency services and disaster relief. Additionally, wildfires can lead to power outages, and can create hazardous conditions for outdoor activities. Potential impacts from wildfires also include:

- Property and fence damage
- Road closure
- Loss of power – burning utility poles
- Loss of crops and livestock
- Misplaced residents
- Loss of resources
- Natural environments damage, to include protected species and critical habitats

According to [Headwater Economics](#), 51% of homes in Navarro County are exposed to wildfire from direct sources, such as adjacent flammable vegetation, and 48% of homes in Navarro County are exposed to wildfire from indirect sources, such as embers or home-to-home ignition. The chart below reflects this data.

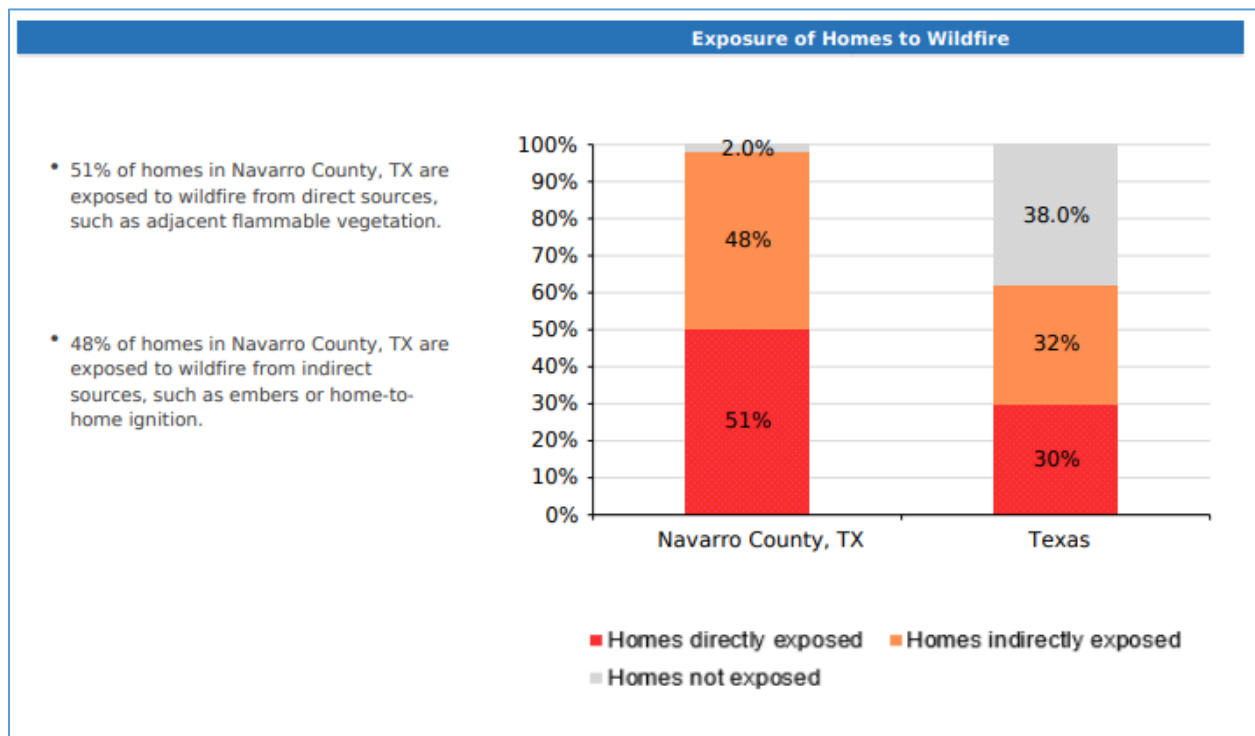


Figure 37: Exposure of Homes to Wildfire

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 Texas A&M Forest Service Wildfire gathered Wildfire gathered 15 years of historic fire report data from state and local fire departments to create the chart in Figure 38. Data was obtained from state and local fire department sources from 2005 to 2020. Debris burning, equipment use, and miscellaneous were the three highest causes of wildfires, with over 300 fires started by each.

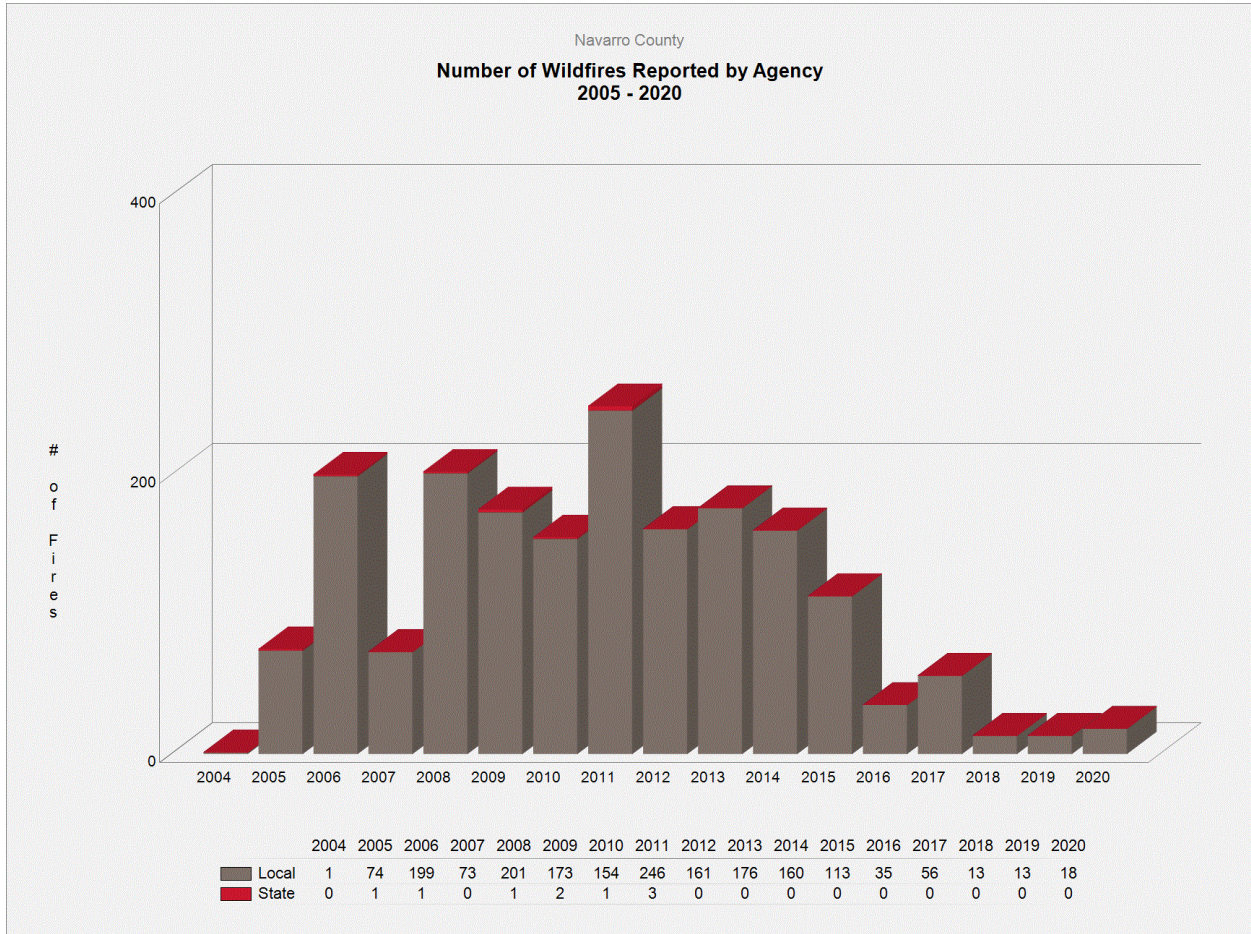


Figure 38: Number of Wildfires, 2005-2020

Hazard Summary

The following table reflects the profile summary for wildfires within the planning area.

Table 29: Wildfire Summary

Wildfires				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Blooming Grove	Extensive	Possible	Minor	Medium
Corsicana	Limited	Highly Likely	Limited	Medium
Kerens	Limited	Unlikely	Limited	Medium

Wildfires				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Navarro County Unincorporated	Extensive	Highly Likely	Critical	Medium

3.2.9 Winter Storms

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 timeframe of most winter weather is expected to be during the winter season, between November and March.

Winter storms affect the entire planning area equally.

The National Weather Service now uses the Winter Storm Severity Index (WSSI) (Figure 39) to forecast potential impacts of winter storms. The WSSI provides a classification of the overall expected severity of winter weather using the following terminology: “Minor,” “Moderate,” “Major,” and “Extreme.” The “Winter Weather Area” pertains to areas where winter weather conditions are expected, but are not anticipated to impact daily life. The WSSI consists of a series of component algorithms, each of which use meteorological and non-meteorological data to model predicted severity of six specific characteristics of winter weather. Each of the components produce a 0 to 5 output scale value that equates to the potential severity based on the winter weather hazards (0 = no winter weather, 1 = winter weather area, 2 = minor, 3 = moderate, 4 = major, and 5 = extreme).

The final WSSI value is the maximum value from all the sub-components. The four impact levels are given the following descriptors: Minor, Moderate, Major, and Extreme.

The six sub-components of the WSSI are:

- Snow Load Index
 - Indicates potential infrastructure impacts due to the weight of the snow. This index accounts for the land cover type. For example, more forested and urban areas will show increased severity versus the same snow conditions in grasslands.
- Snow Amount Index
 - Indicates potential impacts due to the total amount of snow or the snow accumulation rate. This index also normalizes for climatology, such that regions of the country that experience, on average, less snowfall will show a higher level of severity for the same amount of snow that is forecast across a region that experiences more snowfall on average. Designated urban areas are also weighted a little more than non-urban areas.
- Ice Accumulation
 - Indicates potential infrastructure impacts (e.g. roads/bridges) due to combined effects and severity of ice and wind. Designated urban areas are also weighted a little more than

non-urban areas. Please note that not all NWS offices provide ice accumulation information into the National Digital Forecast Database (NDFD). In those areas, the ice accumulation is not calculated.

- Blowing Snow Index
 - Indicates the potential disruption due to blowing and drifting snow. This index accounts for land use type. For example, more densely forested areas will show less blowing snow than open grassland areas.
- Flash Freeze Index
 - Indicates the potential impacts of flash freezing (temperatures starting above freezing and quickly dropping below freezing) during or after precipitation events.
- Ground Blizzard
 - Indicates the potential travel-related impacts of strong winds interacting with pre-existing snow cover. This is the only sub-component that does not require snow to be forecast in order for calculations to be made. The NWS National Operational Hydrologic Remote Sensing Center (NOHRSC) snow cover data along with forecast winds are used to model the ground blizzard. Adjustments are made based upon the land cover type. For example, heavily forested areas will have a lower ground blizzard severity than the same conditions occurring across open areas.

Potential Winter Storm Impacts	
	<p>Winter Weather Area Expect Winter Weather. • Winter driving conditions. Drive carefully.</p>
	<p>Minor Impacts Expect a few inconveniences to daily life. • Winter driving conditions. Use caution while driving.</p>
	<p>Moderate Impacts Expect disruptions to daily life. • Hazardous driving conditions. Use extra caution while driving. • Closures and disruptions to infrastructure may occur.</p>
	<p>Major Impacts Expect considerable disruptions to daily life. • Dangerous or impossible driving conditions. Avoid travel if possible. • Widespread closures and disruptions to infrastructure may occur.</p>
	<p>Extreme Impacts Expect substantial disruptions to daily life. • Extremely dangerous or impossible driving conditions. Travel is not advised. • Extensive and widespread closures and disruptions to infrastructure may occur. • Life-saving actions may be needed.</p>

Figure 39: WSSI Impact Scale with Descriptions

Based on historical analysis of the Sperry–Piltz Ice Accumulation Index and WSSI, the planning area is expected to experience the maximum extent of winter weather.

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. Potential impacts from winter storms also 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

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.

The following table lists the historical winter storm events and impacts in Navarro County from 2012-2021 recorded by the National Weather Service.

Table 30: Historical Events- Winter Storms

Location	Date	Type	Dth	Inj	PrD	CrD
NAVARRO (ZONE)	03/02/2014	Sleet	0	0	200.00K	0.00K
NAVARRO (ZONE)	03/05/2015	Ice Storm	0	0	0.00K	0.00K
NAVARRO (ZONE)	01/16/2018	Winter Weather	0	0	0.00K	0.00K
NAVARRO (ZONE)	01/16/2018	Winter Weather	0	0	0.00K	0.00K
NAVARRO (ZONE)	10/31/2019	Cold/wind Chill	0	0	0.00K	0.00K
NAVARRO (ZONE)	02/13/2021	Winter Storm	0	0	0.00K	0.00K
NAVARRO (ZONE)	02/15/2021	Extreme Cold/wind Chill	0	0	2.700M	0.00K
Totals:			0	0	2.900M	0.00K

Source: [NOAA National Centers for Environmental Information](#)

The 2021 event that caused \$2.7M in property damage was a part of the FEMA-4586-DR declaration for Texas Severe Winter Storms that was declared February 19, 2021. All counties in Texas were designated areas. In Navarro County, overnight lows were near or below 20°F almost all that week. The period of February 15-16th was the coldest with low temperatures between 6 and -6°F. The maximum temperature on the 15th was only around 15°F. Wind chill values during the 14th-16th were between 10 to -15°F most of the time. The cold temperatures resulted in an extreme amount of damage to pipes, infrastructure, and power.

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.

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.

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.”¹⁵

Hazard Summary

The following table reflects the profile summary for winter storms within the planning area.

Table 31: Winter Storm Summary

Winter Storms				
Jurisdiction	Location	Probability of Future Events	Level of Possible Damage	Maximum Probable Extent/Strength
Blooming Grove	Extensive	Likely	Limited	Major
Corsicana	Extensive	Likely	Catastrophic	Major
Kerens	Extensive	Likely	Catastrophic	Major
Navarro County Unincorporated	Extensive	Likely	Catastrophic	Major

¹⁵ By Erin Douglas, The Texas Tribune. <<https://www.texastribune.org/2021/10/21/texas-power-companies-winter-weather-rule/>>, texastribune.org

3.3 Assets

The following information is an overview of assets within the planning that could be negatively impacted by the identified hazards, including the built environment, people, economic assets, and natural environment.

3.3.1 Built Environment

If earthquakes, expansive soils, floods, thunderstorms, tornadoes, or winter storms occur with the maximum intensity predicted, the entire built environment and all structures could be impacted.

Drought would impact all water-related infrastructure listed and wildfire would impact facilities closest to an ignition source.

The Navarro County Appraisal District is responsible for appraising all real and business personal property within Navarro County. The district appraises property according to the Texas Property Tax Code and the Uniform Standards of Professional Appraisal Practices (USPAP). We used the district to determine the structure values of structures in the participating cities. These values give local officials an idea of what the damages costs could be if all buildings were destroyed in a disaster.¹⁶

NAVARRO County		2022 CERTIFIED TOTALS			As of Certification	
Property Count: 599		CBG - CITY OF BLOOMING GROVE Grand Totals			7/21/2022	3:34:37PM
State Category Breakdown						
State Code	Description	Count	Acres	New Value	Market Value	Taxable Value
A	SINGLE FAMILY RESIDENCE	356	166.2468	\$217,270	\$33,004,570	\$29,668,102
B	MULTIFAMILY RESIDENCE	2	0.3950	\$107,570	\$273,870	\$273,870
C1	VACANT LOTS AND LAND TRACTS	80	48.7220	\$0	\$747,410	\$736,160
D1	QUALIFIED OPEN-SPACE LAND	14	179.4079	\$0	\$1,202,520	\$19,550
D2	IMPROVEMENTS ON QUALIFIED OP	5		\$0	\$48,400	\$48,400
E	RURAL LAND, NON QUALIFIED OPE	24	25.7487	\$0	\$2,334,690	\$2,141,006
F1	COMMERCIAL REAL PROPERTY	21	12.4587	\$0	\$2,563,430	\$2,563,430
F2	INDUSTRIAL AND MANUFACTURIN	1	5.0000	\$0	\$190,870	\$190,870
J2	GAS DISTRIBUTION SYSTEM	2	0.1720	\$0	\$453,650	\$453,650
J3	ELECTRIC COMPANY (INCLUDING C	1		\$0	\$568,170	\$568,170
J4	TELEPHONE COMPANY (INCLUDI	3	0.2410	\$0	\$269,430	\$269,430
J7	CABLE TELEVISION COMPANY	1		\$0	\$4,360	\$4,360
L1	COMMERCIAL PERSONAL PROPE	26		\$0	\$841,840	\$841,840
L2	INDUSTRIAL AND MANUFACTURIN	3		\$0	\$167,860	\$167,860
M1	TANGIBLE OTHER PERSONAL, MOB	12		\$127,110	\$470,510	\$409,535
X	TOTALLY EXEMPT PROPERTY	71	77.3461	\$0	\$30,297,820	\$0
Totals			515.7382	\$451,950	\$73,439,400	\$38,356,233

Figure 40: Blooming Grove CAD Values

¹⁶ [Downloads – Navarro CAD – Official Site](#)

NAVARRO County		2022 CERTIFIED TOTALS			As of Certification	
Property Count: 13,492		CCO - CITY OF CORSICANA ARB Approved Totals			7/21/2022 3:34:37PM	
State Category Breakdown						
State Code	Description	Count	Acres	New Value	Market Value	Taxable Value
A	SINGLE FAMILY RESIDENCE	7,203	2,269.3095	\$9,034,800	\$835,503,893	\$764,888,058
B	MULTIFAMILY RESIDENCE	225	118.1963	\$52,860	\$66,209,985	\$66,123,750
C1	VACANT LOTS AND LAND TRACTS	1,782	1,200.8933	\$0	\$39,438,292	\$39,426,792
D1	QUALIFIED OPEN-SPACE LAND	138	2,484.6570	\$0	\$17,487,860	\$279,430
D2	IMPROVEMENTS ON QUALIFIED OPE	10		\$0	\$68,000	\$68,000
E	RURAL LAND, NON QUALIFIED OPE	90	940.2185	\$0	\$14,180,400	\$13,666,397
F1	COMMERCIAL REAL PROPERTY	1,044	1,343.3919	\$1,421,720	\$333,952,982	\$333,136,829
F2	INDUSTRIAL AND MANUFACTURIN	116	1,083.8148	\$25,672,242	\$242,615,120	\$216,999,632
G1	OIL AND GAS	9		\$0	\$28,400	\$28,400
J2	GAS DISTRIBUTION SYSTEM	5	0.5740	\$0	\$11,486,450	\$11,486,450
J3	ELECTRIC COMPANY (INCLUDING C	15	45.3440	\$0	\$30,275,770	\$30,275,770
J4	TELEPHONE COMPANY (INCLUDI	22	9.4534	\$0	\$4,202,230	\$4,202,230
J5	RAILROAD	28	6.3287	\$0	\$13,131,490	\$13,131,490
J6	PIPELAND COMPANY	37	33.8140	\$0	\$4,754,710	\$4,724,590
J7	CABLE TELEVISION COMPANY	4	2.2270	\$0	\$6,215,390	\$6,215,390
J8	OTHER TYPE OF UTILITY	1	5.0000	\$0	\$108,900	\$108,900
L1	COMMERCIAL PERSONAL PROPE	1,170		\$0	\$93,866,980	\$93,755,385
L2	INDUSTRIAL AND MANUFACTURIN	270		\$36,659,705	\$490,807,030	\$420,197,530
M1	TANGIBLE OTHER PERSONAL, MOB	309		\$1,253,110	\$7,352,910	\$7,085,807
O	RESIDENTIAL INVENTORY	120	29.5613	\$348,210	\$1,021,410	\$1,021,410
S	SPECIAL INVENTORY TAX	44		\$0	\$16,741,690	\$16,741,690
X	TOTALLY EXEMPT PROPERTY	1,063	3,820.1161	\$7,900,040	\$298,842,687	\$0
Totals		13,392.8998	13,392.8998	\$82,342,687	\$2,528,292,579	\$2,043,563,930

Figure 41: Corsicana CAD Values

NAVARRO County		2022 CERTIFIED TOTALS			As of Certification	
Property Count: 1,054		CKE - CITY OF KERENS ARB Approved Totals			7/21/2022 3:34:37PM	
State Category Breakdown						
State Code	Description	Count	Acres	New Value	Market Value	Taxable Value
A	SINGLE FAMILY RESIDENCE	600	204.8044	\$433,800	\$52,251,350	\$45,451,334
B	MULTIFAMILY RESIDENCE	2	4.2220	\$0	\$733,870	\$733,870
C1	VACANT LOTS AND LAND TRACTS	194	72.1975	\$0	\$1,565,122	\$1,565,122
D1	QUALIFIED OPEN-SPACE LAND	30	734.1840	\$0	\$5,012,120	\$172,750
E	RURAL LAND, NON QUALIFIED OPE	15	121.5630	\$0	\$1,408,580	\$1,404,825
F1	COMMERCIAL REAL PROPERTY	85	89.2916	\$28,250	\$9,882,190	\$9,882,190
J2	GAS DISTRIBUTION SYSTEM	2	0.1150	\$0	\$1,026,960	\$1,026,960
J3	ELECTRIC COMPANY (INCLUDING C	2	1.0000	\$0	\$2,534,970	\$2,534,970
J4	TELEPHONE COMPANY (INCLUDI	3	0.1148	\$0	\$546,660	\$546,660
J5	RAILROAD	2		\$0	\$2,576,700	\$2,576,700
J6	PIPELAND COMPANY	1		\$0	\$21,200	\$20,140
J7	CABLE TELEVISION COMPANY	1		\$0	\$13,660	\$13,660
L1	COMMERCIAL PERSONAL PROPE	59		\$0	\$1,629,880	\$1,629,880
L2	INDUSTRIAL AND MANUFACTURIN	1		\$0	\$85,810	\$85,810
M1	TANGIBLE OTHER PERSONAL, MOB	5		\$274,560	\$348,460	\$343,618
S	SPECIAL INVENTORY TAX	1		\$0	\$5,410	\$5,410
X	TOTALLY EXEMPT PROPERTY	66	67.8112	\$0	\$20,114,660	\$0
Totals		1,295.3035	1,295.3035	\$736,610	\$99,757,602	\$67,993,899

Figure 42: Kerens CAD Values

NAVARRO County		2022 CERTIFIED TOTALS				As of Certification	
Property Count: 50,713		CAD - Appr Dist		ARB Approved Totals		7/21/2022	3:34:37PM
CAD State Category Breakdown							
State Code	Description	Count	Acres	New Value	Market Value	Taxable Value	
A	conv code A	6		\$0	\$29,250	\$29,250	
A1	SINGLE FAMILY RESIDENCE	3	1.1060	\$0	\$52,630	\$51,946	
A2	MOBILE HOMES	11,492	9,109.3259	\$34,332,710	\$1,428,717,834	\$1,309,487,248	
A3	SINGLE FAMILY RESIDENCE WATERF	2,460	4,325.7298	\$5,637,760	\$153,054,320	\$136,696,528	
A4	SINGLE FAMILY RES (IMP ONLY)	949	1,474.8598	\$44,613,370	\$569,644,800	\$506,038,228	
A5	MISCELLANEOUS IMP	44		\$65,000	\$3,742,810	\$3,583,926	
A6	REAL, RESIDENTIAL, CONDOMINIUM	970	244.5096	\$1,141,140	\$20,876,021	\$20,286,550	
B		49		\$25,000	\$9,039,050	\$8,957,775	
B1	MULTIFAMILY-APARTMENTS	2	18.6980	\$0	\$4,250,205	\$4,250,205	
B2	DUPLEX	86	76.0875	\$0	\$42,464,790	\$42,464,790	
B3	DUPLEX (SPLIT)	152	36.6508	\$160,430	\$22,387,360	\$22,309,125	
C1	RES VACANT LOT	1		\$0	\$170,800	\$170,800	
C1C	COMMERCIAL VACANT LOT	2,524	1,303.4882	\$3,040	\$25,526,985	\$25,500,395	
C2	COMMERCIAL VACANT LOT	365	810.6642	\$0	\$28,904,582	\$28,904,582	
C2E	EXEMPT COMM LAND	12	13.6480	\$0	\$445,660	\$445,660	
C3	LOTS OUTSIDE CITY	4	1.6660	\$0	\$41,180	\$41,180	
C4	OFF WATER LOTS	2,409	2,878.0846	\$0	\$36,632,862	\$36,602,263	
C5	WATERFRONT LOTS	1,862	2,299.2273	\$38,480	\$50,142,500	\$50,070,500	
D1	QUALIFIED AG LAND	1,122	1,211.9470	\$366,570	\$144,292,310	\$144,213,426	
D2	IMPROVEMENTS ON QUALIFIED OPE	10,427	539,966.9985	\$0	\$2,207,729,199	\$71,126,996	
D3	MIXED LAND	1,367		\$1,024,820	\$17,121,274	\$17,019,348	
D4	REAL, ACREAGE, UNDEVELOPED LA	5	150.8200	\$0	\$553,401	\$49,060	
E		3	19.5010	\$0	\$241,430	\$241,430	
E1	FARM OR RANCH IMPROVEMENT	2	1.6822	\$0	\$248,551	\$248,551	
E2	REAL, FARM/RANCH, MOBILE HOME	4,764	6,114.7047	\$25,604,160	\$658,213,123	\$590,390,563	
E3	REAL, FARM/RANCH, OTHER IMPROV	1,305	1,877.8950	\$2,397,990	\$73,521,130	\$64,415,702	
E4	REAL, RESIDENTIAL-RES REMOVED+	262	53.2340	\$347,050	\$3,391,100	\$3,343,894	
ENA	NON-QUALIFIED AG LAND	2	29.0000	\$11,920	\$244,210	\$244,210	
F1	REAL, COMMERCIAL	3,193	40,458.2955	\$0	\$310,839,830	\$308,229,457	
F1E	EXEMPT COMMERCIAL PROPERTY	1,477	2,342.2377	\$2,917,860	\$398,425,017	\$398,287,878	
F2	REAL, INDUSTRIAL	5	59.0260	\$0	\$376,250	\$376,250	
F3	REAL, COMMERCIAL (IMP ONLY)	152	2,645.3318	\$29,330,730	\$372,878,400	\$372,878,400	
F4	REAL, COMMERCIAL PARKING LOTS	12		\$0	\$1,945,170	\$1,945,170	
G1	OIL AND GAS	3	0.4170	\$0	\$121,870	\$121,870	
J1	REAL & TANGIBLE PERSONAL, UTIL	1,625		\$0	\$12,614,160	\$12,614,160	
J2	REAL & TANGIBLE PERSONAL, UTIL	4	6.8690	\$0	\$130,440	\$130,440	
J2A	GAS DISTR - OTHER PROPERTY	24	17.2957	\$0	\$14,635,300	\$14,635,300	
J3	REAL & TANGIBLE PERSONAL, UTIL	3		\$0	\$149,860	\$149,860	
J4	REAL & TANGIBLE PERSONAL, UTIL	107	206.1595	\$0	\$156,101,120	\$156,101,120	
J4A	TELEPHONE UTILTY EQUIP	142	15.2232	\$0	\$15,373,210	\$15,373,210	
J5	REAL & TANGIBLE PERSONAL, UTIL	3		\$0	\$50,060	\$50,060	
J5A	RAILROAD OTHER PROPERTY	41	6.3287	\$0	\$78,996,130	\$78,996,130	
J6	REAL & TANGIBLE PERSONAL, UTIL	7		\$0	\$409,650	\$409,650	
J6A	PIPELINES OTHER PROPERTY	365	173.7660	\$0	\$451,001,540	\$449,449,810	
J7	REAL & TANGIBLE PERSONAL, UTIL	15		\$0	\$88,049,270	\$88,049,270	
J8	REAL & TANGIBLE PERSONAL, UTIL	17	2.2270	\$0	\$6,268,070	\$6,268,070	
L1	TANGIBLE, PERSONAL PROPERTY, C	4	5.8640	\$0	\$120,600	\$120,600	
L2A	INDUSTRIAL VEHICLES 1 TON & OVE	1,893		\$0	\$128,331,940	\$128,331,940	
L2C	INDUSTRIAL INVENTORY	8		\$0	\$12,318,770	\$12,318,770	
L2D	INDUSTRIAL TRAILERS	68		\$0	\$218,267,500	\$218,267,500	
L2G	INDUSTRIAL MACHINERY & EQUIPME	7		\$0	\$232,240	\$232,240	
L2H	INDUSTRIAL LEASED EQUIPMENT	130		\$60,617,117	\$296,133,100	\$286,701,900	
L2J	INDUSTRIAL FURNITURE & FIXTURE	28		\$0	\$6,321,650	\$6,321,650	
L2M	INDUSTRIAL VEHICLES TO 1 TON	43		\$0	\$2,806,720	\$2,806,720	
L2O	INDUSTRIAL COMPUTERS	26		\$0	\$4,729,230	\$4,729,230	
L2P	INDUSTRIAL RADIO TOWERS	17		\$0	\$3,274,400	\$3,274,400	
L2Q	INDUSTRIAL RADIO TOWER EQUIPM	58		\$0	\$4,129,120	\$4,129,120	
L2T	INDUSTRIAL SALT WATER DISPOS	74		\$0	\$4,737,700	\$4,737,700	
M1	TANGIBLE OTHER PERSONAL, MOBI	1		\$0	\$22,520	\$22,520	
O1	INVENTORY, VACANT RES LAND	1,591		\$12,328,180	\$69,654,630	\$64,897,375	
O2	INVENTORY, IMPROVED RESIDENTI	230	425.7330	\$0	\$3,400,160	\$3,400,160	
S	SPECIAL INVENTORY	4	8.7983	\$348,210	\$589,090	\$589,090	
X	TOTALLY EXEMPT PROPERTY	69		\$0	\$20,035,850	\$20,035,850	
		4,350	57,232.3331	\$9,058,940	\$560,077,412	\$0	

Figure 43: County CAD Values

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 Planning Team used FEMA’s Resilience Analysis and Planning Tool (RAPT) to generate an inventory and map of critical facilities within the jurisdictions.

Table 32: Fire Stations

Name	Address	City
Blooming Grove Volunteer Fire Department	101 Hinckley Street	Blooming Grove

Name	Address	City
Corsicana Fire Department Station 3	2212 West 2nd Avenue	Corsicana
Corsicana Fire Department Central Station	200 North 12th Street	Corsicana
Retreat Volunteer Fire Department	Farm To Market Road 2555 And Farm To Market Road 709	Corsicana
Corsicana Fire Department Station 2	310 South 2nd Street	Corsicana
Corsicana Fire Department Station 4	3009 North Beaton Street	Corsicana
Mustang Volunteer Fire Department	109 Furrh Street	Corsicana
Angus Volunteer Fire Department	6008 South Interstate Highway 45 West	Corsicana
Navarro Volunteer Fire Department	150 North Harvard Avenue	Corsicana
Mildred Volunteer Fire Department	5417 Farm To Market Road 637	Corsicana
Richland Chambers 287 Fire and Rescue	9924 South Us Highway 287	Corsicana
Kerens Volunteer Fire Department	205 Southeast 3rd Street	Kerens

Table 33: Local Law Enforcement Locations

Name	Address	Type	City
Blooming Grove Independent School District Police Department	212 West Grady Street	Special Jurisdiction	Blooming Grove
Blooming Grove Police Department	200 South Fordyce Street	Local Police Department	Blooming Grove
Navarro College Department of Public Safety	3200 West 7th Avenue, Gibson Hall Student Center	Special Jurisdiction	Corsicana
Corsicana Police Department	200 North 12th Street	Local Police Department	Corsicana
Navarro County Sheriffs Office / Navarro County Jail	312 West 2nd Avenue	Sheriff's Office	Corsicana
Corsicana Independent School District Police Department	601 North 13th Street	Special Jurisdiction	Corsicana
Corsicana Independent School District Police Department	3701 West State Highway 22	Special Jurisdiction	Corsicana
Kerens Police Department	200 South Colket Street	Local Police Department	Kerens

Table 34: Mobile Home Parks

Name	Address	Type	City
Country Village Mobile Home	913 Cottonwood Circle	Mobile Home Park	Corsicana
Not Available	1800 S Business 45	Mobile Home Park	Corsicana

Name	Address	Type	City
Not Available	1732 Us 287	Mobile Home Park	Corsicana
Sandell Mhp	4329 West Park Row	Mobile Home Park	Corsicana
Not Available	4355 W 7th Ave	Recreational Vehicle Park	Corsicana
Not Available	1802 Lake Halbert Rd	Mobile Home Park	Corsicana
Oaks Mhp	2900 North Business 45	Mobile Home Park	Corsicana
Oak Shadows Mhp	3100 North Business 45	Mobile Home Park	Corsicana
Not Available	1821 Fm-1839	Mobile Home Park	Corsicana

Table 35: Nursing Homes

Name	Address	Type	Beds	City
Country Meadows Nursing & Rehabilitation Center	3301 W Park Row Blvd	Nursing Home	96	Corsicana
Brookdale Corsicana	3329 W 7th Ave	Assisted Living	50	Corsicana
Twilight Home	3001 W Fourth Ave	Nursing Home	102	Corsicana
The Village at Heritage Oaks - Alf	3002 W. 2nd Ave.	Assisted Living	92	Corsicana
The Village at Heritage Oaks	3002 W. 2nd Ave.	Nursing Home	107	Corsicana
Legacy West Rehabilitation and Healthcare	3300 W. 2nd Ave.	Nursing Home	148	Corsicana
Epic Nursing & Rehabilitation	3210 W. Hwy 22	Nursing Home	124	Corsicana
Kerens Care Center	809 Ne 4th St.	Nursing Home	70	Kerens

Table 36: Places of Worship

Name	Street	City
Corsicana Full Gospel Church Incorporated	1808 W 10th Ave	Corsicana
Iglesia Sinai	2708 W 8th Ave	Corsicana
Welcome to The Full Gospel Outreach Center Ministry Inc	223 Ingham Rd	Corsicana
Trinity Christian Fellowship	2410 W 6th Ave	Corsicana
Hopewell Community Church of The Ag	503 S 15th St	Corsicana
Masters Feedstore	1422 W 4th Ave	Corsicana
New Birth Ministry	105 W 13th Ave	Corsicana
Saint Johns Episcopal Church	101 N 14th St	Corsicana
Brothers Keeper	1704 Sycamore Ave	Corsicana
Open The Blind Eyes True Holiness Ministries	400 E 12th Ave	Corsicana
Corsicana Christian Center	705 N 24th St	Corsicana
Harmony Christian Ministries	Po Box 383	Corsicana
Trinity Assembly of God	Po Box 2316	Corsicana
Jesus House of Prayer Church Inc	Po Box 1993	Corsicana
Milk & Honey Ministries	Po Box 595	Corsicana

Name	Street	City
That Church of The Assemblies of God	Po Box 757	Corsicana
Corsicana Word Alive Church	Po Box 1897	Corsicana
Trinity Assembly of God	Po Box 2316	Corsicana
Agape Christian Fellowship Church Inc 1902 W 5th Ave & 38th St	Po Box 1976	Corsicana
Single Believers Ministries	Po Box 1375	Corsicana
Immaculate Conception Church	Po Box 798	Corsicana
Anglican Rite Jurisdiction of The Americas	Po Box 881	Corsicana
Spot Community Worship Center	125 N Commerce St	Corsicana
Dayspring Apostolic Network	3324 W 2nd Ave	Corsicana
Thirteenth Avenue Christian Church	817 E 13th Ave	Corsicana
Freedom Fellowship Corsicana	323 N Commerce St	Corsicana
Christs Tabernacle of Praise Ministries	809 N 13th St	Corsicana
Young Mens Christian Association Corsicana	400 Oaklawn Ave	Corsicana
Legacy Bible Academy	212 Oaklawn Ave	Corsicana
Westside Baptist Church	1522 N 24th St	Corsicana
Church of The Living God P G T	517 S Powell St	Corsicana
Mision Cristiana El Calvario	1222 Lexington Sq	Corsicana
Calvary Worship Center	1364 N Beaton St	Corsicana
Family Life Church Upci	1904 N Beaton St	Corsicana
Pentecostal Holiness Church	3900 Fm 744	Corsicana
Living Word Christian Fellowship of Texas Inc	3900 Fm 744	Corsicana
Navarro County Wildlife Management Association	2209 Dartmouth Ln	Corsicana
Corsicana-House of Praise	629 Madison Dr	Corsicana
Faith Lutheran Church	3824 W Hwy 22	Corsicana
Lone Star Cowboy Church of The Nazarene of Navarro County	4495 W Hwy 22	Corsicana
Eureka Truth Ministry	8626 Hwy 287 S	Corsicana
Tree Of Life Global Ministry	514 Se County Road 3115	Corsicana
Faith Outreach Family Church	Po Box 146	Kerens
Benedictine Monastery of Thien Tam Inc	13055 Se County Road 4271	Kerens

Table 37: Prison Boundaries

Name	Address	Secure Level	Capacity	City
Navarro County Jail	312 W 2nd Ave	Not Available	290	Corsicana
TYC Corsicana Residential Treatment Center	4000 West 2nd Avenue	Juvenile	-999	Corsicana

Table 38: Public Health Department

Name	Address	City
Corsicana Navarro County Health Department	618 North Main Street	Corsicana

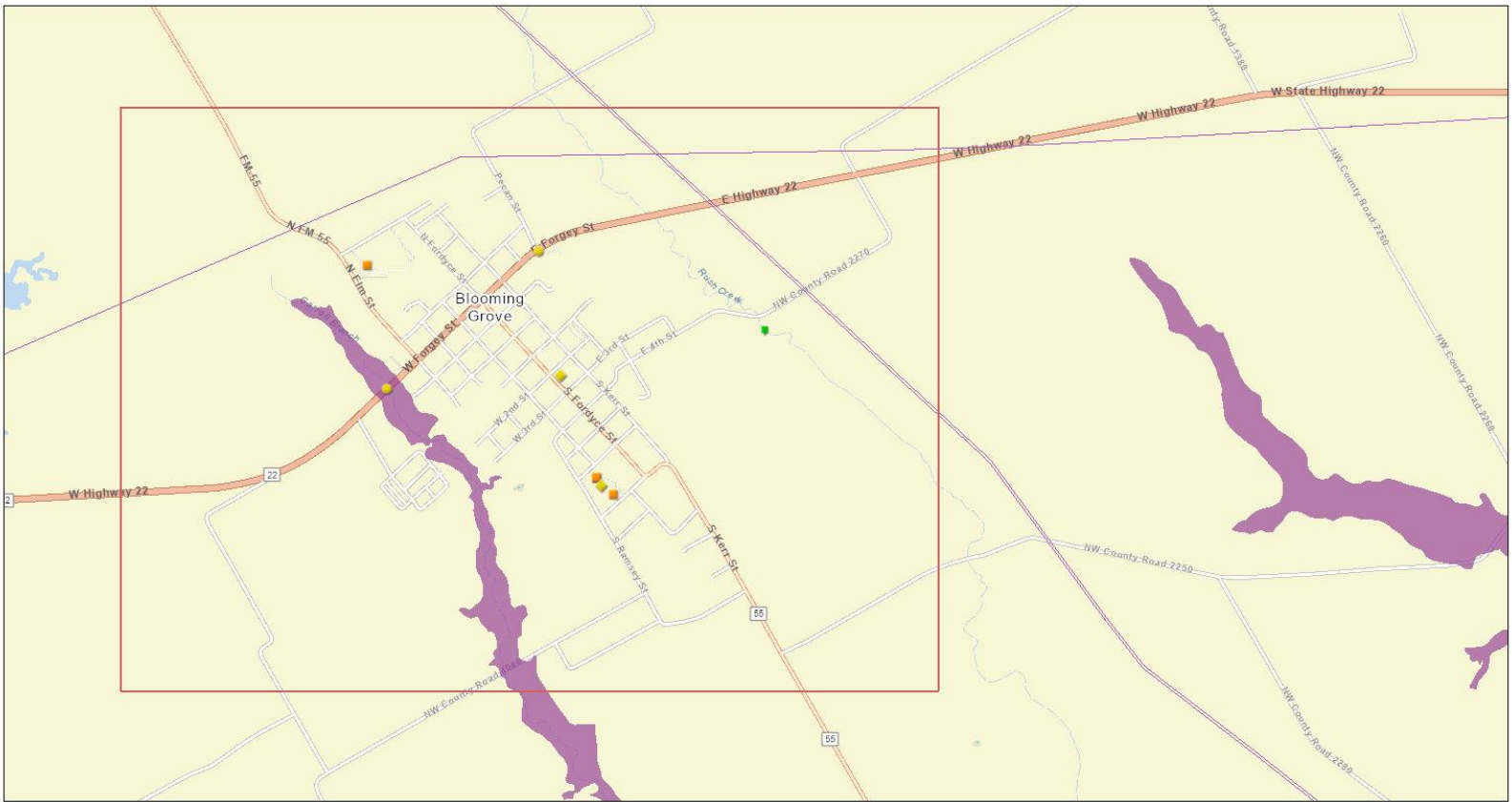
Table 39: Public Schools

Name	Address	Level	Enrollment	Start Grade	End Grade	City
Blooming Grove HS	212 W Grady St	High	288	9	12	Blooming Grove
Blooming Grove JH	604 Ramsey St	Middle	212	6	8	Blooming Grove
Blooming Grove JH	604 Ramsey St	Elementary	215	6	8	Blooming Grove
Blooming Grove EL	601 N Fm 55	Elementary	394	Pk	5	Blooming Grove
Drane Early Learning Center	100 S 18th St	Elementary	0	Pk	Pk	Corsicana
Sam Houston EL	1213 W 4th Ave	Middle	419	Pk	4	Corsicana
Jose Antonio Navarro EL	601 S 45th St	Middle	559	Kg	4	Corsicana
Two Dimensions at Corsicana	901 E 10th Ave	Elementary	59	Pk	Kg	Corsicana
Carroll EL	1101 E 13th Ave	High	508	Pk	4	Corsicana
Dawson DAEP	705 N Beaton	Middle	0	Kg	12	Corsicana
Navarro County AEP/ABC	705 N Beaton	Elementary	2	9	11	Corsicana
Bowie EL	1800 Bowie Dr	Middle	538	Kg	4	Corsicana
Corsicana High School	3701 W Hwy 22	Other	1712	9	12	Corsicana
Collins Int	1500 Dobbins Rd	Elementary	903	5	6	Corsicana
Corsicana Middle	4101 Fm 744	Middle	907	7	8	Corsicana
Corsicana Middle	4101 Fm 744	Elementary	980	7	8	Corsicana
Fannin EL	3201 N Beaton	Elementary	440	Kg	4	Corsicana
Mildred EL	5475 S Hwy 287	Ungraded	348	Pk	5	Corsicana

Name	Address	Level	Enrollment	Start Grade	End Grade	City
Mildred HS	5475 S Hwy 287	Elementary	407	6	12	Corsicana
Kerens School	200 Bobcat Ln	Middle	570	Pk	12	Kerens

The following RAPT-generated jurisdictional maps reflect the location of the facilities listed in the tables above.

Blooming Grove RAPT Map



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Flood Hazard (zoom to activate)

1% Annual Chance Flood Hazard

County Boundaries (click on county for data on 22 CRCI Indicators)

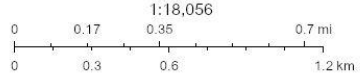
Local Law Enforcement Locations

SNAP Authorized Retailer Locations (zoom to activate)

Public Schools

Transmission Lines

Wastewater Treatment Plants (EPA)



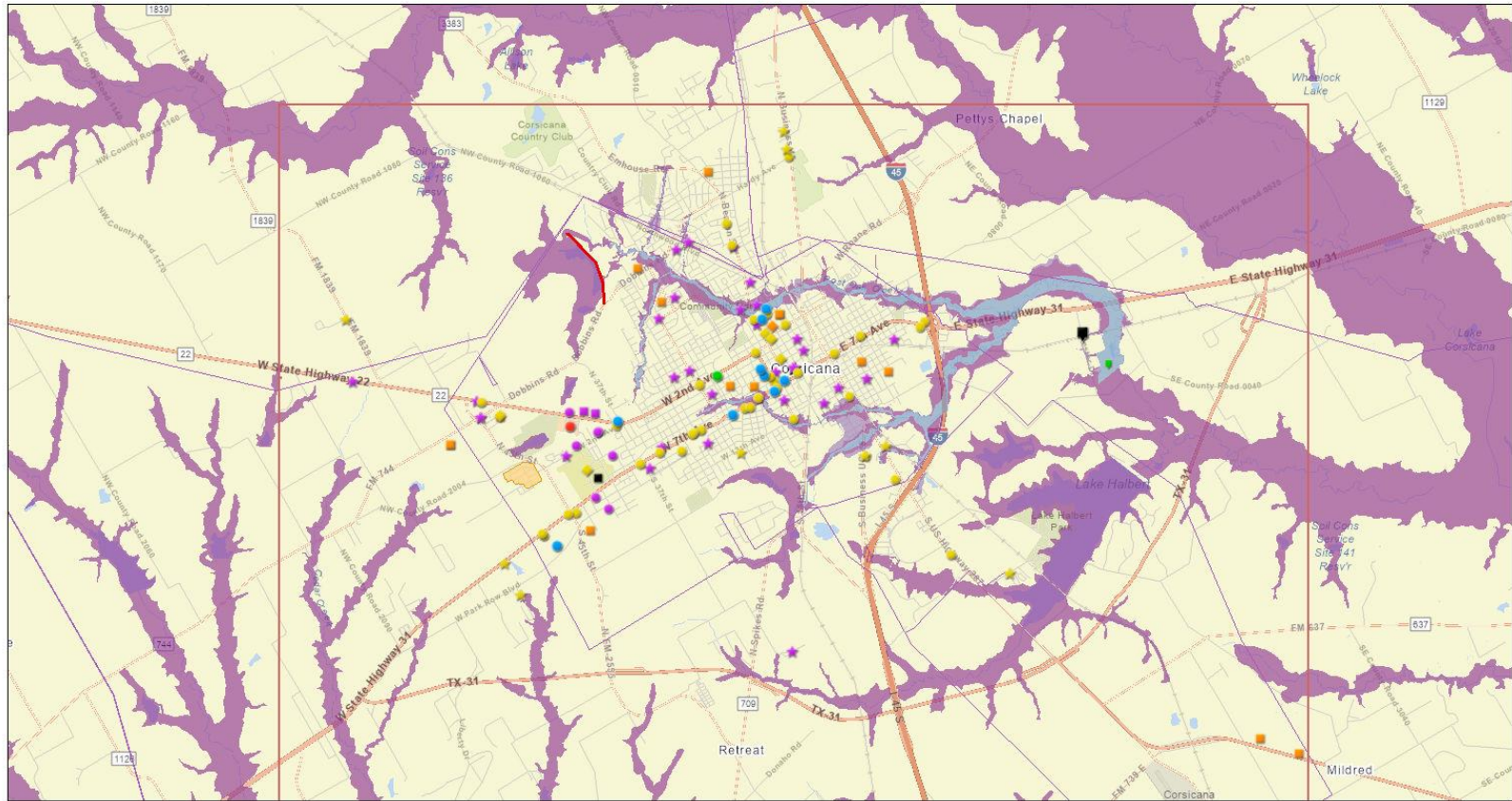
Eri Community Maps Contributors, Baylor University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, MET/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Resilience Analysis and Planning Tool

Eri Community Maps Contributors, Baylor University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, MET/NASA, USGS, EPA, NPS, US Census Bureau, USDA | NOAA/NWS/SPC | NOAA/NWS/CPC and NOAA/NWS/WPC | NOAA/NWS/WPC | National Weather Service |

Figure 44: Blooming Grove RAPT Map

Corsicana RAPT Map

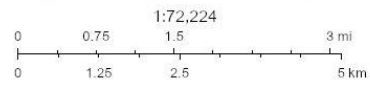


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- Flood Hazard (zoom to activate)
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Regulatory Floodway
- County Boundaries (click on county for data on 22 CRCI Indicators)
- Hospitals
- Dialysis Centers (RxOpen)
- Mobile Home Parks

- Pharmacies (RxOpen)
- Nursing Homes
- Public Health Departments
- Local Law Enforcement Locations
- SNAP Authorized Retailer Locations (zoom to activate)
- Places of Worship
- Colleges and Universities

- Private Schools
- Public Schools
- Prison Boundaries
- Transmission Lines
- Wastewater Treatment Plants (EPA)
- Solid Waste Landfill Facilities
- High Hazard Dam Lines



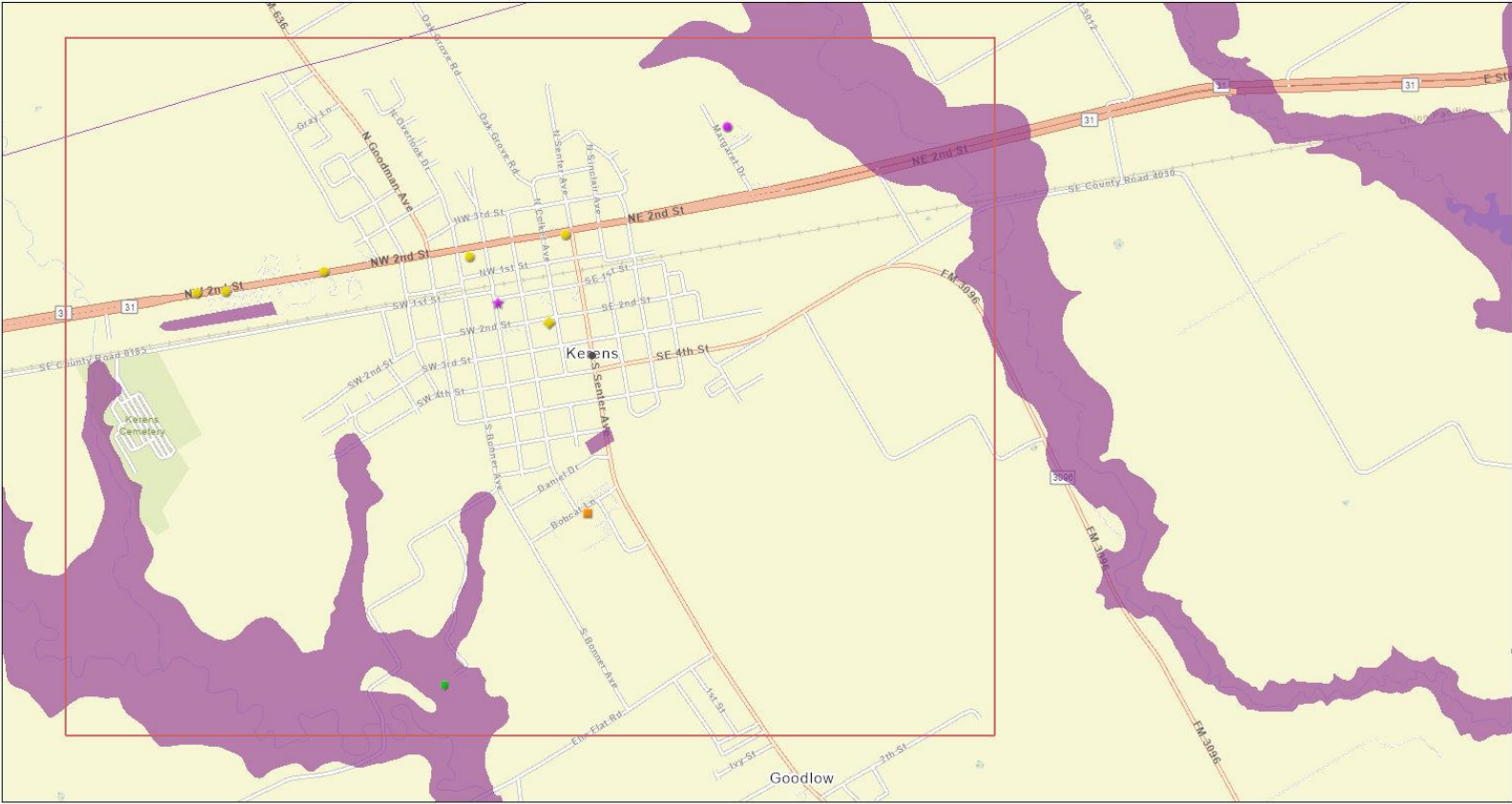
Baylor University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

Resilience Analysis and Planning Tool

Baylor University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA | NOAA/NWS/SPC | NOAA/NWS/CPC and NOAA/NWS/WPC | NOAA/NWS/WFC | National Weather Service | NOAA Office for Coastal Management | NOAA/NWS/

Figure 45: Corsicana RAPT Map

Kerens RAPT Map



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Flood Hazard (zoom to activate)

1% Annual Chance Flood Hazard

County Boundaries (click on county for data on 22 CRCI Indicators)

Nursing Homes

Local Law Enforcement Locations

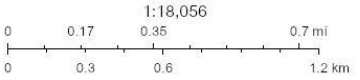
SNAP Authorized Retailer Locations (zoom to activate)

Places of Worship

Public Schools

Transmission Lines

Wastewater Treatment Plants (EPA)



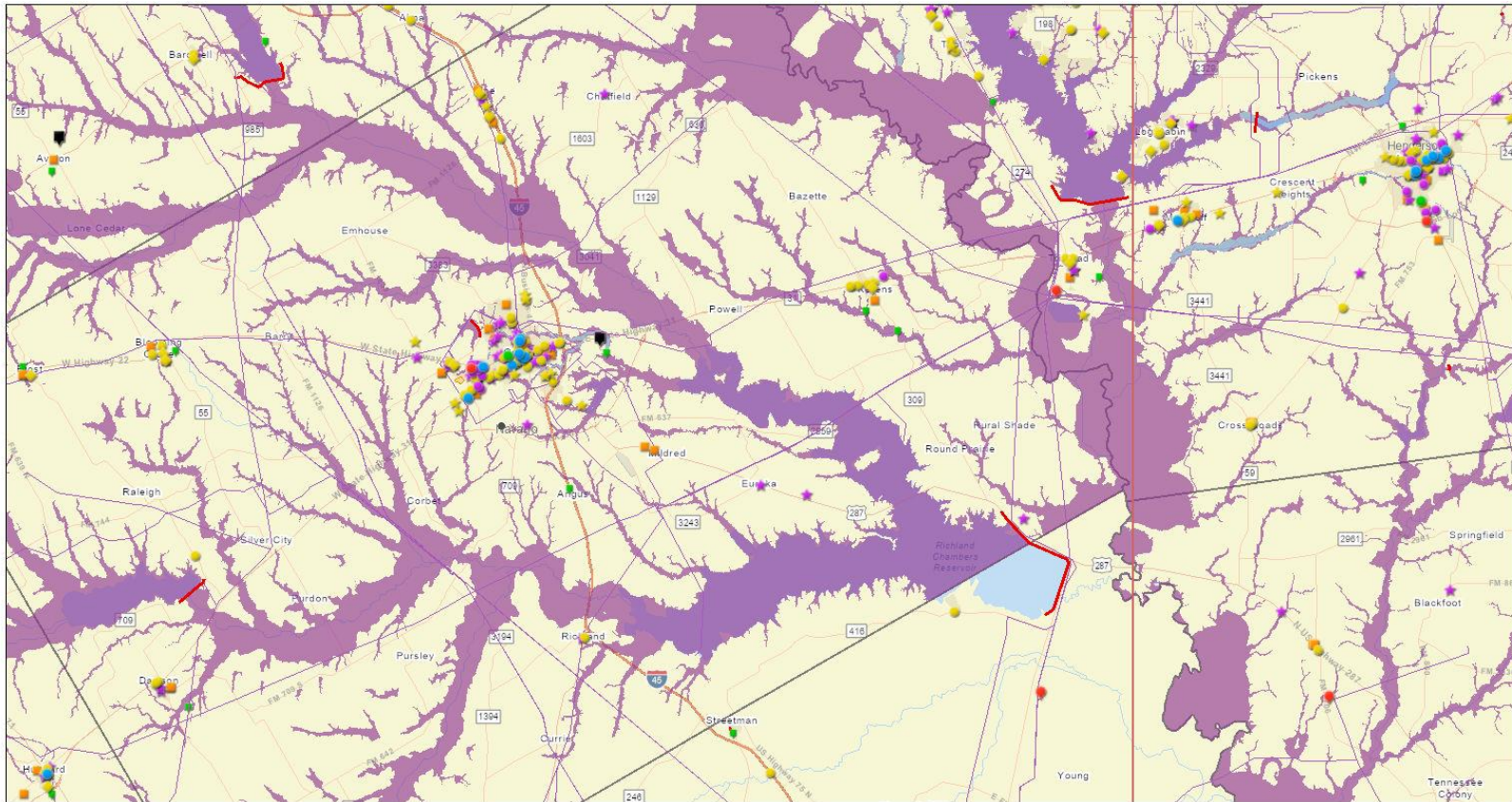
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Resilience Analysis and Planning Tool

Esri Community Maps Contributors, Baylor University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA | NOAA/NWS/SPC | NOAA/NWS/CPC and NOAA/NWS/WPC | NOAA/NWS/WPC | National Weather Service |

Figure 46: Kerens RAPT Map

Navarro County RAPT Map



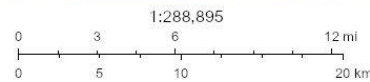
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Flood Hazard (zoom to activate)

- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Regulatory Floodway
- County Boundaries (click on county for data on 22 CRCI Indicators)
- Hospitals

- Dialysis Centers (RxOpen)
- Mobile Home Parks
- Pharmacies (RxOpen)
- Nursing Homes
- Power Plants
- Public Health Departments
- Local Law Enforcement Locations
- SNAP Authorized Retailer Locations (zoom to activate)
- Places of Worship
- Colleges and Universities
- Private Schools

- Public Schools
- Prison Boundaries
- Transmission Lines
- Wastewater Treatment Plants (EPA)
- Solid Waste Landfill Facilities
- High Hazard Dam Lines



Baylor University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA

Resilience Analysis and Planning Tool
 Baylor University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA | NOAA/NWS/SPC | NOAA/NWS/CPC and NOAA/NWS/WPC | NOAA/NWS/WPC | National Weather Service | NOAA Office for Coastal Management | NOAA/NWS/NHC | NOAA/NWS/NWC |

Figure 47: Navarro County RAPT Map

Another sector of the built environment that is vulnerable to hazards are 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.

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.¹⁷
- responsible for ensuring that their dam is in compliance with the Texas Commission on Environmental Quality’s (TCEQ) regulations regarding emergency action plans.¹⁸

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.

Table 40: Dam Safety Actions

Responsible Parties	Dam Related Safety Activities
Dam Owners/Operators	<ul style="list-style-type: none"> • Identification of emergency at dam • Initial notifications • Implementation of repairs • Security and technical assistance on site
Local Emergency Management and Local Responders	<ul style="list-style-type: none"> • Public warning • Possible evacuation • Shelter plan activated • Rescue and recovery • State of Emergency declaration • Termination of emergency status
State Emergency Management	<ul style="list-style-type: none"> • Aid affected area when requested • Coordinate specialized assistance • Notify appropriate state agencies • Determine who does what in an emergency

The map below from the U.S. Army Corps of Engineers (USACE) National Inventory of Dams (NID) shows the 117 total dams in Navarro County.¹⁹

¹⁷ <https://damsafety-prod.s3.amazonaws.com/s3fs-public/files/All%20-%20Dam%20Owner%20Fact%20Sheets%202019.pdf> Dam Ownership Fact Sheet. 2018.

¹⁸ <https://www.tceq.texas.gov/compliance/investigation/damsafetyprog.html> For the most up-to-date information, contact TCEQ directly.

¹⁹ [National Inventory of Dams \(army.mil\)](http://www.army.mil/nid/)

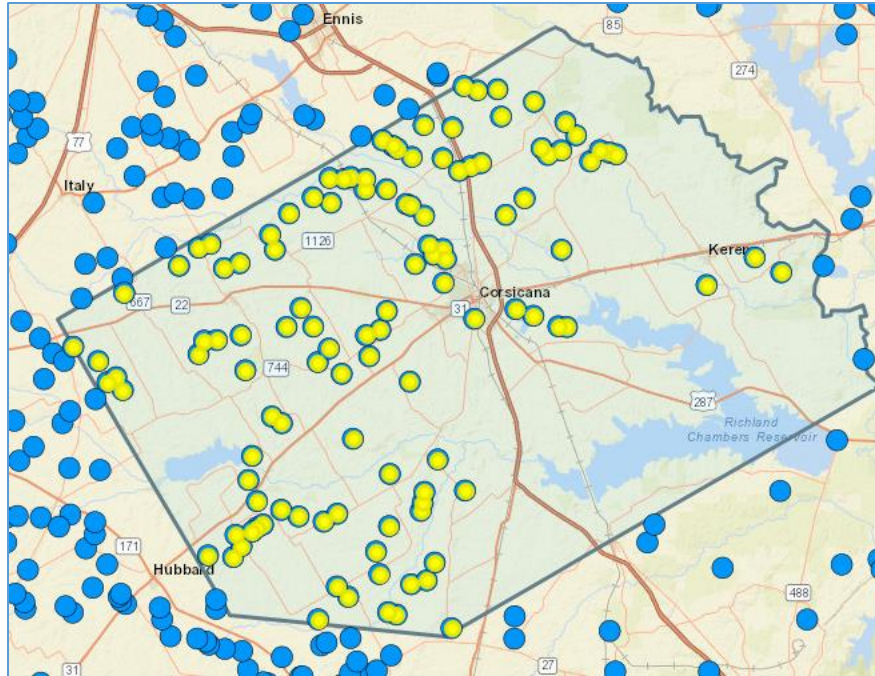


Figure 48: Map of Dams in Navarro County

The following is a list of the dams in Navarro County provided by the United States Army Corps of Engineers.

Table 41: Dams in Navarro County

Dam Name	NID ID	Owner Names	Dam Height (Ft)	Dam Length (Ft)	Volume (Cubic Yards)	Drainage Area (Sq Miles)	Hazard Potential Classification
Richland Creek WS SCS Site 129 Dam	TX026 49	NAVARRO COUNTY;NAVARRO SWCD	22	1282	0	1.79	Low
Richland Creek WS SCS Site 107b Dam	TX026 30	NAVARRO CO SWCD;NAVARRO COUNTY	29	1120	30312	1.16	Low
Richland Creek WS SCS Site 111 Dam	TX026 38	NAVARRO COUNTY;NAVARRO SWCD	30	1024	45640	0.44	Low
Richland Creek WS SCS Site 100a Dam	TX026 12	NAVARRO COUNTY;NAVARRO SWCD	31	1613	74870	4.28	Low
Richland Creek WS SCS Site 98a Dam	TX026 11	NAVARRO COUNTY;NAVARRO SWCD	36	1800	94170	7.35	Low
Richland Creek WS SCS Site 107a Dam	TX026 29	NAVARRO COUNTY;NAVARRO SWCD	31	1265	59710	1.61	Low
Richland Creek WS SCS Site 113 Dam	TX026 36	NAVARRO COUNTY;NAVARRO SWCD	26	2660	84400	1.28	Low
Grays Creek WS SCS Site 5 Dam	TX026 15	NAVARRO COUNTY;NAVARRO SWCD	33	2205	121000	3.2	Low
Richland Creek WS SCS Site 31 Dam	TX026 24	NAVARRO COUNTY;NAVARRO SWCD	35	4493	233510	10.98	Low
Richland Creek WS SCS Site 101 Dam	TX026 09	NAVARRO COUNTY;NAVARRO SWCD	37	1214	57011	1.73	Low
Richland Creek WS SCS Site 136rev Dam	TX045 88	NAVARRO COUNTY;NAVARRO SWCD	34	1636	90580	1.4	Low
Richland Creek WS SCS Site 115 Dam	TX026 51	NAVARRO COUNTY;NAVARRO SWCD	31	1415	61077	0.89	Low

Dam Name	NID ID	Owner Names	Dam Height (Ft)	Dam Length (Ft)	Volume (Cubic Yards)	Drainage Area (Sq Miles)	Hazard Potential Classification
Richland Creek WS SCS Site 110 Dam	TX026 34	NAVARRO COUNTY;NAVARRO SWCD	30	1967	98895	1.31	Low
Grays Creek WS SCS Site 9 Dam	TX025 79	NAVARRO COUNTY;NAVARRO SWCD	32	1773	90000	2.46	Low
Richland Creek WS SCS Site 33 Dam	TX026 48	NAVARRO COUNTY;NAVARRO SWCD	30	1425	57220	1.57	Low
Chambers Creek WS SCS Site 128 Dam	TX025 74	NAVARRO COUNTY;NAVARRO SWCD	27	2163	121060	5.12	High
Chambers Creek WS SCS Site 121d-2 Dam	TX026 04	NAVARRO COUNTY;NAVARRO SWCD	25	1800	46160	0.38	Low
Richland Creek WS SCS Site 26 Dam	TX026 27	NAVARRO COUNTY;NAVARRO SWCD	25	2983	69770	2.2	Low
Grays Creek WS SCS Site 7c Dam	TX025 71	NAVARRO COUNTY;NAVARRO SWCD	30	1880	100000	1.32	Low
Chambers Creek WS SCS Site 101a Dam	TX026 08	NAVARRO COUNTY;NAVARRO SWCD	30	1778	64700	2.58	Low
Chambers Creek WS SCS Site 120b Dam	TX067 75	NAVARRO COUNTY;NAVARRO SWCD	22	830	0	250	Low
Chambers Creek WS SCS Site 103b Dam	TX026 13	NAVARRO COUNTY;NAVARRO SWCD	26	1110	49810	0.61	Low
Richland Creek WS SCS Site 123 Dam	TX025 90	NAVARRO COUNTY;NAVARRO SWCD	32	2065	83120	2.64	Low
Chambers Creek WS SCS Site 123b Dam	TX025 98	NAVARRO COUNTY;NAVARRO SWCD	30	1080	37650	0.97	Low
Richland Creek WS SCS Site 118 Dam	TX026 52	NAVARRO COUNTY;NAVARRO SWCD	27	2175	111600	3.73	Low
Richland Creek WS SCS Site 109 Dam	TX026 42	NAVARRO COUNTY;NAVARRO SWCD	22	822	27670	0.38	Low
Grays Creek WS SCS Site 104 Dam	TX025 77	NAVARRO COUNTY;NAVARRO SWCD	21	974	31100	0.38	Low
Richland Creek WS SCS Site 32 Dam	TX026 46	NAVARRO COUNTY;NAVARRO SWCD	23	1680	42470	2.35	Low
Chambers Creek WS SCS Site 131rev Dam	TX049 23	NAVARRO COUNTY;NAVARRO SWCD	37	1080	50450	1.74	Low
Richland Creek WS SCS Site 14 Dam	TX026 23	NAVARRO COUNTY;NAVARRO SWCD	22	3138	60130	0	Low
Richland Creek WS SCS Site 47 Dam	TX026 14	NAVARRO COUNTY;NAVARRO SWCD	27	1606	41290	0.71	Low
Richland Creek WS SCS Site 119a Dam	TX025 88	NAVARRO COUNTY;NAVARRO SWCD	33	4850	162240	7.64	Low
Chambers Creek WS SCS Site 127a Dam	TX045 28	NAVARRO COUNTY;NAVARRO SWCD	30	1530	71790	1.89	Low
Chambers Creek WS SCS Site 136 Dam	TX045 29	NAVARRO COUNTY;NAVARRO SWCD	27	1896	60980	2.93	Low
Richland Creek WS SCS Site 99 Dam	TX026 10	NAVARRO COUNTY;NAVARRO SWCD	26	1100	28325	0.86	Low
Chambers Creek WS SCS Site 141 Dam	TX025 62	NAVARRO COUNTY;NAVARRO SWCD	26	1165	0	0.53	Low
Chambers Creek WS SCS Site 140 Dam	TX025 63	NAVARRO COUNTY;NAVARRO SWCD	24	1380	0	0.72	Low
Richland Creek WS SCS Site 106a Dam	TX026 31	NAVARRO COUNTY;NAVARRO SWCD	35	1750	86350	2.7	Low
Chambers Creek WS SCS Site 105b Dam	TX025 86	NAVARRO COUNTY;NAVARRO SWCD	39	1128	0	0.79	Low
Richland Creek WS SCS Site 126 Dam	TX026 41	NAVARRO COUNTY;NAVARRO SWCD	30	1108	48350	1.21	Low

Dam Name	NID ID	Owner Names	Dam Height (Ft)	Dam Length (Ft)	Volume (Cubic Yards)	Drainage Area (Sq Miles)	Hazard Potential Classification
Chambers Creek WS SCS Site 123a Dam	TX025 99	NAVARRO COUNTY;NAVARRO SWCD	26	850	29767	0.85	Low
Richland Creek WS SCS Site 135d Dam	TX042 72	NAVARRO COUNTY;NAVARRO SWCD	26	950	40580	0.43	Low
Richland Creek WS SCS Site 135b Dam	TX042 71	NAVARRO COUNTY;NAVARRO SWCD	20	1388	34524	0.73	Low
Chambers Creek WS SCS Site 104b Dam	TX025 93	NAVARRO COUNTY;NAVARRO SWCD	33	1620	49810	1.13	Low
Chambers Creek WS SCS Site 124b Dam	TX057 88	NAVARRO COUNTY;NAVARRO SWCD	21	890	29210	0.51	Low
Chambers Creek WS SCS Site 121c Dam	TX026 06	NAVARRO COUNTY;NAVARRO SWCD	27	1740	74170	0.95	Low
Richland Creek WS SCS Site 12 Dam	TX026 32	NAVARRO COUNTY;NAVARRO SWCD	22	5980	128230	4.39	Low
Chambers Creek WS SCS Site 121 Dam	TX026 07	NAVARRO COUNTY;NAVARRO SWCD	31	1675	91000	1.67	Low
Richland Creek WS SCS Site 135a Dam	TX042 70	NAVARRO COUNTY;NAVARRO SWCD	29	2285	76815	2.51	Low
Grays Creek WS SCS Site 3 Dam	TX026 16	NAVARRO COUNTY;NAVARRO SWCD	28	2090	68000	1.5	Low
Richland Creek WS SCS Site 26a Dam	TX026 28	NAVARRO COUNTY;NAVARRO SWCD	20	1537	64730	2.01	Low
Richland Creek WS SCS Site 134 Dam	TX042 69	NAVARRO COUNTY;NAVARRO SWCD	40	4080	132455	3.13	Low
Chambers Creek WS SCS Site 121e Dam	TX026 03	NAVARRO COUNTY;NAVARRO SWCD	24	807	22760	0.37	Low
Richland Creek WS SCS Site 30 Dam	TX026 25	NAVARRO COUNTY;NAVARRO SWCD	27	1518	63535	0.99	Low
Richland Creek WS SCS Site 121 Dam	TX025 87	NAVARRO COUNTY;NAVARRO SWCD	22	2906	89690	1.58	Low
Richland Creek WS SCS Site 34 Dam	TX026 45	NAVARRO COUNTY;NAVARRO SWCD	24	1843	58405	0.86	Low
Richland Creek WS SCS Site 143a Dam	TX046 32	NAVARRO COUNTY;NAVARRO SWCD	28	3742	126450	1.28	Low
Grays Creek WS SCS Site 6 Dam	TX025 80	NAVARRO COUNTY;NAVARRO SWCD	30	1605	85000	2.25	Low
Grays Creek WS SCS Site 8 Dam	TX025 81	NAVARRO COUNTY;NAVARRO SWCD	22	1484	43357	0.82	Low
Grays Creek WS SCS Site 2 Dam	TX026 17	NAVARRO COUNTY;NAVARRO SWCD	27	2330	75000	1.69	Low
Chambers Creek WS SCS Site 124c Dam	TX067 76	NAVARRO COUNTY;NAVARRO SWCD	26	865	0	243	Low
Chambers Creek WS SCS Site 104a Dam	TX025 94	NAVARRO COUNTY;NAVARRO SWCD	26	1338	61460	1.3	Low
Grays Creek WS SCS Site 7b Dam	TX025 69	NAVARRO COUNTY;NAVARRO SWCD	28	2890	87797	3.06	Low
Chambers Creek WS SCS Site 129 Dam	TX025 72	NAVARRO COUNTY;NAVARRO SWCD	25	1840	85800	3.22	High
Richland Creek WS SCS Site 120 Dam	TX025 89	NAVARRO COUNTY;NAVARRO SWCD	25	3138	82590	1.93	Low
Richland Creek WS SCS Site 14a Dam	TX026 22	NAVARRO COUNTY;NAVARRO SWCD	22	2183	50740	1.49	Low
Chambers Creek WS SCS Site 119a Dam	TX025 95	NAVARRO COUNTY;NAVARRO SWCD	41	945	63260	1.37	Low
Chambers Creek WS SCS Site 124 Dam	TX025 97	NAVARRO COUNTY;NAVARRO SWCD	32	1376	72640	2.48	Low

Dam Name	NID ID	Owner Names	Dam Height (Ft)	Dam Length (Ft)	Volume (Cubic Yards)	Drainage Area (Sq Miles)	Hazard Potential Classification
Grays Creek WS SCS Site 4 Dam	TX02619	NAVARRO COUNTY;NAVARRO SWCD	28	1732	64000	1.38	Low
Richland Creek WS SCS Site 140 Dam	TX02583	NAVARRO COUNTY;NAVARRO SWCD	21	1570	41580	0.92	Low
Chambers Creek WS SCS Site 122a Dam	TX02602	NAVARRO COUNTY;NAVARRO SWCD	27	1185	51450	1.01	Low
Richland Creek WS SCS Site 36rev Dam	TX04753	NAVARRO COUNTY;NAVARRO SWCD	26	2040	90100	2.72	Low
Richland Creek WS SCS Site 15 Dam	TX02621	NAVARRO COUNTY;NAVARRO SWCD	30	4075	89470	3.14	Low
Richland Creek WS SCS Site 124 Dam	TX02591	NAVARRO COUNTY;NAVARRO SWCD	29	5590	136790	2.73	Low
Chambers Creek WS SCS Site 136a Dam	TX06932	NAVARRO COUNTY;NAVARRO SWCD	22	708	24022	0.4	Low
Chambers Creek WS SCS Site 130b Dam	TX06778	NAVARRO COUNTY;NAVARRO SWCD	20	1380	0	256	Low
Chambers Creek WS SCS Site 127b Dam	TX06777	NAVARRO COUNTY;NAVARRO SWCD	33	1462	0	0.9	Low
Richland Creek WS SCS Site 112 Dam	TX02637	NAVARRO COUNTY;NAVARRO SWCD	40	3680	129990	2.49	Low
Chambers Creek WS SCS Site 105a Dam	TX02592	NAVARRO COUNTY;NAVARRO SWCD	30	956	38438	0.9	Low
Grays Creek WS SCS Site 7a Dam	TX02570	NAVARRO COUNTY;NAVARRO SWCD	28	1430	48000	0.83	Low
Richland Creek WS SCS Site 116 Dam	TX02650	NAVARRO COUNTY;NAVARRO SWCD	26	1161	45700	0.65	Low
Richland Creek WS SCS Site 114 Dam	TX02635	NAVARRO COUNTY;NAVARRO SWCD	21	1471	39190	0.58	Low
Chambers Creek WS SCS Site 119b Dam	TX02596	NAVARRO COUNTY;NAVARRO SWCD	46	1280	108250	3.06	Low
Grays Creek WS SCS Site 105 Dam	TX02576	NAVARRO COUNTY;NAVARRO SWCD	25	1160	33550	0.67	Low
Richland Creek WS SCS Site 35 Dam	TX02644	NAVARRO COUNTY;NAVARRO SWCD	28	1525	66160	1.03	Low
Grays Creek WS SCS Site 103 Dam	TX02578	NAVARRO COUNTY;NAVARRO SWCD	23	1558	50060	0.55	Low
Richland Creek WS SCS Site 127 Dam	TX02640	NAVARRO COUNTY;NAVARRO SWCD	20	1148	43890	0.74	Low
Richland Creek WS SCS Site 29 Dam	TX02626	NAVARRO COUNTY;NAVARRO SWCD	20	1471	62230	1.43	Low
Richland Creek WS SCS Site 105 Dam	TX02643	NAVARRO COUNTY;NAVARRO SWCD	44	1580	110950	1.28	Low
Richland Creek WS SCS Site 137g Dam	TX02582	NAVARRO COUNTY;NAVARRO SWCD	29	2658	134070	9.21	High
Chambers Creek WS SCS Site 139 Dam	TX02564	CITY OF CORSICANA;NAVARRO COUNTY;NAVARRO SWCD	25	4695	0	2.98	High
Richland Creek WS SCS Site 137a Dam	TX02585	NAVARRO COUNTY;NAVARRO SWCD	29.1	1329	51850	1.24	High
Chambers Creek WS SCS Site 122b Dam	TX02600	NAVARRO COUNTY;NAVARRO SWCD	29	2150	102530	1.35	Significant
Chambers Creek WS SCS Site 124a-1 Dam	TX04527	NAVARRO COUNTY;NAVARRO SWCD	25	824	31740	0.61	Low
Richland Creek WS SCS Site 138 Dam	TX02584	NAVARRO COUNTY;NAVARRO SWCD	39.4	1870	83230	5.15	High
Chambers Creek WS SCS Site 120a Dam	TX06774	NAVARRO SWCD	39	550	0	371	Low

Dam Name	NID ID	Owner Names	Dam Height (Ft)	Dam Length (Ft)	Volume (Cubic Yards)	Drainage Area (Sq Miles)	Hazard Potential Classification
Richland Creek WS SCS Site 108 Dam	TX026 33	CITY OF DAWSON;NAVARRO COUNTY;NAVARRO SWCD	30	1383	67025	1.78	Low
Grays Creek WS SCS Site 1 Dam	TX026 18	NAVARRO COUNTY;NAVARRO SWCD	26	2350	95000	5.54	Low
Chambers Creek WS SCS Site 121d-1 Dam	TX026 05	NAVARRO COUNTY;NAVARRO SWCD	32	760	37960	0.39	Low
Kerens City Lake Dam	TX025 60	CITY OF KERENS	32	1200	0	6.2	Low
Magnolia Lake Dam	TX025 66	WATERFRONT CLUB ACQUISITIONS LLC	23	1000	0	0	Low
Cox Lake Dam	TX051 62	MRS COX	30	900	0	0	Low
Allison South Lake Dam	TX051 55	FRED ALLISON	27	1005	0	0	Low
New Wortham Lake Dam	TX048 46	ALVIS CALAME	10	600	0	0	Low
Thornton Lake Dam	TX062 94	JOHN KIMMEL	25	606	11187	0	Low
Hoffer Lake Dam	TX025 59	HW HOFFER	17	600	0	0	Low
Wheelock Lake Dam	TX051 61	WHEELOCK ESTATE	24	1105	0	0	Low
Butler Lake Dam	TX026 20	PO BUTLER	25	750	0	0	Low
Johnston Lake Dam	TX025 73	LAURA F JOHNSTON ET AL	20	1200	0	0	Low
Corsicana Country Club Lake	TX026 01	CORSICANA COUNTRY CLUB	24	800	0	0	Low
Robert Vernon Dam	TX072 84	ROBERT VERNON	27	3400	0	0	Low
Allison Lake Dam	TX051 12	BILL ALLISON;FRED ALLISON	13	600	0	0	Low
Carroll Lake Dam	TX026 47	JD CARROLL ET AL	19	1250	0	0	Low
Rice Lake Dam	TX025 75	KATHERINE EVANS	20	950	0	0	Significant
Lake Halbert Dam	TX025 68	CITY OF CORSICANA	49	3300	0	12	Significant
Corsicana Station Dam	TX025 67	SUNOCO PIPELINE LP	13	60	0	0	Low
Navarro Mills Dam	TX000 09	USACE - Fort Worth District	82	7570	2315000	320	High

In addition to facilities, 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.

The road inventory listed in Table 42 was obtained from the County Information Program's on-line [database](#), which compiled road information from the Texas Department of Transportation 2021 Annual Roadway Inventory Reports.²⁰

Table 42: Road Inventory Within Navarro County (TxDOT)

Centerline Miles - 2021	
IH Highways:	30.767
US Highways:	21.771
State Highways, Spurs, Loops, Business Routes:	111.653
Farm or Ranch to Market Roads and Spurs:	306.266
Pass, Park and Recreation Roads:	0
Frontage Roads:	52.856
On-System Subtotal:	523.313
City Streets:	284.253
Certified County Roads:	911.795
Toll Road Authority Roads:	0
Federal Roads:	12.796
Off-System Subtotal:	1,208.84
Center Line Miles: County Total:	1,732.16
Lane Miles - 2021	
IH Highways:	184.596
US Highways:	44.102
State Highways, Spurs, Loops, Business Routes:	328.845
Farm or Ranch to Market Roads and Spurs:	612.532
Pass, Park and Recreation Roads:	0
Frontage Roads:	105.712
On-System Subtotal:	1,275.79
City Streets:	568.506
Certified County Roads:	1,823.59
Toll Road Authority Roads:	0
Federal Roads:	25.592
Off-System Subtotal:	2,417.69
County Total:	3,693.48

²⁰ The data contained in the CID database are obtained from official sources and are not the product of the CIP. The CIP, therefore, does not expressly or impliedly warrant the accuracy of the data.

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 main lanes 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 main lanes 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 main lanes.
- **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 can be found at the following URL: <https://www.txdot.gov/inside-txdot/division/transportation-planning/roadway-inventory.html>. This document also contains extensive annotations regarding data criteria and calculations and is intended as a companion to these Annual Reports.

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.

The [Corsicana Thoroughfare Plan](#) provides the first step towards realizing the community’s vision for development by offering a foundation of sustainable infrastructure. The Thoroughfare Plan accommodates future trip demand (target year trip projections for 2036) in a city-wide thoroughfare system that recognizes form and configuration and relieves the growing constriction of the existing city grid. As Corsicana grows, the existing City grid will continue to experience greater congestion because of internal discontinuities, the transference of internally generated and incoming traffic volumes to limited through streets (such as Highway 31), the lack of needed cross movement, and older and undersized streets (relative to emerging demand).

No other thoroughfare plans could be found.

3.3.2 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 age of these structures, they are highly susceptible to cracking, leaning, and total destruction caused by any of the hazards.

According to the Texas Historic Sites Atlas (THSA), there are 6 national register properties, 5 courthouses, 135 cemeteries, 2 museums, and 155 historical markers throughout Navarro County.²¹ In addition to the THSA, the National Register of Historic Places listed six places in the City of Corsicana that have local and state historical significance.

Table 43: Historical Places in the City of Corsicana²²

Property Name	Street & Number	Area of Significance	Level of Significance - Local	Level of Significance - State
Corsicana Commercial Historic District	Roughly bounded by 2nd Ave., the Southern Pacific RR tracks, 7th Ave. and Main St.	COMMUNITY PLANNING AND DEVELOPMENT; COMMERCE; ARCHITECTURE	True	False
Corsicana Oil Field Discovery Well	400 block S. 12th St.	INDUSTRY; ENGINEERING	False	True
Mills Place Historic District	Roughly bounded by W. 2nd Ave., Mills Place Dr. and W. Park Ave.	ARCHITECTURE; COMMUNITY PLANNING AND DEVELOPMENT	True	False
Navarro County Courthouse	300 W. 3rd Ave.	OLITICS/GOVERNMENT; ARCHITECTURE	True	False
Temple Beth-El	208 S. Fifteenth St.	ARCHITECTURE	False	True
West Side Historic District	Roughly bounded by W. 3rd Ave., 15th St., W. 6th Ave. and 31st St.	COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	True	False

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 Navarro 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 Navarro County 's cities historic resources and promoting civic awareness of the communities' history.

²¹ [Home - Atlas: Texas Historical Commission \(state.tx.us\)](http://home-atlas.texas-historical-commission.state.tx.us)

²² [National Register Database and Research - National Register of Historic Places \(U.S. National Park Service\) \(nps.gov\)](http://nationalregisterdatabaseandresearch-nationalregisterofhistoricplaces.us-nationalparkservice.nps.gov)

3.3.3 People

According to the US Census Bureau, in 2021 it was estimated that 51,908 people resided within the 1,009.7 square miles of Navarro County. The following figure further breaks out the demographics of the County.



Figure 49: Navarro County Demographics²³

The following table provides population and demographic information from the U.S. Census Bureau for the participating jurisdictions.

Table 44: City Demographics

Jurisdiction	2021 Population	Median Age	Sex		Race & Ethnicity							
			Male	Female	White	Black	Native	Asian	Islander	Other	Two +	Hispanic
Blooming Grove	789	33.4	49%	51%	79.70%	1.40%	0.30%	0%	0%	1.5%	5.80%	11.30%
Corsicana	24,589	35.4	50%	50%	40.20%	15.90%	0.10%	1.30%	3.30%	0.10%	3.70%	35.30%
Kerens	2,308	30.2	58%	42%	56.90%	26.20%	0%	0%	0%	0%	8.40%	8.50%

3.3.4 Economy

Navarro County's economic profile is represented in the US Census Bureau's graph below.

²³ [Navarro County, TX - Profile data - Census Reporter](#)

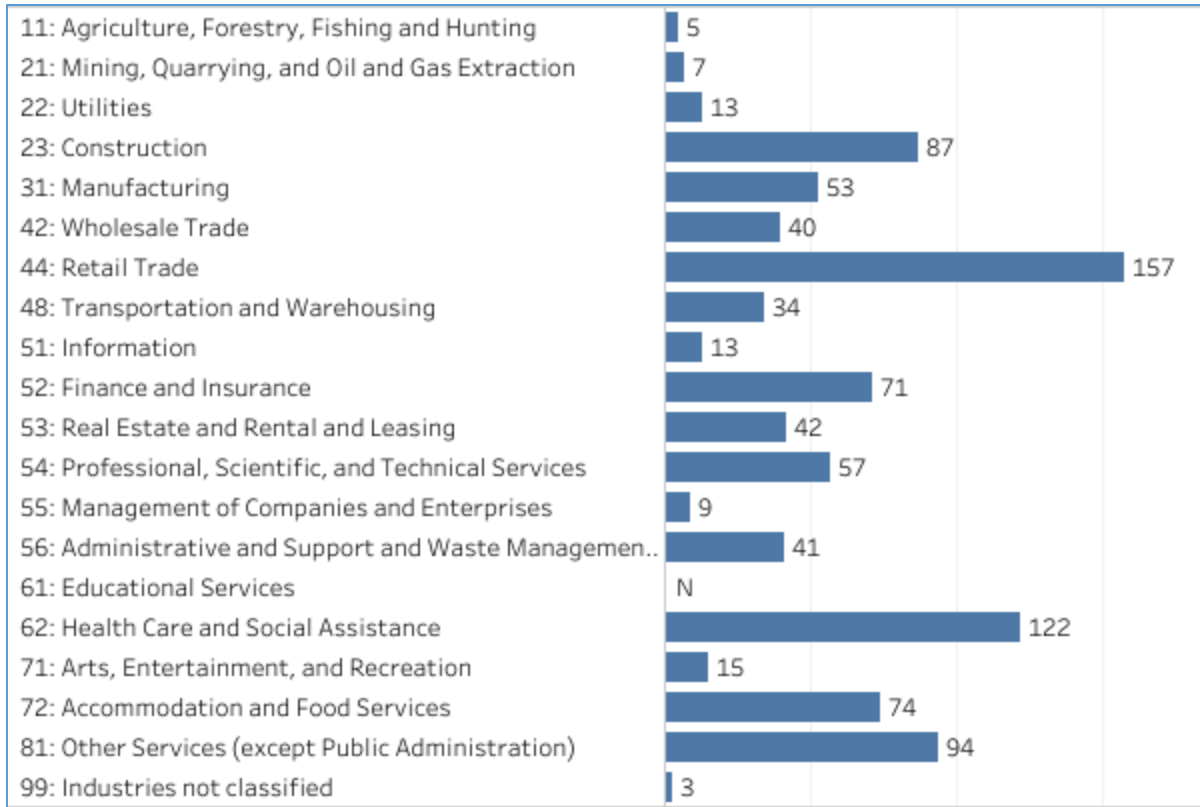


Figure 50: 2021 County Business Patterns by Industry²⁴

CEDS SWOT Analysis

To tie the risk assessment into the region’s economic development strategy, a review of the Comprehensive Economic Development Strategy SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis is beneficial. The SWOT analysis is an in-depth analysis of regional strengths, weaknesses, opportunities and threats, as the name suggests. It identifies what makes the region special or competitive in larger economies. These strengths are compared with factors that could keep a region from realizing its potential. Knowing a region’s capacity for growth is critical to choose how to promote economic vitality. It is affected by cultural, economic, technological, intellectual and physical assets. A region can use the activities and engagement of business, government leaders and others to maximize its economic potential.

Being a member of the NCTCOG Region, Navarro County participated in the 2022 NCTCOG Comprehensive Economic Development Strategy (CEDS), in which the 16-country region broke up into clusters to conduct a Strength, Weakness, Opportunities, and Threats (SWOT) Analysis. The results from the Cluster 3 SWOT analysis that Navarro County participated in are provided below.

SWOT ANALYSIS BY CLUSTER — CLUSTER 3

Cluster 3 includes the following counties: **JOHNSON, ELLIS, AND NAVARRO**

²⁴ [County Business Patterns by Industry: 2021 \(census.gov\)](https://www.census.gov)

STRENGTHS

- Power Grid
- Transportation Infrastructure: I-35E, I-35W, I-45, Highway 287, Highway 67, Highway 77, Chisholm Trail Parkway
- Water availability and low cost
- Skilled workforce (need a better-skilled one to compete, however)
- Access to job training
- Plenty of land
- Proximity to markets
- Higher education availability (highest return on investment)
- Competitive tax burden
- Strong pro-business climate
- Local infrastructure and capacity
- Access to airports
- High quality of life and lower cost of living
- Growing arts & entertainment
- Access to outdoor recreation: lakes and parks
- Rail (BNSF & Union Pacific)
- Proximity to ports
- Growing healthcare options
- Growing population

WEAKNESSES

- Low median household incomes (good for manufacturing)
- Limited rail spurs
- Limited incentive options & funding for incentives
- Destination retail (commerce)
- Lack of social services
- Education attainment
- Broadband access

OPPORTUNITIES

- Reshoring/onshoring/offshoring (some companies are coming back)
- Foreign direct investment (opportunities for FDIs who want to invest/buy a piece of the action in the region)
- Power Grid
- Expand diverse housing options
- Take advantage of metro business industry leakage
- Retail opportunities
- The southern region of DFW Metroplex growth opportunities

- Expansion of utility infrastructure
- Utilization of federal infrastructure funds

THREATS

- Weather (tornadoes)
- Increased incentives from other states
- A decline in standard manufacturing base (being replaced with automation)
- Offshoring (financial and manufacturing)
- Tighter environmental regulations (i.e., air quality)
- Poorly educated workforce
- Aging infrastructure
- Uncertainty in the future of electrical infrastructure
- Housing bubble
- Financial market volatility
- Construction materials cost and availability
- Disruption of retail due to e-commerce
- Diverse housing options
- Lack of water for manufacturing and all development

3.3.5 Natural Environment

Along with vulnerable populations, there are natural assets that are more vulnerable to natural disasters than others.

Land

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 private organizations that make decisions affecting those resources."

Navarro County is one of the 31 counties that make up the TPWD Post Oak Wildlife Management District and is associated with the Blackland Prairie Ecoregion. This ecoregion is named for the deep, fertile black soils that characterize the area and its landscape was originally formed by frequent fires and grazing of bison that maintained the vegetation. Blackland Prairie soils that once supported a tallgrass prairie dominated by tall-growing grasses such as big bluestem, little bluestem, indiagrass, and switchgrass has been plowed to produce food and forage crops because of fertile soils.²⁵

With the continued growth and urbanization in the County, wildlife populations and critical habitats are threatened.²⁶

²⁵ [TPWD: Prairies and Lakes: State of Water \(texas.gov\)](https://www.texas.gov/tpwd/prairies-and-lakes/state-of-water)

²⁶ [Post Oak Savannah Wildlife Management \(texas.gov\)](https://www.texas.gov/tpwd/post-oak-savannah-wildlife-management)

Wildlife

TPWD is the steward of the [Texas Conservation Action Plan](#), a conservation plan for species most at risk with a primary purpose to bring people together to realize conservation benefits, prevent species listings, and preserve our natural heritage for future generations.

The Texas Blackland Prairie [Handbook](#) contains 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 that could help County officials better protect and improve its natural assets.²⁷

There are 41 documented species of greatest conservation need (SGCN) within Navarro County reflected in Table 45. All species on the county list are tracked in the [Texas Natural Diversity Database \(TXNDD\)](#).

Table 45: Species of Greatest Conservation Need (SGCN)

State Conservation Ranks	Amphibians	Arachnids	Birds	Crustaceans	Fish	Insects	Mammals	Mollusks	Plants	Reptiles
S1 (Critically Imperiled)			1				1	4		
S2 (Imperiled)			6				3	1		3
S3 (Vulnerable)	2		3				3		1	3
S4 (Apparently Secure)			1				1			1
S5 (Secure)							4			
SH/SU (Possibly Extirpated)	1									
SNR (Unranked)						1				
SNA (Not Applicable)										

Water

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.

According to TPWD, the region's urban sprawl is creating a major water challenge and water resource problems:²⁸

- **Major Water Challenge:** Maintaining water quality in highly-populated areas.

²⁷ Texas Conservation Action Plan. Texas Parks & Wildlife.

https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/tcap/

²⁸ TPWD: [Prairies and Lakes: State of Water \(texas.gov\)](#)

- **Water Resource Problems:** By 2050, population is expected to double in the metro areas. Water quality and quantity are declining in some areas. Portions of the region are already importing water to meet demand.

Groundwater: The Trinity Aquifer, one of the most extensive and highly used groundwater resources in Texas, is mainly used for municipalities but also for irrigation, livestock, and other domestic purposes. Groundwater in Navarro County comes from the Nacatoch Minor Aquifer. Water from the aquifer is extensively used for domestic and livestock purposes. The City of Commerce historically pumped the greatest amount from the Nacatoch Aquifer but has recently attempted to convert to surface water; however, because of recent droughts, the city has pumped 30- 50 % of its water from the aquifer. As a result of Commerce’s reduced pumping, the declining water levels that had developed around Commerce in Delta and Hunt counties are stabilizing.²⁹

Table 46: GMA 8 Modeled Available Groundwater for Relevant Aquifers

Aquifer	County	Regional Water Planning Area	River Basin	Modeled Available Groundwater (acre-feet per year)					
				2030	2040	2050	2060	2070	2080
Trinity (Paluxy)	Navarro	C	Trinity	0	0	0	0	0	0
Trinity (Glen Rose)	Navarro	C	Trinity	0	0	0	0	0	0
Trinity (Travis Peak)	Navarro	C	Trinity	0	0	0	0	0	0
Trinity (Hensell)	Navarro	C	Trinity	0	0	0	0	0	0
Trinity (Hosston)	Navarro	C	Trinity	0	0	0	0	0	0
Woodbine	Navarro	C	Trinity	0	0	0	0	0	0

Surface Water: Surface water in Navarro County comes from the Trinity River Basin and its associated streams and lakes. The Trinity Basin is the largest river basin whose water-shed area is entirely within the State of Texas and the third largest river in Texas by average flow volume. Smaller streams within the basin include the Clear, East, Elm, and West forks of the Trinity River and Cedar, Chambers, and Richland creeks. The lakes in the Trinity River Basin that are located in Navarro County are Navarro Mills Lake and Richland-Chambers Reservoir.

Navarro Mills Dam and Navarro Mills Lake are located on Richland Creek in the Trinity River Basin, sixteen miles southwest of the City of Corsicana in Navarro County. Navarro Mills Lake is owned by the U.S. Government and operated by the U.S. Army Corps of Engineers, Fort Worth District.

²⁹ [R380_AquifersofTexas.pdf](#)

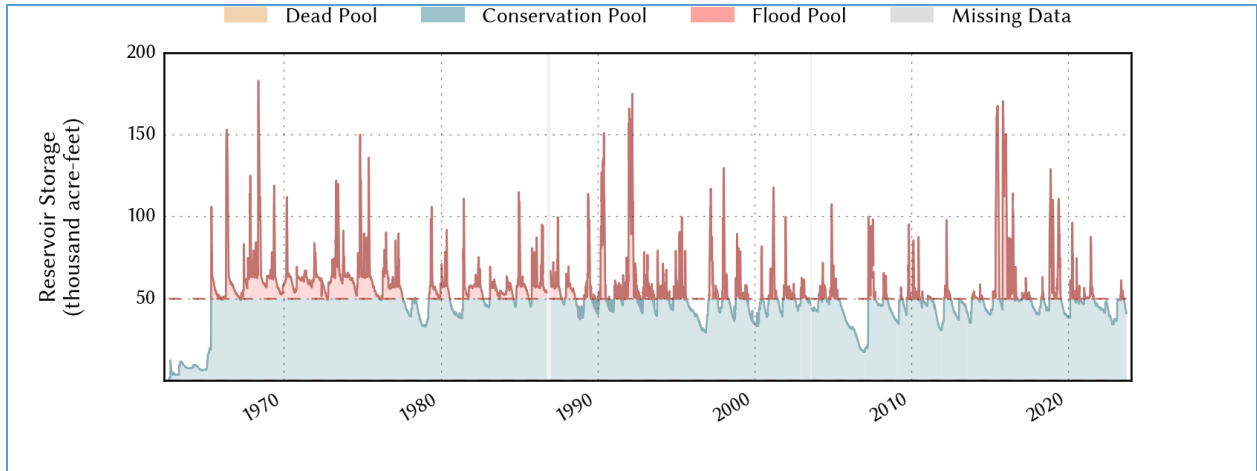


Figure 51: Navarro Mills Lake Historical Water Levels

According to the TWDB 2008 Sedimentation Survey, the residents of Corsicana, Dawson, Frost, and other communities in Navarro County depend upon Navarro Mills Lake for flood control, water supply, and recreation. The results of the TWDB 2008 Sedimentation Survey indicate Navarro Mills Lake has accumulated 5,695 acre-feet of sediment since impoundment in 1963. Based on this measured sediment volume and assuming a constant sediment accumulation rate, Navarro Mills Lake loses approximately 124 acre-feet of capacity per year. The maximum sediment thickness observed in Navarro Mills Lake was 6.3 feet.³⁰

Richland-Chambers Dam and Richland-Chambers Reservoir are located on Richland and Chambers Creeks in the Trinity River Basin approximately 20 miles southeast of Corsicana in Freestone and Navarro Counties.

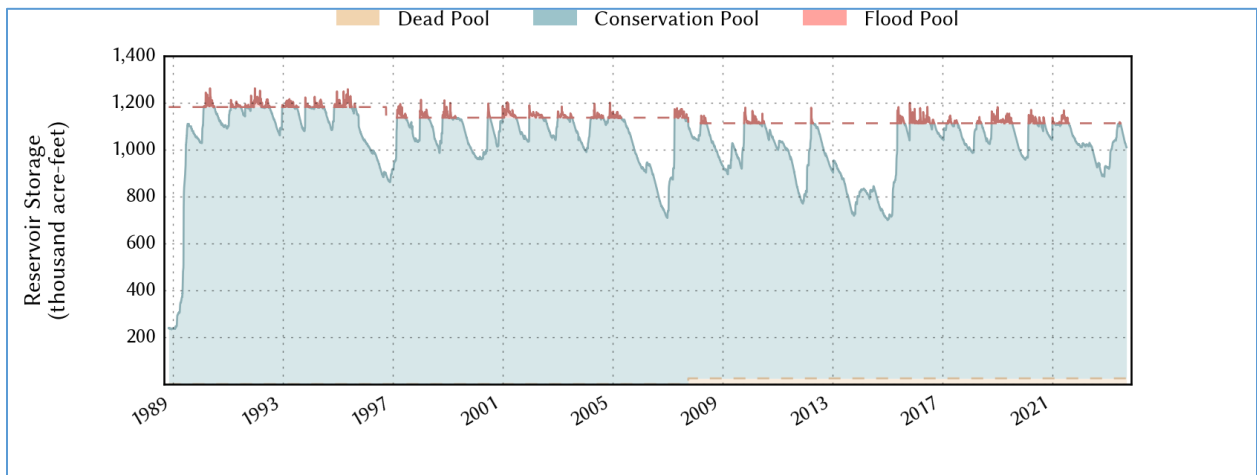


Figure 52: Richland-Chambers Reservoir Historical Water Levels

³⁰ The Texas Water Development Board. *2008 Volumetric and Sedimentation Survey of Navarro Mills Lake*. 2009, file:///C:/Users/apayne/Downloads/NavarroMills2008_FinalReport.pdf.

According to the TWDB 2019 Sedimentation Survey, Richland-Chambers Reservoir is the third largest lake to lie entirely within the state of Texas and is owned and operated by Tarrant Regional Water District (Tarrant Regional Water District, 2019). Deliberate impoundment of water began on July 14, 1987 (U.S. Geological Survey, 2019). The reservoir was built primarily for water supply. The 2018 TWDB sedimentation survey indicates Richland-Chambers Reservoir has lost capacity at an average of 1,886 acre-feet per year since impoundment due to sedimentation below conservation pool elevation (315.0 feet above mean sea level, NGVD29). The long-term trend based on all available surveys indicates Richland-Chambers Reservoir loses capacity at an average of 1,908 acre-feet per year due to sedimentation below conservation pool elevation (315.0 feet above mean sea level, NGVD29).³¹

Additional sources of surface-water in the participating jurisdictions in Navarro County are listed in the following table.

Table 47: Lakes and Reservoirs in the Participating Jurisdictions³²

Name	United States Geological Survey Topographic Map
Cox Lake	Blooming Grove
Soil Conservation Service Site 105a Reservoir	Blooming Grove
Soil Conservation Service Site 105b Reservoir	Blooming Grove
Soil Conservation Service Site 120 Reservoir	Blooming Grove
Soil Conservation Service Site 121 Reservoir	Blooming Grove
Soil Conservation Service Site 123 Reservoir	Blooming Grove
Soil Conservation Service Site 124 Reservoir	Blooming Grove
Soil Conservation Service Site 134 Reservoir	Blooming Grove
Soil Conservation Service Site 135a Reservoir	Blooming Grove
Soil Conservation Service Site 135b Reservoir	Blooming Grove
Beaton Lake	Corsicana
Lake Halbert	Corsicana
Magnolia Lake	Corsicana
Mobil Pipeline Lake	Corsicana
Soil Conservation Service Site 139 Reservoir	Corsicana
Soil Conservation Service Site 140 Reservoir	Corsicana
Kerens City Lake	Kerens

³¹ The Texas Water Development Board. *2018 Volumetric and Sedimentation Survey of Richland-Chambers Reservoir*. 2019, <https://www.twdb.texas.gov/surfacewater/surveys/completed/list/index.asp>

³² [Navarro County Features & Landmarks \(hometownlocator.com\)](#)

3.4 Changes in Development

FEMA's defines changes in development as "recent development, potential development, or conditions that may affect the risks and vulnerabilities of the jurisdictions (for example, climate change, declining populations or projected increases in population, or foreclosures) or shifts in the needs of underserved communities or gaps in social equity. This can also include changes in local policies, standards, codes, regulations, land use regulations and other conditions."

While the overall vulnerability level and priorities of the participants have remained the same since the previous mitigation plan, the following changes in development require local officials to be prepared to take action when necessary.

3.4.1 Change in Development that Increase Vulnerability

Future Land Use and Zoning

New development in hazard-prone areas increases the risk of damage and injury from that hazard. All future development is vulnerable to severe weather events. Local planning mechanisms have identified planned development projects, such as road expansions, downtown revitalizations, and capital improvement projects in the participating jurisdictions that could be impacted by hazards.

Only the City of Corsicana had a future land use map (Figure 53) as part of their comprehensive and future land use plan.

G. THE LAND USE MAP

66

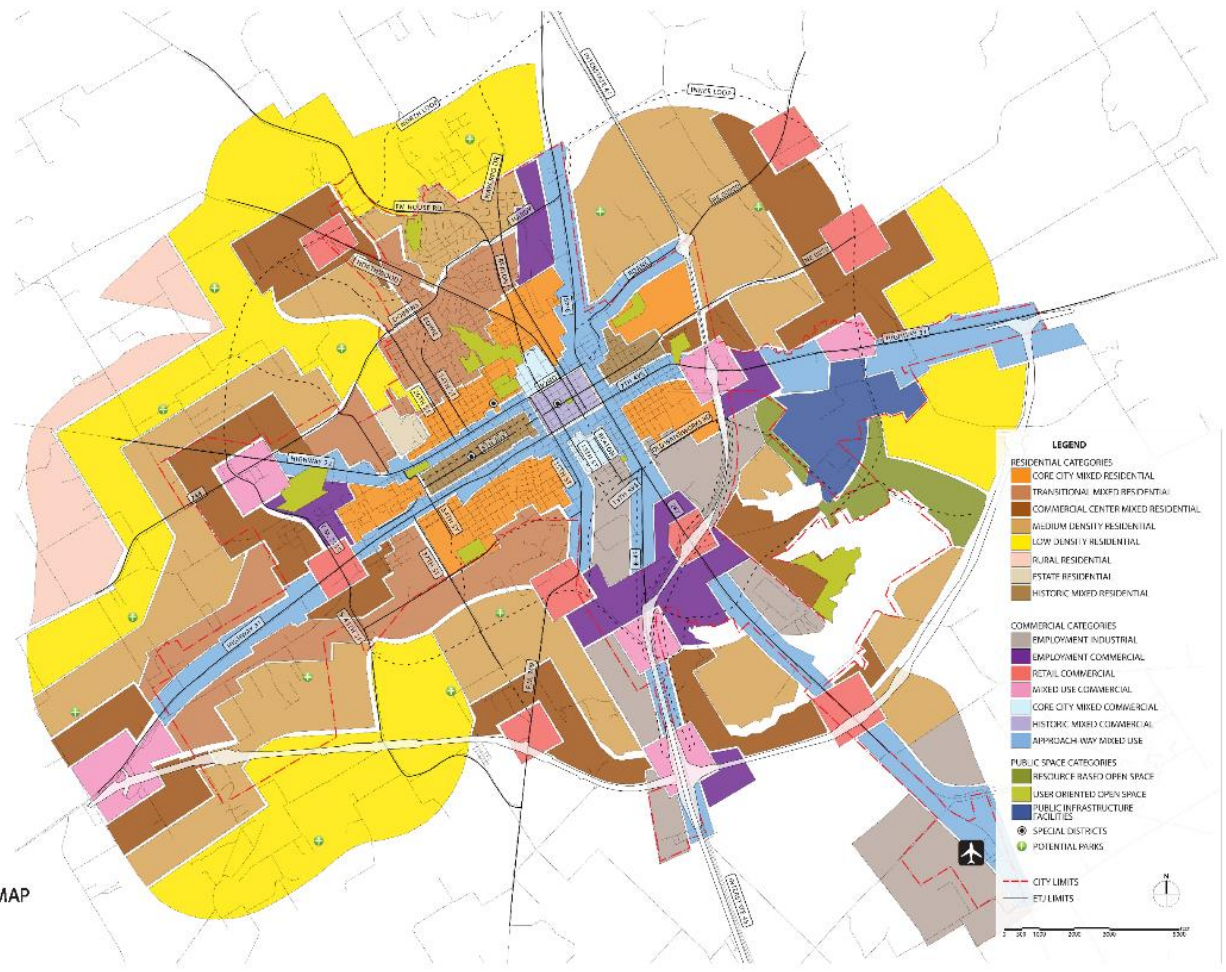


Figure 53: Corsicana Future Land Use Map

In addition to future land use maps, zoning maps can help local officials develop a mitigation strategy that accommodates existing zoning ordinances. The Richland-Chambers Reservoir Official Zoning Map in Figure 54 is the only zoning map found for the participating jurisdictions.

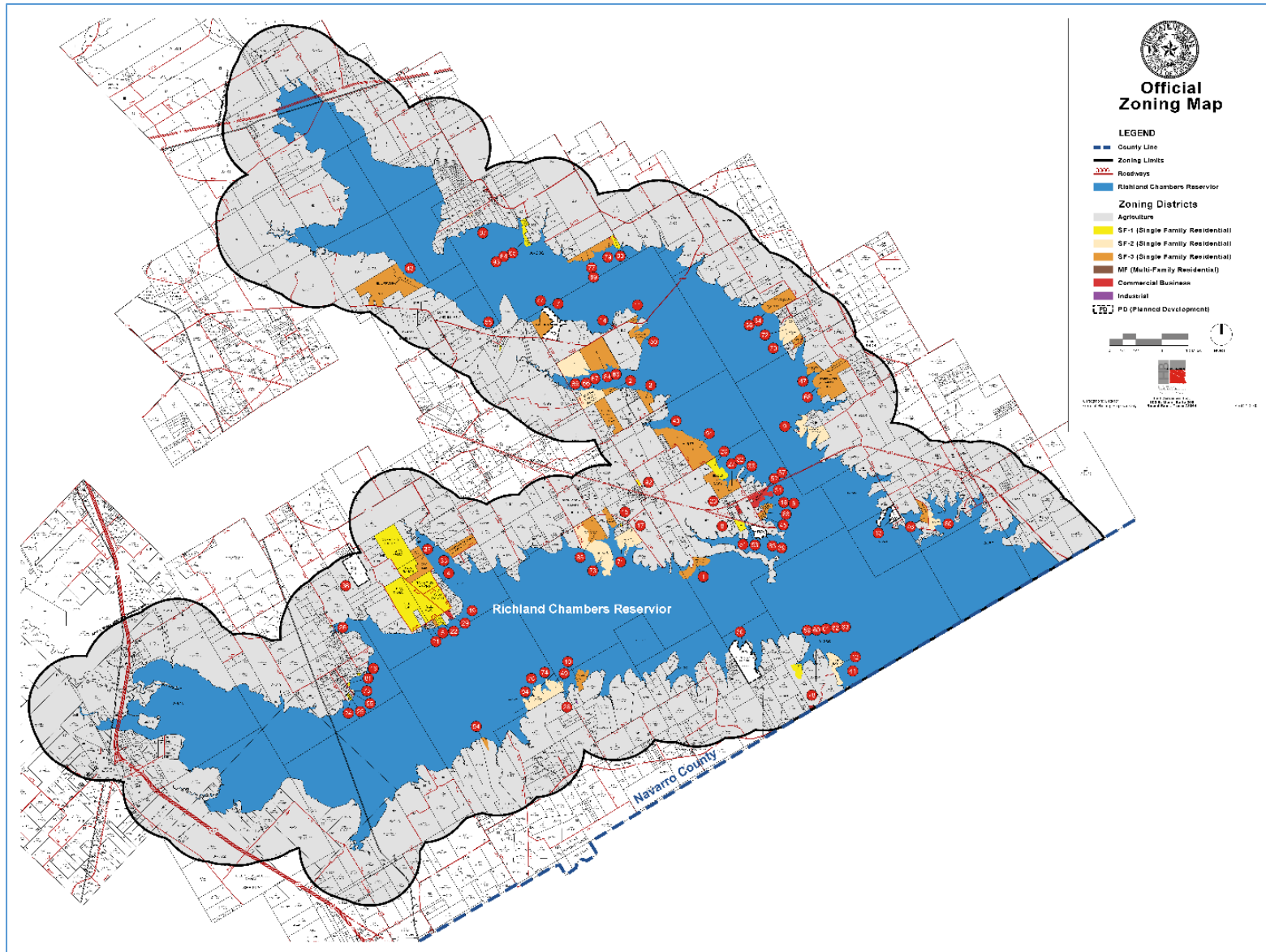


Figure 54: Richland-Chambers Reservoir Official Zoning Map

Climate Change

A key factor to an increase in vulnerability is 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...³³

According to [Headwater Economics](#), Navarro County is expected to experience a 26% increase in extremely hot days and a 12% increase in days with heavy precipitation within 10 years in a higher emissions scenario.

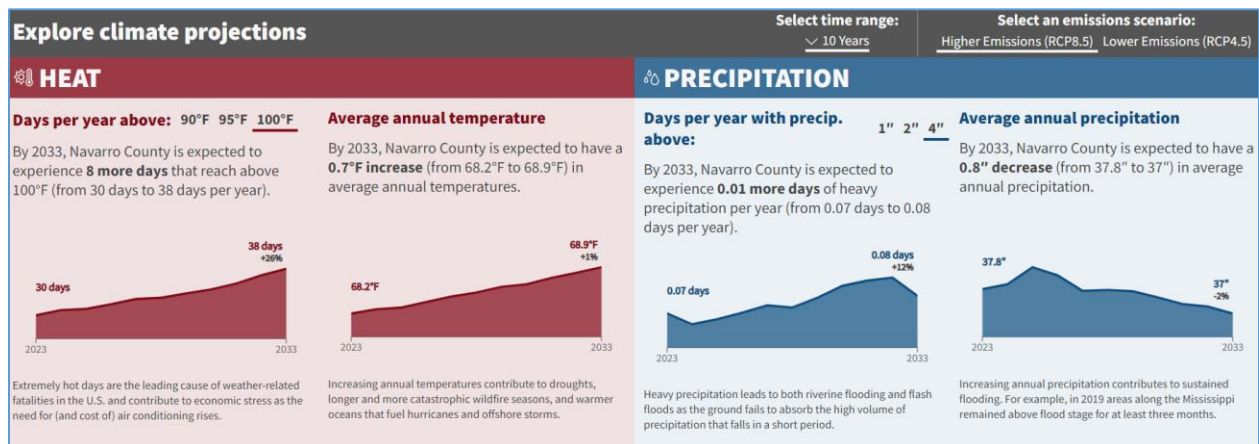


Figure 55: Climate Projections

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.

³³ 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>

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."

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 21st 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."³⁴

All participating jurisdictions are experiencing the effects of climate change.

Population Increase

The following table reflects the estimated changes in participating jurisdictions' populations from 2017 to 2021 from the US Census Bureau.

Table 48: 2017-2021 Population Change³⁵

Year	Blooming Grove	Corsicana	Kerens	County
2017	870	23,695	1,838	48,23
2018	704	23,736	1,735	48,583
2019	823	23,746	1,881	48,995
2020	725	23,736	1,795	49,475
2021	789	24,589	2,308	51,908

Population growth and distribution, especially increased population density and urbanization, increases vulnerability to disasters. Most of the jurisdictions increased in their population base between 2017-2021.

³⁴ 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>

³⁵ [United States Population | Income, Demographics, Employment, Housing \(uspopulation.org\)](https://www.uspopulation.org/)

This increase in population and urbanization creates adverse environmental and social impacts, including traffic congestion, air pollution, loss of open space, additional stress on community lifelines.

People moving to the lake and living in a floodplain are most at risk to flooding and people building homes in the Wildland-Urban Interface (WUI) are more 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.

Socially Vulnerable Populations

The degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, or crowded households, may affect that community’s ability to prevent human suffering and financial loss in the event of disaster. These factors describe a community’s social vulnerability.

Social vulnerability refers to the potential negative effects on communities caused by external stresses on human health. Such stresses include natural or human-caused disasters, or disease outbreaks. Reducing social vulnerability can decrease both human suffering and economic loss.

To help public health officials and emergency response planners meet the needs of socially vulnerable populations in emergency response and recovery efforts, the Geospatial Research, Analysis, and Services Program (GRASP) created and maintains the [CDC/ATSDR Social Vulnerability Index \(CDC/ATSDR SVI\)](#).

The CDC/ATSDR SVI used American Community Survey (ACS), 2016-2020 (5-year) data for the following social factors to determine the social vulnerability of every census tract. These factors are grouped into four related themes: socioeconomic status, household characteristics, racial & ethnic minority status, and housing type & transportation.

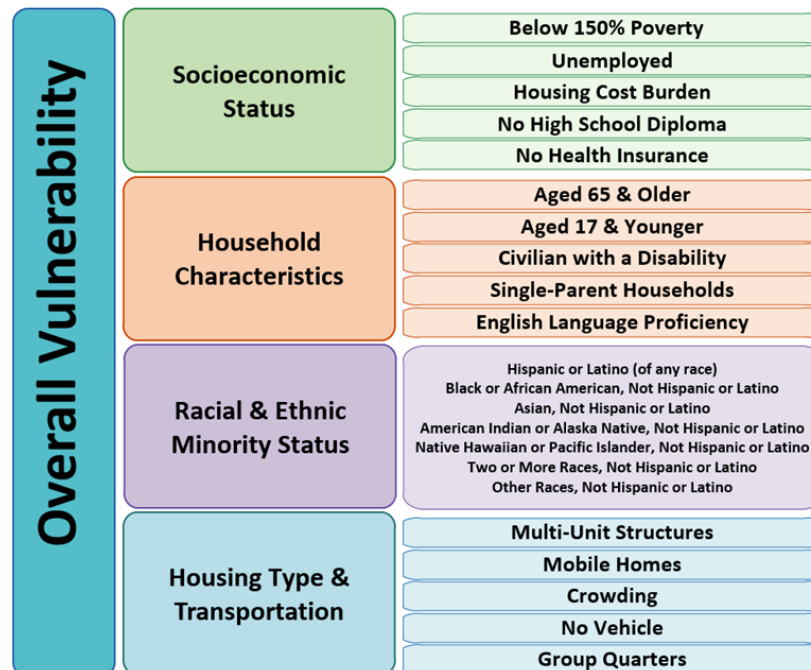


Figure 56: Overall Vulnerability Elements

The census tracts in Navarro County appear to be on the high side of vulnerability in the four themes (see Figure 57). For these populations, emergency response failures can have catastrophic consequences, including loss of the ability to work or live independently, permanent injury, and death.

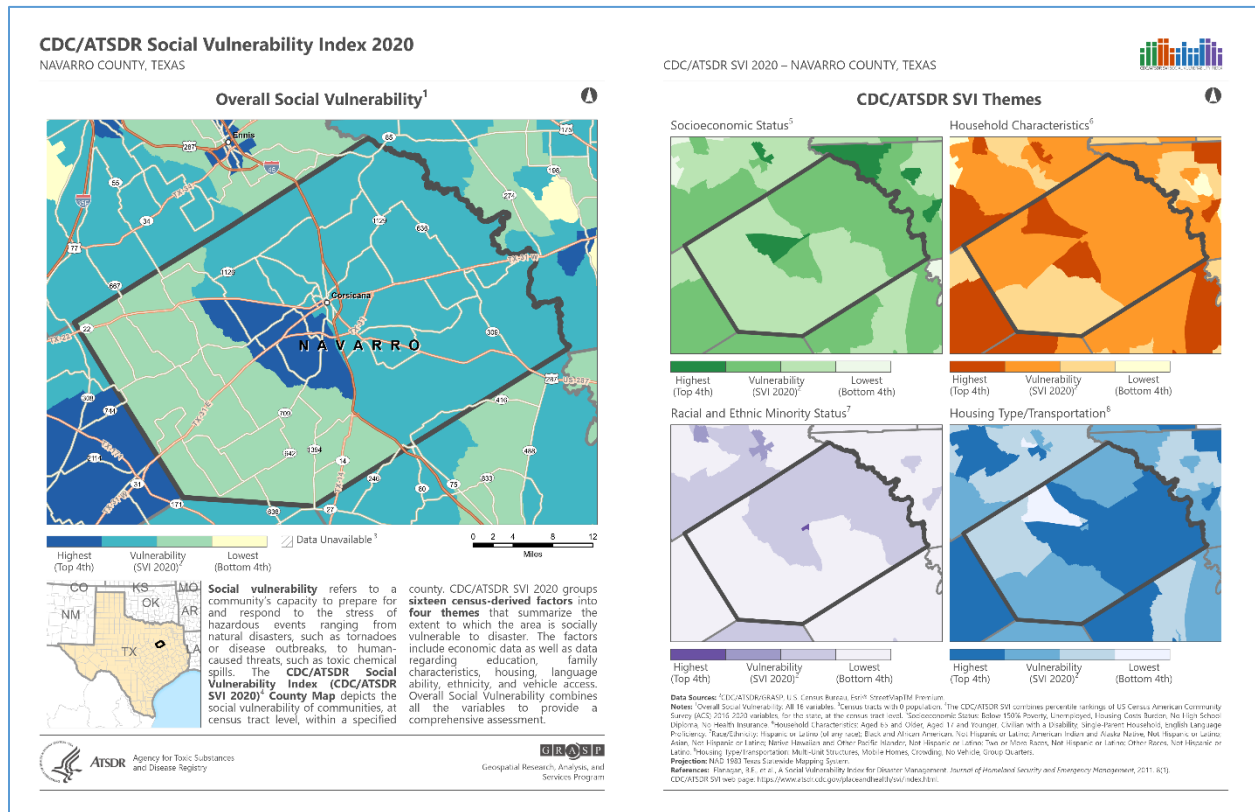


Figure 57: CDC/ATSDR 2020 Social Vulnerability Index of Navarro County³⁶

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.

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.

³⁶ Centers for Disease Control and Prevention/ Agency for Toxic Substances and Disease Registry/ Geospatial Research, Analysis, and Services Program. CDC/ATSDR Social Vulnerability Index 2020, Database Texas . https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html. Accessed on September 13, 2023.

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 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.

Table 49: Non-Mitigated NFIP Repetitive Loss Properties as of 05/19/2022

Community	Repetitive Loss Properties	Total Losses	Total Building Payments	Total Contents Payments	Single Family	Two-Four Family	Non-Residential Business
CORSICANA, CITY OF (480498)	10	29	\$812,802.91	\$117,862.55	9	0	1
NAVARRO COUNTY* (480950)	1	2	\$5,651.21	\$9,623.32	1	0	0
Grand Total	11	31	\$818,454.12	\$127,485.87	10	0	1

Table 50: Non-Mitigated NFIP Severe Repetitive Loss (SRL) as of 05/19/2022

Community	SRL Properties	Total Losses	Total Building Payments	Total Contents Payments	Single Family
CORSICANA, CITY OF (480498)	1	4	\$199,683.88	\$5,412.23	1

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 SILVIS, 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 following map reflects the WUI areas in Navarro County.

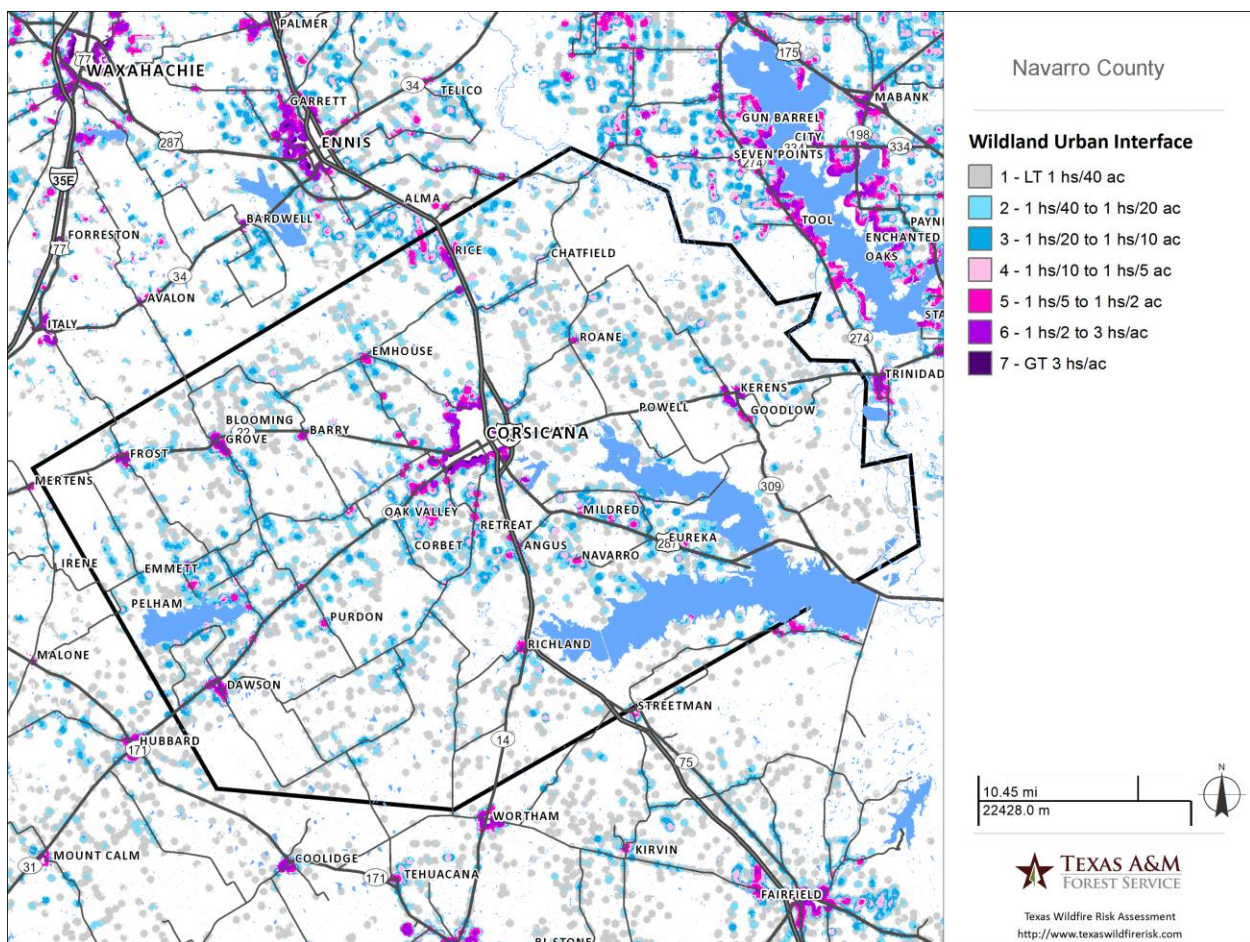


Figure 58: Navarro County WUI Area

Wildfire Threat

Wildfire Threat is the likelihood of a wildfire occurring or burning into an area. Threat is derived by combining several 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.

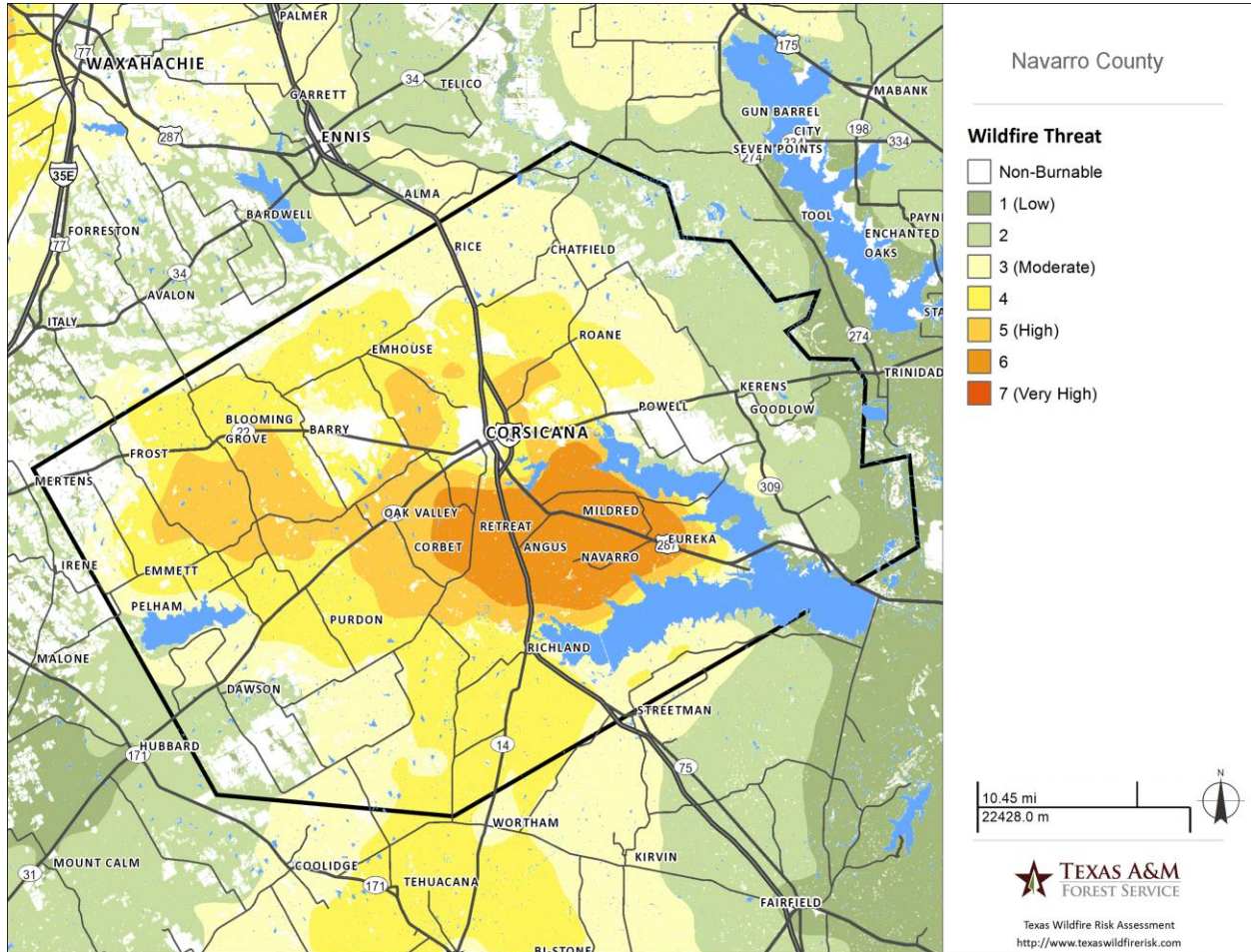


Figure 59: Navarro County Wildfire Threat

3.4.2 Changes in Development 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 Activity

The following table lists mitigation actions that have been FEMA-funded since the adoption of the previous hazard mitigation plan. HMGP Post Fire, HHPD, and PA Mitigation funding have not been utilized due to projects not meeting qualifications for some programs, competing prioritized projects from other subgrantees, or the City not applying to funding due to current capabilities.

Additional, locally implemented actions are described in Chapter 4.

Table 51: FEMA-Funded Hazard Mitigation Projects

Program Area	Program FY	Disaster Number	Project Counties	Project Type	Subrecipient	Status
HMGP	2016	4255	NAVARRO	601.1: Generators	Corsicana	Closed
BRIC	2019		ELLIS; NAVARRO	700.1: Management Costs - Salaries; 91.5: Local Multijurisdictional Multihazard Mitigation Plan - UPDATE	North Central Texas Council of Governments	Obligated
HMGP	2015	4223	NAVARRO	200.1: Acquisition of Private Real Property (Structures and Land) - Riverine	Corsicana	Approved
HMGP	2016	4245	NAVARRO	601.2: Generators - Regular	Corsicana	Closed
HMGP	2016	4245	NAVARRO	601.1: Generators	Corsicana	Closed
HMGP	2021	4586	NAVARRO	601.2: Generators - Regular	Angus Water Supply Corporation	Approved

Regional Activity

Navarro County is a member of the [North Central Texas Council of Governments \(NCTCOG\)](#), 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 Conrail Flood Warning Software** – Conrail 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 mitigation-related 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.

State Activity

Along with national programs, like the NFIP, state programs can increase the resiliency of communities in Texas. The [Hazard Mitigation Section](#) of the Texas Division of Emergency Management (TDEM) supports Texas communities as they reduce their risk and increase their resilience. The section is comprised of two units, the Plans Unit and the Grants Unit. The two units provide a comprehensive program to support local jurisdictions as they assess the risks they face, plan to mitigate them, and fund those plans to implement mitigation projects that reduce risk across the state.

National Activity

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:

- 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 6% 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 14 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%) and hazard mitigation projects (15%). 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.

In January of 2021, President Biden issued [Executive Order 14008](#). The order directed the Council on Environmental Quality (CEQ) to develop a new tool. This tool is called the Climate and Economic Justice Screening Tool. The tool has an interactive map and uses datasets that are indicators of burdens in eight categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The tool uses this information to identify communities that are experiencing these burdens. These are the communities that are disadvantaged because they are overburdened and underserved. Federal agencies will use the tool to help identify disadvantaged communities that will benefit from programs included in the [Justice40 Initiative](#). The Justice40 Initiative seeks to deliver 40% of the overall benefits of investments in climate, clean energy, and related areas to disadvantaged communities.

President Biden also approved more than \$3.46 billion in 2021 to increase resilience to the potential impacts of climate change nationwide. This significant investment will be available for natural hazard mitigation measures across the 59 major disaster declarations issued due to the COVID-19 global pandemic.

With the growing climate change crisis facing the nation, FEMA’s [Hazard Mitigation Grant Program](#) will provide funding to states, tribes, and territories for mitigation projects to reduce the potential impacts of climate change. Every state, tribe, and territory that received a major disaster declaration in response to the COVID-19 pandemic will be eligible to receive 4% of those disaster costs to invest in mitigation projects that reduce risks from natural disasters.

This influx of funding will help communities prioritize mitigation needs for a more resilient future, including underserved communities that are most vulnerable to the potential impacts of climate change. These projects can help address effects of climate change and other unmet mitigation needs, including using funds to promote equitable outcomes in underserved communities.

As dollar losses increase along with the number of disaster declarations, it is expected that national policy will continue playing a huge part in community resilience.

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

NFIP Communities can voluntarily participate in the Community Rating System (CRS). In CRS communities, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community’s efforts. Flood insurance premium discounts in CRS communities range from 5% to 45% and are discounted in increments of 5%.

The following table lists the jurisdictions participating in the NFIP and CRS programs.

Table 52: Participating NFIP Communities

CID	Community Name	County	Init FIRM Identified	Init FHBM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal	CRS
480952#	BLOOMING GROVE, CITY OF	NAVARRO COUNTY	07/18/75	10/24/78	06/05/12(M)	10/24/78	No	No
480498#	CORSICANA, CITY OF	NAVARRO COUNTY	12/27/74	08/17/81	06/05/12	08/17/81	No	No
480955#	KERENS, CITY OF	NAVARRO COUNTY	08/29/75	06/05/12	06/05/12(M)	05/25/78	No	No
480950#	NAVARRO COUNTY*	NAVARRO COUNTY	12/27/77	04/01/04	06/05/12	04/01/04	No	No

3.4.3 Overall Vulnerability

If the assets described earlier in this chapter were damaged or destroyed by a natural disaster, it would have a devastating impact on the way of life in the participating jurisdictions.

- If the natural environment and ecological sites (e.g., the site of a unique flora or fauna habitat) are destroyed, then these areas may be extremely vulnerable to any disaster and certain aspects could become extinct.
- Whenever buildings 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 loss of housing and schools may be destroyed. These losses have social impacts as well, as they affect the ability of individuals and families to function.

Below is a list of the participating jurisdictions greatest vulnerabilities in relation to natural hazards. At a minimum, the level of vulnerability remains the same in the planning area as the previous plan, though is impacted by the factors previously mentioned. The most vulnerable assets include the following:

- Socially vulnerable populations
- Historical properties and structures over 50 years old
- Non-mitigated structures in the floodplains and coastal flood zone

- Endangered and protected species

Another concern is that a large event could quickly overwhelm the area’s response capabilities and resources.

Table 53: Jurisdictions Greatest Vulnerabilities

Jurisdiction	Vulnerabilities
Blooming Grove	<ul style="list-style-type: none"> • Any substantial event would be devastating to the financial capabilities of the city. • Any major event would overwhelm the local resources.
Corsicana	<ul style="list-style-type: none"> • Any substantial event would be devastating to the financial capabilities of the city. • Any major event would overwhelm the local resources.
Kerens	<ul style="list-style-type: none"> • Any substantial event would be devastating to the financial capabilities of the city. • Any major event would overwhelm the local resources.
Navarro County Unincorporated	<ul style="list-style-type: none"> • Any major event would overwhelm the local resources.

Hazard Risk Index

Hazard Type Risk Index Scores (see Table 54) are calculated using data for only a single hazard type and reflect a community's Expected Annual Loss (EAL) value, community risk factors, and the adjustment factor used to calculate the risk value.

Table 54: Hazard Type Risk Index Scores³⁷

Hazard Type	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Score
Riverine Flooding	\$7,605,171	Very High	Relatively Low	1.53	\$11,750,978	96.8
Tornado	\$6,983,351	Very High	Relatively Low	1.53	\$10,586,225	93.9
Strong Wind	\$690,095	Very High	Relatively Low	1.53	\$1,046,142	80.8
Heat Wave	\$473,902	Very High	Relatively Low	1.53	\$718,640	84.4
Wildfire	\$452,020	Very High	Relatively Low	1.53	\$655,186	82.8

³⁷ Please note that the hazards identified in this National Risk Index are slightly different from how the hazards are identified in this hazard mitigation plan.

Hazard Type	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Score
Hurricane	\$375,199	Very High	Relatively Low	1.53	\$559,233	61.2
Cold Wave	\$181,898	Very High	Relatively Low	1.53	\$272,599	74.4
Winter Weather	\$167,416	Very High	Relatively Low	1.53	\$253,604	83.5
Hail	\$121,122	Very High	Relatively Low	1.53	\$182,535	61.6
Lightning	\$115,024	Very High	Relatively Low	1.53	\$174,566	65.8
Earthquake	\$105,432	Very High	Relatively Low	1.53	\$161,344	50.9
Drought	\$24,807	Very High	Relatively Low	1.53	\$34,854	53.1
Ice Storm	\$18,377	Very High	Relatively Low	1.53	\$27,914	33.8

The National Risk Index rating is Relatively Moderate for Navarro County, TX when compared to the rest of the U.S.

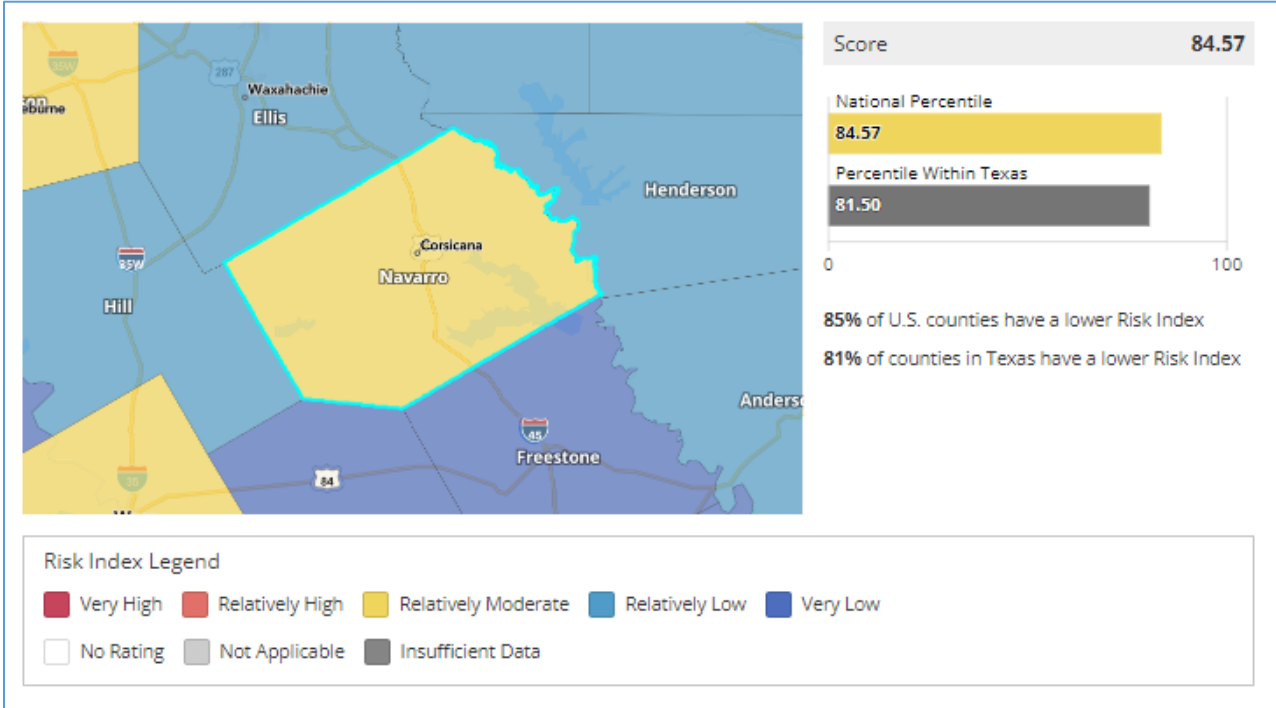


Figure 60: Risk Index Rating

Climate and Economic Justice Screening Tool

The [Climate and Economic Justice Screening Tool \(CEJST\)](#) identified all ten (10) census tracts in Navarro (see Table 55).

Table 55: Disadvantaged CEJST Census Tract

Census tract 2010 ID	Total threshold criteria exceeded	Total categories exceeded
48349970100	4	2
48349970200	3	1
48349970300	3	2
48349970400	2	2
48349970500	3	1
48349970600	6	5
48349970700	0	0
48349970800	6	3
48349970900	2	1
48349971000	3	2

Communities are identified as disadvantaged by the 1.0 version of the tool if they are located in census tracts that meet the thresholds for at least one of the tools categories of burden, listed below in Figure 61.



Figure 61: CEJST Categories of Burden

These disparities and burdens may be exacerbated in a disaster, and these identified groups are at the most risk of harm. As climate change potentially increases the strength and number of disaster events, the County and its jurisdictions must remain aware of their vulnerabilities, mitigate potential risks as their capabilities allow, and strive to enhance their mitigation program to create a more resilient state.

Chapter 4: 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.

4.1 Mitigation Goals

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

Goal 1: Protect lives and reduce bodily harm from hazards.

Goal 2: Lessen the impacts of hazards on property and the community.

4.2 Implementation Priority

Priority of mitigation actions will go toward projects that are most cost-effective with 1) the highest positive impact on vulnerable populations and 2) the highest impact on overall community resilience by using the STAPLEE method to evaluate and prioritize actions when applying for funding.

The STAPLEE evaluation method uses seven criteria for evaluating a mitigation action: Social, Technical, Administrative, Political, Legal, Economic, and Environmental. Within each of those criteria are additional considerations. Actions with the highest score will be considered to have higher success potential.

Prioritization may change over time in response to changes in community characteristics and risks and to take advantage of available resources.

4.3 Funding

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

Sources of local funding may include the general fund, general operating budget, capital improvement budgets, staff time, impact fees, special assessment districts, and more. The [Mitigation Funding Resource Guides | FEMA.gov](#) identifies potential state and federal resources.

The planning teams that recorded “Grants” as a potential funding source for their actions intend to apply to any grants in which the action is eligible for and are not limiting themselves to one source. Under FEMA [Hazard Mitigation Assistance \(HMA\) Grants](#), there is funding through the Hazard Mitigation Grant Program (HMGP), HMGP-Post Fire, Building Resilient Infrastructure and Communities (BRIC), and Flood Mitigation Assistance (FMA) programs. These funding streams may be matched to pre- and post-disaster conditions for mitigation projects, the development or update of hazard mitigation plans, and management costs.

HMA Grants also provide funding for Climate Resilient Mitigation Activities, which support communities in reducing risks associated with climate change. There are four eligible activities: Aquifer Storage and Recovery, Floodplain and Stream Restoration, Flood Diversion and Storage, and Green Infrastructure Methods. While focused on addressing the long-term impacts of flooding and drought, these activities can mitigate any natural hazard.

Two other prominent federal funding programs include the Department of Housing and Urban Development’s (HUD) Community Development Block Grant (CDBG) program and the EPA’s Smart Growth program. The CDBG program aims to develop viable communities through an annual block grant to states, cities, and urban counties, but additional disaster recovery (DR) funds can also be appropriated following a Presidentially declared disaster for the purpose of recovery and mitigation. CDBG-DR prioritizes low- and moderate-income persons, but funding is fairly flexible and can be used to supplement other programs.

Many other agencies and organizations support hazard mitigation and community resilience through funding and technical assistance. The planning team will also consider opportunities for private sector funding and partnerships, as well as resources that may be provided by academic institutions.

4.4 Mitigation Action Items

A comprehensive range of action types (Figure 62) have been identified in this mitigation strategy, including plans and regulations, structure and infrastructure projects, natural systems protection, and education and awareness programs.

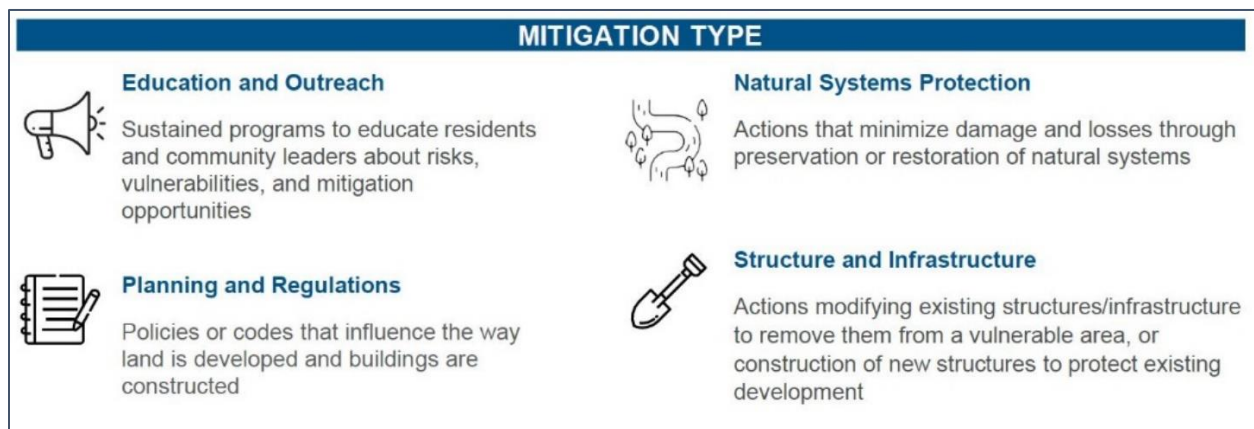


Figure 62: Mitigation Action Types

4.4.1 Previous Mitigation Action Items

The action items in the 2015 Navarro 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.

Table 56: City of Corsicana Previous Mitigation Actions

STATUS	2015 MITIGATION ACTIONS
Ongoing	Clear waterways of debris and prevent further collection of debris in waterways.
Ongoing	Stabilize erosion and creek embankments at bridges by developing vegetative management projects on creek waterways.
Completed	Implement Individual Tornado Safe Room Rebate Program.
Completed	Adopt and promote public education program.
Completed	Increase the ability of residents and businesses to receive early warning from the National Weather Service. This would be accomplished by offering an in-kind match program or give away through county schools, hospitals, and public safety agencies. With the local NOAA all hazards radio in Corsicana providing excellent coverage, participation would likely be high in this program.
Completed	Expand water conservation measures during periods of drought.
Unknown	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Deferred	Installation and maintenance of a CASA (WX) Weather Radar system.
Completed	Establish Construction Building Codes.

Table 57: City of Kerens Previous Mitigation Actions

STATUS	2015 MITIGATION ACTIONS
Deleted	Implement Individual Tornado Safe Room Rebate Program.
Deferred	Purchase and distribute NOAA All Hazard Radios to vulnerable households and businesses in the city.
Deferred	Build covered patios in public parks to protect citizens from extreme weather.
Deferred	Adopt and promote public education program.
Deferred	Develop, Adopt, and Enforce Water Restriction Codes in Times of Drought.
Deferred	Develop a Community Wildfire Protection Plan (CWPP).
Deferred	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Completed	Establish Construction Building Codes.

Table 58: Navarro County Previous Mitigation Actions

STATUS	2015 MITIGATION ACTIONS
Completed	Implement Individual Tornado Safe Room Rebate Program.
Ongoing	Adopt and promote public education program.
Completed	Increase the ability of residents and businesses to receive early warning from the National Weather Service. This would be accomplished by offering an in-kind match program or give away through county schools, hospitals, and public safety agencies. With the local NOAA all hazards radio in Corsicana providing excellent coverage, participation would likely be high in this program.
In-progress	Develop a Community Wildfire Protection Plan (CWPP).

STATUS	2015 MITIGATION ACTIONS
Completed - NRCS	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Ongoing	Develop an extreme temperature program that identified both public and private safe locations for vulnerable residents to go to during periods of extreme temperatures, partnering with non-profit organizations for distribution of fans/air conditioner units/space heaters, checking on vulnerable residents, and notification of shelter locations.
Ongoing	Develop a drought contingency plan.
Deferred	Develop and maintain voluntary building codes that would prevent building deterioration from structure-impacting hazards.
Ongoing	Expand water conservation measures during periods of drought.
Deferred	Purchase of a CASA (WX) Weather Radar system.

4.4.2 New Mitigation Action Items

New actions were identified by the Planning Team after reviewing their risk and capability assessments. Actions that would take longer than FEMA’s three-year period of performance to implement would be broken into phases when seeking grant funding.




Many of the actions have a “primary” community lifeline they could impact, though multiple lifelines could be impacted. Community Lifelines can be a powerful tool for state, local, tribal, and territorial governments to use in evaluating risk and developing strategies to reduce hazard impacts.

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* x 6 = *Estimated Benefit*], as it reports that \$1 spent in mitigation saves a community an average of \$6 in recovery.³⁸

The following tables identify the new mitigation actions for jurisdictions in this hazard mitigation plan.

³⁸ Natural Hazard Mitigation Saves: 2017 Interim Report. National Institute of Building Science. <https://www.nibs.org/page/mitigationsaves>

Table 59: City of Blooming Grove New Mitigation Actions

 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 Blooming Grove
Priority:	1
Estimated Cost:	\$400,000
Estimated Benefit:	\$2,600,000
Potential Funding Source(s):	75%: FEMA, TDEM, CDBG 25%: City Budget
Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	36 months
 Hazard(s) Addressed: All Hazards	
Action: Create fuel storage at facilities or have multiple ways to obtain fuel for maintaining power during a power outage from an event.	
Participating Jurisdiction	City of Blooming Grove
Priority:	2
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	City Budget
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	36 months
 Hazard(s) Addressed: Flooding	
Action: Upgrade existing undersized culverts and drainage facilities with improved systems.	
Participating Jurisdiction	City of Blooming Grove
Priority:	3
Estimated Cost:	\$100,000
Estimated Benefit:	\$600,000
Potential Funding Source(s):	75% FEMA, TDEM, CDBG, 25% City Budget, Staff time
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, mitigation actions, and the NFIP using various outreach methods.

Participating Jurisdiction	City of Blooming Grove
Priority:	4
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	City budget, staff time
Lead Agency/Department Responsible:	VFD, City Administration
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 Blooming Grove
Priority:	5
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	City Budget, staff time
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



Hazard(s) Addressed: All Hazards

Action: Adopt and enforce most current building codes and hire a part-time building official to enforce the codes.

Participating Jurisdiction	City of Blooming Grove
Priority:	6
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	City Budget
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



Hazard(s) Addressed: Wildfires

Action: Create defensible space around existing critical facilities and critical infrastructure and future development in the WUI.

Participating Jurisdiction	City of Blooming Grove
Priority:	7
Estimated Cost:	\$50,000
Estimated Benefit:	\$300,000
Potential Funding Source(s):	75% FEMA, TDEM, CDBG; 25% City Budget
Lead Agency/Department Responsible:	VFD
Implementation Schedule:	36 months



Hazard(s) Addressed: All Hazards

Action: Assist homeowners with application and implementation of residential mitigation projects.

Participating Jurisdiction	City of Blooming Grove
Priority:	8
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	City Budget, Staff Time
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



Hazard(s) Addressed: All Hazards

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

Participating Jurisdiction	City of Blooming Grove
Priority:	9
Estimated Cost:	\$500,000
Estimated Benefit:	\$3,000,000
Potential Funding Source(s):	75% FEMA, TDEM, CDBG, 25% City Budget, VFD
Lead Agency/Department Responsible:	City Administration
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 Blooming Grove
Priority:	10
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	City Budget, staff time
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months



Hazard(s) Addressed: Flooding

Action: Participate in the Community Rating System (CRS) in the NFIP.

Participating Jurisdiction	City of Blooming Grove
Priority:	11
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	City Budget, staff time
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months






Hazard(s) Addressed: Flooding, Thunderstorms, Tornadoes

Action: Procure additional warning sirens for outer edge of city.

Participating Jurisdiction	City of Blooming Grove
Priority:	12
Estimated Cost:	\$15,000
Estimated Benefit:	\$90,000
Potential Funding Source(s):	75% FEMA, TDEM, CDBG, 25% City Budget, VFD
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

Table 60: City of Corsicana New Mitigation Actions

 Hazard(s) Addressed: All Hazards	
Action: Remodel existing building to serve as City of Corsicana EOC to prevent ongoing damages and threats from natural hazards.	
Participating Jurisdiction	City of Corsicana
Priority:	1
Estimated Cost:	\$2M
Estimated Benefit:	\$12M
Potential Funding Source(s):	Grants, Budget
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 Months
 Hazard(s) Addressed: Flooding	
Action: Install Flood Detection and Warning System with gate closures at flood prone roads to mitigation hazardous driving conditions.	
Participating Jurisdiction	City of Corsicana
Priority:	2
Estimated Cost:	\$40,000 per location
Estimated Benefit:	\$240,000
Potential Funding Source(s):	Grants, Budget
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	24 Months
 Hazard(s) Addressed: Thunderstorms	
Action: Install mobile lighting detection units at all outdoor parks and sports complexes.	
Participating Jurisdiction	City of Corsicana
Priority:	3
Estimated Cost:	\$60,000
Estimated Benefit:	\$360,000
Potential Funding Source(s):	Grants, Budget
Lead Agency/Department Responsible:	Corsicana OEM
Implementation Schedule:	36 Months



Hazard(s) Addressed: All Hazards

Action: Acquire and install generators, and necessary accessories and equipment, for existing and future critical or vulnerable facilities and infrastructure to prevent power failure in the event of a disaster and to continue essential duties.

Participating Jurisdiction	City of Corsicana
Priority:	4
Estimated Cost:	\$1M
Estimated Benefit:	\$6M
Potential Funding Source(s):	Grant, Budget
Lead Agency/Department Responsible:	City of Corsicana OEM
Implementation Schedule:	36 Months



Hazard(s) Addressed: All Hazards

Action: Provide NFIP and natural hazard mitigation education to residents.

Participating Jurisdiction	City of Corsicana
Priority:	5
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, Budget
Lead Agency/Department Responsible:	City Administration
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 Corsicana
Priority:	6
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	City Budget, staff time
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	36 months

Table 61: City of Kerens New Mitigation Actions

 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 Kerens
Priority:	1
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 Kerens
Priority:	2
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: Create fuel storage at facilities or have multiple ways to obtain fuel for maintaining power during a power outage from an event.

Participating Jurisdiction	City of Kerens
Priority:	3
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 Kerens
Priority:	4
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 Kerens
Priority:	5
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 government-owned facilities to withstand all hazards.

Participating Jurisdiction	City of Kerens
Priority:	6
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: Assist homeowners with application and implementation of residential mitigation projects.

Participating Jurisdiction	City of Kerens
Priority:	7
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) Community Rating System.

Participating Jurisdiction	City of Kerens
Priority:	8
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: Educate the public on their risks to local hazards, and mitigation actions to take, using various outreach methods.

Participating Jurisdiction	City of Kerens
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 Kerens
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 Kerens
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 Kerens
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 Kerens
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 Kerens
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 or develop data collection methods to address data deficiencies and to update our risk assessment.

Participating Jurisdiction	City of Kerens
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

Table 62: Navarro County Unincorporated New Mitigation Actions



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	Navarro County Unincorporated
Priority:	1
Estimated Cost:	\$1.25M
Estimated Benefit:	\$6M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Navarro County Commissioners
Implementation Schedule:	36 months



Hazard(s) Addressed: All Hazards

Action: Construct new EOC to serve as Navarro County EOC to prevent ongoing damages and threats from all natural hazards. Navarro County OEM and EOC cover all incorporated jurisdictions in Navarro County (Exception of Corsicana). The current EOC is undersized and not able to support needed communications and equipment upgrade.

Participating Jurisdiction	Navarro County Unincorporated
Priority:	2
Estimated Cost:	\$4M
Estimated Benefit:	\$15M
Potential Funding Source(s):	Grants, Budget
Lead Agency/Department Responsible:	Navarro County / NCOEM
Implementation Schedule:	36 Months



Hazard(s) Addressed: Flooding

Action: Install automated flood gates and warning signs in critical areas to prevent travelers and residents from entering flooded roadways and crossings.

Participating Jurisdiction	Navarro County Unincorporated
Priority:	4
Estimated Cost:	\$400,000
Estimated Benefit:	\$2,000,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	NCOEM
Implementation Schedule:	18-20 months



Hazard(s) Addressed: All Hazards

Action: Create fuel storage at facilities or have multiple ways to obtain fuel for maintaining power during a power outage from an event.

Participating Jurisdiction	Navarro County Unincorporated
Priority:	5
Estimated Cost:	\$40,000
Estimated Benefit:	\$90,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	County Commissioners
Implementation Schedule:	36 months



Hazard(s) Addressed: All Hazards

Action: Adopt and enforce most current building codes.

Participating Jurisdiction	Navarro County Unincorporated
Priority:	6
Estimated Cost:	\$5,000
Estimated Benefit:	\$20,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	County Commissioners Court
Implementation Schedule:	36 months



Hazard(s) Addressed: All Hazards

Action: Update codes, policies, and regulations to address risks and vulnerabilities to hazards.

Participating Jurisdiction	Navarro County Unincorporated
Priority:	7
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	County Planning and Zoning
Implementation Schedule:	36 months



Hazard(s) Addressed: All Hazards

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

Participating Jurisdiction	Navarro County Unincorporated
Priority:	8
Estimated Cost:	\$4M
Estimated Benefit:	\$12M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Navarro County Commissioners Court
Implementation Schedule:	36 months



Hazard(s) Addressed: All Hazards

Action: Assist homeowners with application and implementation of residential mitigation projects.

Participating Jurisdiction	Navarro County Unincorporated
Priority:	9
Estimated Cost:	\$10,000
Estimated Benefit:	\$70,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	NCOEM
Implementation Schedule:	36 months



Hazard(s) Addressed: Flooding

Action: Participate in the National Flood Insurance Program (NFIP) Community Rating System.

Participating Jurisdiction	Navarro County Unincorporated
Priority:	10
Estimated Cost:	\$10,000
Estimated Benefit:	\$50,000
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 local hazards, and mitigation actions to take, using various outreach methods.

Participating Jurisdiction	Navarro County Unincorporated
Priority:	11
Estimated Cost:	\$5,000
Estimated Benefit:	\$30,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	NCOEM
Implementation Schedule:	12 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	Navarro County Unincorporated
Priority:	12
Estimated Cost:	\$1,500,000
Estimated Benefit:	\$4M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	County Planning and Zoning
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	Navarro County Unincorporated
Priority:	13
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	NCOEM
Implementation Schedule:	18 months



Hazard(s) Addressed: All Hazards

Action: Incorporate nature-based, green infrastructure throughout the planning area, where applicable.

Participating Jurisdiction	Navarro County Unincorporated
Priority:	14
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	Navarro County Unincorporated
Priority:	15
Estimated Cost:	\$100,000
Estimated Benefit:	\$2,000,000
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	Navarro County Commissioners
Implementation Schedule:	36 months



Hazard(s) Addressed: All Hazards

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

Participating Jurisdiction	Navarro County Unincorporated
Priority:	16
Estimated Cost:	\$200,000
Estimated Benefit:	\$1.2M
Potential Funding Source(s):	Grants, general fund
Lead Agency/Department Responsible:	NCOEM
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	Navarro County Unincorporated
Priority:	17
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



Hazard(s) Addressed: Wildfires

Action: Develop a Community Wildfire Protection Plan (CWPP).

Participating Jurisdiction	Navarro County Unincorporated
Priority:	18
Estimated Cost:	\$10,000
Estimated Benefit:	\$60,000
Potential Funding Source(s):	TFS Grants, general fund
Lead Agency/Department Responsible:	NCOEM
Implementation Schedule:	12 months

Chapter 5: Plan Maintenance

5.1 Tasks & Schedule

The Navarro County Hazard Mitigation Planning Team, consisting of a representative from each participating jurisdiction, will continue to collaborate as a planning group to monitor, evaluate, and update the plan in coordination by Navarro County Office of Emergency Management. The activity schedule is provided below:

Table 63: Plan Maintenance Activity Schedule

Task	Schedule
Facilitate the HMP meetings and disseminating information.	Annually
Collaborate on data collections and record keeping.	Annually
Request updates and status reports on planning mechanisms.	Annually
Track status of the identified mitigation actions by working with the lead department assigned to the action(s).	Annually
Provide public outreach opportunities to seek public involvement, such as public hearings, social media messaging, public events, and town hall meetings.	Annually
Provide mitigation training opportunities.	Annually
Assist participating jurisdictions in updating their individual contributions to the Hazard Mitigation Plan (HMP).	Every five years
Formally update this Navarro County Hazard Mitigation Plan.	Every five years
Sign adoption resolution for the updated Hazard Mitigation Plan by all participating jurisdictions.	Every five years

NCOEM will hold 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.

The Disaster Mitigation Act of 2000 requires that the Navarro County Hazard Mitigation Plan be updated at least once every five years. During this process, the entire plan will be updated with current information, current analyses of risks and capabilities, and new and/or modified mitigation strategies. Public meetings will be hosted for the HMPT and the public to address each section of the plan. The revised plan will be submitted for state and federal review after local public review and presented for approval to the Navarro County Commissioners Court and the respective councils of incorporated cities included in this HMP.

Following formal adoption by the Navarro County’s Commissioners Court and the governing council of each participating jurisdiction, the actions outlined in the HMP will be implemented as local capabilities allow.

5.2 Continued Public Participation

Public participation will remain an active component of this plan, even after adoption, to ensure all residents understand what the local government is doing on their behalf, and to provide a chance for input on community vulnerabilities and mitigation activities.

With assistance from NCTCOG, and as local capabilities improve, the HMPT will assess their capabilities and pre-plan their outreach strategy for the next update in order to garner more valuable feedback and reach more socially vulnerable populations and underserved communities.

The HMPT will look for more equitable outreach strategies to use when maintaining this plan, once adopted, including periodic presentations on the plan’s progress to elected officials, schools, or other community groups; lunch-n-learns; virtual questionnaires and surveys; public meetings; and postings on social media and interactive websites.

5.3 Incorporation into Existing Planning Mechanisms

For the previous plan, jurisdictions each listed Capital Improvement Plans, Economic Development Plans, Emergency Operations Plans, and Drought Contingency Plans to incorporate the HMP, but incorporation was not accomplished due to limited capabilities and coordination.

The Planning Teams will expand their mitigation strategies by incorporating the HMP into the following mechanisms.

Table 64: Integration Planning Mechanisms

Jurisdiction	Type of Plan or Activity	Department Responsible	Update Schedule
Blooming Grove	Capital Improvement Plan	City Administration	Every 10 years

Jurisdiction	Type of Plan or Activity	Department Responsible	Update Schedule
Blooming Grove	Comprehensive Plan	City Administration and Public Works Departments	Every 5 years
Corsicana	Capital Improvement Plan	City Administration	Every 10 years
Corsicana	Comprehensive Plan	Planning, Zoning, and Public Works Departments	Annually
Corsicana	Local Emergency Operations Plan	Fire Dept./OEM	Every 5 years
Kerens	Comprehensive Plan	City Administration	Every 5 years
Navarro County	Comprehensive Plan	County Commissioners, Planning and Zoning, Floodplain Admin, Elected Office Holders, and OEM	Bi-Annual
Navarro County	Emergency Operations Plan	OEM	5 years

The HMPT will provide a copy of the Navarro 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 Navarro County HMP and will not contribute to increased hazards in the affected jurisdiction(s).

During the update of each of the identified planning mechanisms, the mechanism’s update committee and authors will review this HMP and incorporate plan elements and mitigation actions relevant to the respective mechanism and ensure all goals and strategies of the respective documents are consistent with and support the mitigation goals and will not contribute to increased vulnerability to hazards.

Chapter 6: Conclusion

Through the development of this plan, Navarro 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 Navarro 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 Navarro 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 Navarro 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.

Appendix A: Capability Assessments

A.1 NFIP Assessment

The NFIP provides flood insurance to property owners, renters, and businesses, and having this coverage helps them recover faster when floodwaters recede. The NFIP works with communities required to adopt and enforce floodplain management regulations that help mitigate flooding effects.

Flood insurance is available to anyone living in one of the 23,000 participating NFIP communities.

The following table describes NFIP compliance within the participating jurisdictions.

Table 65: NFIP Implementation Per Jurisdiction

Adoption of NFIP minimum floodplain management criteria via local regulation.	
Blooming Grove	<p>Description in Ordinance 326, Blooming Grove Code of Ordinances Article 3.04 Flood Damage Prevention. In order to accomplish its purposes, this article uses the following methods:</p> <ul style="list-style-type: none"> (1) Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities; (2) Require that uses vulnerable to floods, including facilities, which serve such uses, be protected against flood damage at the time of initial construction; (3) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters; (4) Control filling, grading, dredging and other development, which may increase flood damage; (5) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.
Corsicana	<p>According to Article 9.1400 - Flood Areas, areas within the jurisdiction of the City Planning Commission subject to flood conditions as established by the City Engineer of Corsicana will not be considered for subdivision purposes until adequate drainage has been provided. Areas</p>

Adoption of NFIP minimum floodplain management criteria via local regulation.

	<p>within Flood Zone A of the Federal Emergency Management Agency (FEMA) map shall comply with the provisions of Chapter 3, Article 3.600, Section 3.608, (Development and Construction within Flood Hazard Areas).</p>
<p>Kerens</p>	<p>Described in the Storm Sewer section of Appendix A- Specific Requirements and Design Criteria for Chapter 7– Subdivisions, flooding is addressed when designing the sewer system. Creeks of drainage ways with banks which have slopes steeper than 4:1 must be maintained by a maintenance entity other than individual lot owners. In such cases¹ the creek or excavated channel shall meet one of the following two requirements: (i) The area of the flood way shall be provided as a park or flood way management area. Prior to acceptance of any drainage way as a flood way management area by the City, the drainage way shall be cleared of all debris trash and all objectionable underbrush and weeds. All provisions of Paragraph 2 above must be met. (ii) Creeks or drainage ways in any areas which have private maintenance provisions other than individual lot owners, shall not be required as flood way management areas. The creeks or drainage ways in these areas shall not be maintained by the City. Adequate utility access and flood way easements shall be provided to ensure protection of these areas for maintenance purposes. (iii) Lakes, detention ponds, and retention ponds may be constructed in all areas provided they are approved by the City Engineer. The City may assume maintenance responsibilities for this type of facility, if approved by the City Council; however, easements shall be provided to assure protection of these areas for maintenance purposes.</p>
<p>Navarro County*</p>	<p>The Navarro County Office of Planning and Development enforces the Flood Damage Prevention Court Order. In order to accomplish its purposes, this court order uses the following methods:</p>

Adoption of NFIP minimum floodplain management criteria via local regulation.

- (1)** Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;
- (2)** Require that uses vulnerable to floods, including facilities, which serve such uses, be protected against flood damage at the time of initial construction;
- (3)** Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;
- (4)** Control filling, grading, dredging and other development, which may increase flood damage;
- (5)** Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.

Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable.

CID	Community Name	Current Effective Map Date
480952#	BLOOMING GROVE, CITY OF	06/05/12(M)
480498#	CORSICANA, CITY OF	06/05/12
480955#	KERENS, CITY OF	06/05/12(M)
480950#	NAVARRO COUNTY*	06/05/12

Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP.

Community	Floodplain Administrator Title
Blooming Grove	City Secretary
Corsicana	Director of Engineering
Kerens	City Secretary
Navarro County*	Director of Planning

Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs.

The local floodplain administrators (FPAs) in the jurisdictions serve as the local FPA in addition to their primary position in their respective communities.

When acting as the FPA, duties mainly consist of reviewing permit applications for development in the floodplain to ensure the development will not negatively impact the community's floodplain. They are also responsible for addressing code violations related to the flood damage prevention ordinance and coordinating recovery efforts after a major disaster.

Description of how participants implement the substantial improvement/substantial damage provisions of their floodplain management regulations after an event.

For communities participating in the National Flood Insurance Program (NFIP), structures located in the Special Flood Hazard Area (SFHA) that are substantially modified (either damaged or improved) more than 50 percent are required to comply with local building and floodplain requirements. Local community officials (typically floodplain administrators) are responsible for substantial damage and improvement (SI/SD) determinations. These determinations are required to be in compliance for participation in the NFIP.

How a community and FEMA assess the structure owner's compliance with these requirements is part of the process referred to as Substantial Improvement (SI) and Substantial Damage (SD). After a disaster, communities are required to complete damage assessments for structures in the SFHA.

The following describes the responsibilities that specifically apply to administering the SI/SD requirements, as determined by FEMA and implemented by the communities:

- Review permit applications to determine whether improvements or repairs of buildings in SFHAs constitute substantial improvement or repair of substantial damage.
- Review descriptions of proposed work submitted by applicants to ensure that all requirements are addressed.
- Review cost estimates of the proposed work submitted by applicants and determine if the costs are reasonable for the proposed work or use other acceptable methods to estimate the costs.
- Decide the method to determine market value (including which method to use after an event that damages many buildings) and identify the buildings most likely to have sustained substantial damage.
- Review market value appraisals, if submitted by applicants, to determine if the appraisals reasonably represent the characteristics of the building and the market value of the structures (excluding land value).
- Determine if proposed improvements are substantial improvements based on the costs of the proposed work compared to the market value of the building.

Description of how participants implement the substantial improvement/substantial damage provisions of their floodplain management regulations after an event.

- Determine if damaged buildings are substantially damaged based on cost estimates for repairs compared to the market value of the building before the damage occurred.
- Issue a letter to the property owner to convey the SI/SD determination.
- Retain all versions of the Flood Insurance Rate Maps (FIRMs) and allow citizens to access the maps.
- Maintain in the permit file specific information on all development that occurs within the SFHA and make this information available for public inspection. The documentation includes the lowest floor elevations, other pertinent elevations such as for machinery and equipment, and flood protection designs.
- Conduct periodic field inspections during construction to ensure that development complies with issued permits, work with builders and property owners to correct deficiencies and violations, and check for unpermitted development.
- Perform assessments after events that cause damage, inform property owners of the requirement to obtain permits for repairs, and determine whether the damage qualifies as substantial damage.
- Coordinate with property owners and insurance adjusters regarding NFIP flood insurance claims and ICC coverage.

The local FPAs seek help from the State FPA in implementation due to their lack of experience and the overwhelming events during a disaster.

A.2 Capability Assessments

As FEMA states, reviewing each participant's capabilities helps the planning team find and evaluate resources they can use to reduce disaster losses now or in the future. Each Assessment is organized into four types of mitigation capabilities:

1. **Planning and Regulatory:** Plans, policies, statutes or regulations that could affect resilience to future natural hazard events and other future conditions, including the potential effects of climate change.
2. **Administrative and Technical:** Staff, skills, and tools that can reduce the risk of hazards in the planning area.
3. **Financial:** Potential funding resources to support hazard mitigation. These may be local funds and programs, FEMA or other federal programs, and private and non-profit resources.
4. **Education and Outreach:** Existing programs that support mitigation and communicate risk. These could include technical assistance, training and education, and awareness campaigns that build capacity.

A.2.1 Results

The following capability assessments required the Local Planning Team of each jurisdiction to examine the ability of their jurisdiction to implement and manage a comprehensive mitigation strategy. The capabilities identified are available pre- and post-disaster to mitigate damages.

City of Blooming Grove

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): Needs updating to include
			Does the plan identify projects to include in the mitigation strategy?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional): Needs updating to include
			Can the plan be used to implement mitigation actions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional): Needs updating to include
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	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):

Type of Plans	Have capability?	Level	If Yes...		
			mitigation actions?		
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"/> 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 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional): Needs updating

Type of Plans	Have capability?	Level	If Yes...		
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):
			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 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	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): Needs updating
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
		Is the ordinance adequately administered and enforced?	<input type="checkbox"/> Yes <input checked="" 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Comments (optional):

Land Use Planning and Ordinances	Have capability?	If Yes...		
		administered and enforced?		
		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 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: IBC/2021
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	Rating: 5
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Review method: By City

	<input type="checkbox"/> N/A	
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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 checked="" type="checkbox"/> No <input 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 systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: Manually clean inlets and outlets of drainage culverts on an as-needed basis
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: State Mutual Aid System

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

Staff	Have capability? FT/PT*	If Yes...	
*Full-time (FT) or part-time (PT) position			
			<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 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 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	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 type="checkbox"/> Yes <input checked="" 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? Have a Volunteer Fire Department	<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 signals)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: City wide outdoor warning signal; Alert notification	
		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, Tornado, Severe Thunderstorm	
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: limited to less extensive grant applications	
		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? Stormwater flooding	
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 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: Red Cross, Salvation Army	
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: Post notices at City Hall; Flyers at City Hall	
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: Tornado, Fire, Active Shooter and Shelter in place Programs	
Public/private partnership initiatives addressing disaster-related issues	<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...
StormReady certification	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>StormReady communities are better prepared to save lives from the onslaught of severe weather through advanced planning, education and awareness. To be officially StormReady, a community must:</p> <ul style="list-style-type: none"> • Establish a 24-hour warning point and emergency operations center • Have more than one way to receive severe weather warnings and forecasts and to alert the public • Create a system that monitors weather conditions locally • Promote the importance of public readiness through community seminars • Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.
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	<p>Could the resource be used to fund future mitigation activities?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<p>Has the funding resource been used in past for mitigation activities?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<p>If yes, for what type of mitigation activities?</p>

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 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
		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 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
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 type="checkbox"/> No
If yes, for what type of mitigation activities? Water and Wastewater system improvements			
	<input checked="" type="checkbox"/> Yes	Could the resource be used to fund future mitigation activities?	<input checked="" type="checkbox"/> Yes

Funding Resources	Have capability?	If Yes...	
Other federal funding programs (e.g. FEMA mitigation grants)	<input type="checkbox"/> No <input type="checkbox"/> N/A		<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? Drainage, Water and Wastewater after flooding	
State funding programs	<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?	

How can these capabilities be expanded and improved to reduce risk?
<p>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.</p>

City of Corsicana

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):

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):
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 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 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 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 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 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 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments (optional):
Subdivision 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):
		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 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	Version/Year: 2021 IBC

	<input type="checkbox"/> N/A	
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	Rating: 2
Site Plan Review Requirements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Review method: Plans Review conducted by Fire Dept and Engineering Dept

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	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 systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: Public Works has programs for tree trimming and drainage
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: EDUCT, Regional and Statewide Plan

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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<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 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 type="checkbox"/> Yes <input checked="" 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 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
Civil Engineer	<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...	
*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 type="checkbox"/> Yes <input checked="" 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 type="checkbox"/> Yes <input checked="" 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 checked="" 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 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 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	Describe capability: Weather Sirens, 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? Tornado/Flood	
Hazard data and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: NCOEM/CFR Records	
		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/HazMat	
Grant writing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: Grants Written by Corsicana Staff or by paying/contracting a grant writer	
		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	
HaZUS analysis or GIS software	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: GIS mapping	
		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? Unknown	

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: Corsicana Fire Dept public outreach-public education for fire prevention and risk reduction	
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: Corsicana Fire Dept annual prevention programs at schools	
Public/private partnership initiatives addressing disaster-related issues	<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: TFCA Best Practices.	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

Program or Organization	Have capability?	If Yes...
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	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? Weather Siren Upgrades	
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
		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

Funding Resources	Have capability?	If Yes...	
		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
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 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?			

Funding Resources	Have capability?	If Yes...	
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 checked="" 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 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? Communications	
State funding programs	<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

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?	

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 Kerens

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):

Type of Plans	Have capability?	Level	If Yes...		
			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 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 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 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 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 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 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 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 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 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):
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 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	Version/Year: 2021 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	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: Plans Review conducted by Fire Dept and Engineering Dept

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	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 systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: Public Works has programs for tree trimming and drainage
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: EDUCT, Regional and Statewide Plan

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 checked="" 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 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...	
*Full-time (FT) or part-time (PT) position			
	<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
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 checked="" 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 checked="" type="checkbox"/> No
		Is staff trained on natural hazards and mitigation?	<input type="checkbox"/> Yes <input checked="" 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 signals)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p data-bbox="834 344 1408 373">Describe capability: Weather Sirens, Everbridge</p> <table border="1" data-bbox="834 405 1408 594"> <tr> <td data-bbox="834 464 1328 533">Has capability been used to assess or mitigate risk in the past?</td> <td data-bbox="1328 422 1408 575"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No </td> </tr> </table> <p data-bbox="834 615 1408 678">If yes, for what type of hazard event? Tornado and Flood</p>	Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Hazard data and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p data-bbox="834 728 1333 758">Describe capability: NCOEM/CFR Records</p> <table border="1" data-bbox="834 789 1408 978"> <tr> <td data-bbox="834 848 1328 917">Has capability been used to assess or mitigate risk in the past?</td> <td data-bbox="1328 806 1408 959"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No </td> </tr> </table> <p data-bbox="834 999 1408 1062">If yes, for what type of hazard event? Flood and HazMat</p>	Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Has capability been used to assess or mitigate risk in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Grant writing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<p data-bbox="834 1113 1073 1142">Describe capability:</p> <table border="1" data-bbox="834 1173 1408 1362"> <tr> <td data-bbox="834 1232 1328 1302">Has capability been used to assess or mitigate risk in the past?</td> <td data-bbox="1328 1190 1408 1344"> <input type="checkbox"/> Yes <input type="checkbox"/> No </td> </tr> </table> <p data-bbox="834 1383 1408 1413">If yes, for what type of hazard event?</p>	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			
HaZUS analysis or GIS software	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<p data-bbox="834 1457 1073 1486">Describe capability:</p> <table border="1" data-bbox="834 1518 1408 1707"> <tr> <td data-bbox="834 1577 1328 1646">Has capability been used to assess or mitigate risk in the past?</td> <td data-bbox="1328 1535 1408 1688"> <input type="checkbox"/> Yes <input type="checkbox"/> No </td> </tr> </table> <p data-bbox="834 1728 1408 1757">If yes, for what type of hazard event?</p>	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			

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:	
Public/private partnership initiatives addressing disaster-related issues	<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 checked="" type="checkbox"/> No
		Describe program or organization and how it relates to disaster resilience and mitigation: TFCA Best Practices.	
StormReady certification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		

Program or Organization	Have capability?	If Yes...
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	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?	
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
		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

Funding Resources	Have capability?	If Yes...	
		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
		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 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?	

Funding Resources	Have capability?	If Yes...	
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 checked="" 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 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 <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

Funding Resources	Have capability?	If 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?
<p>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.</p>

Navarro County

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 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):
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 type="checkbox"/> Local <input checked="" 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):
			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):
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 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 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):
Transportation 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 checked="" 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):
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 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 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 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): Richland Chambers RSVR

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):
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 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 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 type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Version/Year:

Building Code Effectiveness Grading Schedule (BGEES) 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: Septic and Industrial Only

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	Describe capability: Planning & Development Office reviews permits, ordinances, and zoning
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 systems)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: County Commissioners in charge of drainage and tree clearing on county roads
Mutual Aid Agreements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: Regional and State Plan

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 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 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 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...	
*Full-time (FT) or part-time (PT) position			
	<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
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 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 <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 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 checked="" 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	Describe capability: OWS, EVERBRIDGE, NIXLE	
		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	
Hazard data and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: NCOEM	
		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	
Grant writing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Describe capability: Volunteer	
		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: Basic	
		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, 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: Local storm spotters and faith-based organizations help prepares communities for severe weather.	
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: NCOEM Public Outreach	
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: Annual School Safety Programs	
Public/private partnership initiatives addressing disaster-related issues	<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: Best Practices	
StormReady certification	<input checked="" type="checkbox"/> Yes	StormReady communities are better prepared to save lives from the onslaught of severe weather	

Program or Organization	Have capability?	If Yes...
	<input type="checkbox"/> No <input type="checkbox"/> N/A	through advanced planning, education and awareness. To be officially StormReady, a community must: <ul style="list-style-type: none"> • Establish a 24-hour warning point and emergency operations center • Have more than one way to receive severe weather warnings and forecasts and to alert the public • Create a system that monitors weather conditions locally • Promote the importance of public readiness through community seminars • Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.
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 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 checked="" 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?	
Fees for water, sewer, gas, and/or electric services	<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 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 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?	
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
		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?	

Funding Resources	Have capability?	If Yes...	
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 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? Cities only	
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 <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?	

A.2.2 Gaps & Improvements

After completing the assessments, the Local Planning Teams realized that they each have a few gaps in each type of mitigation capability.

To expand on planning and regulatory capabilities and reduce future risks, jurisdictions could budget and pass policies and procedures for mitigation actions, create more land use ordinances, add mitigation strategies to existing plans and create new plans related to hazard mitigation.

To expand on administrative and technical capabilities, approving the hiring and training of staff for mitigation activities, acquiring data-collecting software, and tracking inventory of assets.

To expand on financial capabilities, jurisdictions could use existing funding resources to implement mitigation activities and work with grant writers to apply to grants.

To expand on education and outreach capabilities, the Local Planning Team can work with local citizen groups and schools to educate residents on risks and mitigation measures.

Appendix B: Local Planning Teams

The following table identifies the members of the Local Planning Team (LPT) from each participating jurisdiction.

Table 66: Local Planning Team Members

City of Blooming Grove		
Agency/Organization	Position	Role in LPT
City Council	Mayor	General oversight hazard identification, and plan development
City Administration	City Secretary	Hazard identification and plan development
Public Works	Director	Hazard identification and plan development
City Council	Mayor Pro-Tem	Hazard identification and plan development
City of Corsicana		
Agency/Organization	Position	Role in LPT
Fire Department	Fire Chief	General oversight hazard identification, and plan development
Fire Department	EMC	Hazard identification and plan development
Engineering Department	Dept Director	Flood Plain Administrator/GIS
City of Kerens		
Agency/Organization	Position	Role in LPT
City Administration	City Secretary	Hazard identification and plan development
Police Department	Chief of Police	Hazard identification and plan development
Navarro County Unincorporated		
Agency/Organization	Position	Role in LPT
Commissioners Court	County Judge	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.

Appendix C: Adoption

A copy of the FEMA approval letter and the adoption resolutions from all participating jurisdictions are provided in this appendix.

{Placeholder for FEMA Approval Letter}

{Placeholder for Blooming Grove Adoption Resolution}

{Placeholder for Corsicana Adoption Resolution}

{Placeholder for Kerens Adoption Resolution}

{Placeholder for Navarro County Adoption Resolution}