

2025



LEE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

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SECTION 1: INTRODUCTION



Lee County is situated in Southeast Central Texas, approximately 45 miles east of the Austin Metropolitan Statistical Area (MSA) and about 40 miles southwest of the Bryan-College Station MSA. The county borders Bastrop County to the west, Williamson County and Milam County to the north, Burleson County to the east, and Fayette and Washington counties to the south. Highway 77 runs north to south through Lexington and Giddings, connecting Central Texas to the Rio Grande Valley and extending northward to the Waco MSA. Two major highways run east to west: Highway 290, which connects Houston and Austin via Giddings, and Highway 21, linking the BCS MSA to San Antonio and intersecting Highway 77 between Lexington and Giddings. Lee County faces a similar hazard profile to many other Central Texas communities, including extreme heat events during summer, tropical storms in late summer and fall, hail and severe winter storms, and tornadoes and thunderstorms accompanied by flash floods in spring.

These hazards can be life-threatening, destroy property, disrupt the economy, and lower the overall quality of life for individuals. Hazard mitigation is defined by the Federal Emergency Management Agency (FEMA) as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. FEMA is the federal agency responsible for preparing for, responding to, and recovering from disasters in the United States. Hazard mitigation planning is an investment in a community's safety and sustainability. It is widely accepted that the most effective hazard mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made.

This hazard mitigation plan is a framework for Lee County, including all participating jurisdictions, to address hazards and vulnerabilities by reducing the future impact of various hazards on people and property that exist today and in the foreseeable future.

Participation and Scope

The Lee County Hazard Mitigation Plan is a multi-jurisdictional Plan covering six jurisdictions: Lee County, the City of Lexington, and the City of Giddings, in addition to the three ISDs in Lee County: Giddings ISD, Dime Box ISD, and Lexington ISD. The prior

Hazard Mitigation Plan for the area was the 2017 Multi-jurisdictional Hazard Mitigation Plan. This 2025 Plan Update covers the same municipalities but better incorporates the ISDs of Lee County as Core Team members and participants. This reflects a decision made to emphasize the importance of all-hazards preparedness for school districts in Lee County. Additional entities were invited to participate, but they chose to do so as stakeholders rather than as jurisdictions. These are listed in Section Two under Public and Stakeholder Involvement.

The updated Plan builds on the 2017 version, incorporating new capabilities, updated risk assessments, and mitigation actions that each focus on mitigating a single hazard. The 2025 Plan scope includes a detailed understanding of the planning area regarding existing capabilities, historical data, and future development patterns. Next, the area's vulnerability to different natural hazards has been studied thoroughly, resulting in a detailed assessment of hazard risk. The assessment was used to assist the planning team in identifying and ranking mitigation activities based on their likelihood of reducing risk.

Purpose

The Mission Statement of the Plan is to identify the existing vulnerabilities across Lee County and enhance community resilience through strategic improvements. The Plan was prepared by Langford Community Management Services on behalf of and with extensive input from representatives of Lee County and participating jurisdictions. The purpose of the Plan is to minimize or eliminate long-term risks to human life and property from known hazards and to break the cycle of high-cost disaster response and recovery throughout Lee County.

To accomplish this, cost-effective hazard mitigation actions within the planning area are identified along with information critical to successful implementation, such as estimated cost, responsible departments, funding sources, and timelines. Additionally, an updated FEMA-approved Hazard Mitigation Plan is a condition of eligibility for certain types of disaster assistance, including funding for mitigation programs and projects.

A successful Hazard Mitigation Plan will:

1. Align risk reduction with other Federal, State, or community objectives.
2. Build or encourage partnerships for risk reduction involving government, organizations, businesses, and the public
3. Communicate priorities to potential sources of funding.
4. Identify long-term, broadly supported strategies for risk reduction.
5. Review the Plan with Core Team participants annually.
6. Identify implementation approaches that focus resources on the greatest risks and vulnerabilities; and
7. Increase education and awareness around threats, hazards, and vulnerabilities.

The Core Planning Team has identified 13 natural hazards to be addressed in the 2025 plan. Detailed information about these hazards and risks can be found in Section 4, while detailed risk assessments for each hazard are discussed in Sections 5-17. The Plan's specific goals are identified in Section 18, with mitigation actions outlined in Section 19. Section 20 discusses the ongoing maintenance of the Plan, how information will be incorporated into existing plans (such as land use and ordinances), funding mechanisms, monitoring and evaluation, annual and 5-year updates, and a commitment to involve the public continuously.

SECTION 2: PLANNING PROCESS



1. **Organize the Planning Process and Resources** – At the start, the participating jurisdictions focus on assembling the resources needed for a successful mitigation planning process. This includes securing technical expertise, defining the planning area, and identifying key individuals, agencies, neighboring jurisdictions, businesses, and/or other stakeholders to participate in the process. The planning process for local and tribal governments must include opportunities for the public to comment on the Plan.
2. **Assess Risks** – Next, the local government needs to identify the characteristics and potential consequences of hazards. It is important to understand what geographic areas each hazard might impact and what people, property, or other assets might be vulnerable.
3. **Develop a Mitigation Strategy** – The local government then sets priorities and develops long-term strategies for avoiding or minimizing the undesired effects of disasters. The mitigation strategy addresses how the mitigation actions will be implemented and administered.
4. **Adopt and Implement the Plan** – Once FEMA has received notification of the adoption from the governing body and approved the Plan, the state, county, or local government will adopt

Planning Team

Lee County, including participating jurisdictions, hired Langford Community Management Services to provide technical support and oversee the Plan's development. The Lee County Plan update was created using a direct representative model, where each participating jurisdiction chooses and sends a representative to represent their interests.

A local planning team was also established at the jurisdictional level, which was responsible for assembling representatives to participate in the meetings and complete relevant tasks. This group was primarily responsible for developing and eventually implementing the mitigation actions at the local level.

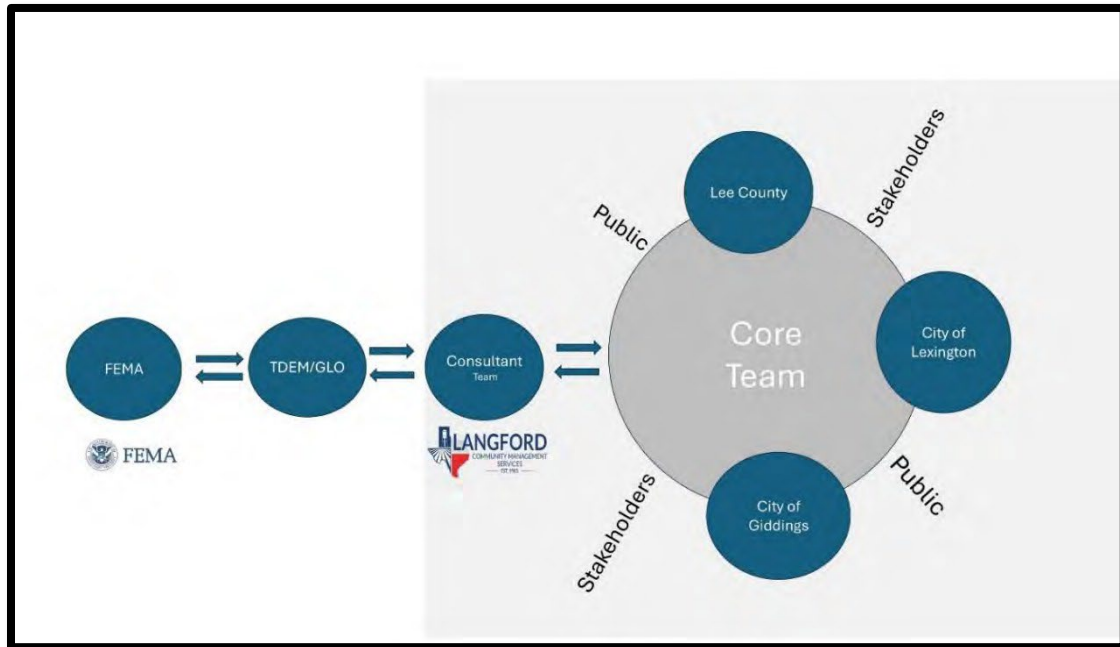
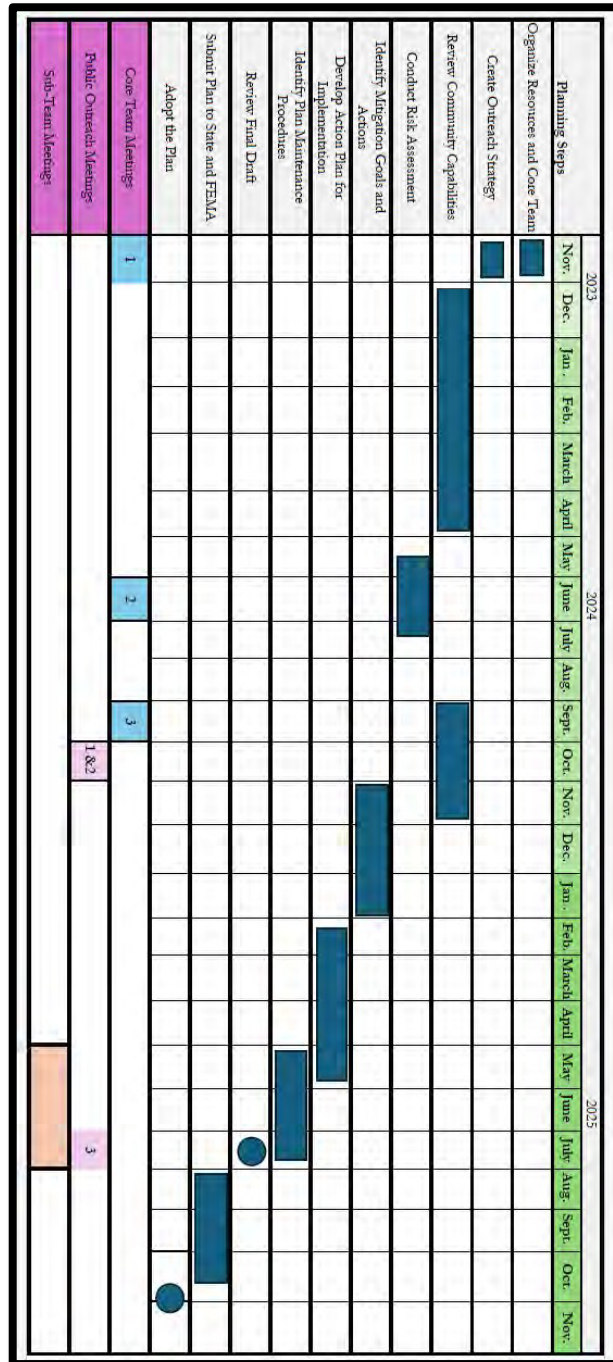


Table 2-1. Core Planning Team

Organization	Title	Department
Lee County	County Judge	Office of Emergency Management
Lee County	Emergency Management Coordinator	Office of Emergency Management
Lee County	County Commissioner	Commissioners Court
Giddings	City Manager	City Administration
Giddings	Mayor	City Administration
Giddings	Fire Chief	Giddings VFD
Lexington	Mayor	City Administration
Lexington ISD	Superintendent	Lexington ISD
Giddings ISD	Superintendent	Giddings ISD
Dime Box ISD	Superintendent	Dime Box ISD

The Core Team had three main meetings: the Plan Kickoff Meeting on November 1st, 2023, the Core Team Meeting 1 on June 11th, 2024, and the Core Team Meeting 2 on September 24th, 2024. There were also multiple meetings scheduled with individual Core Team Members.

Figure 2-1: Lee County HMAP Plan Schedule



Resources and Existing Plans

Resources

Various resources were used to gather and analyze data on past hazard events and their impact on the planning area to conduct hazard risk assessments. The preliminary findings of the hazard risk assessments were presented at Core Meeting 2 and then shared in their entirety with the participants to develop mitigation actions. The information obtained from these assessments facilitated discussions that helped participants develop actions for their respective communities.

Resources used for the assessments include the National Oceanic and Atmospheric Administration (NOAA, Texas Geographic Society, U.S. Geographic Society (USGS, U.S. Department of Health and Human Services, US Departments of Agriculture, FEMA, U.S. Army Corp of Engineers (USACE, Texas Water Development Board (TWDB, Texas A & M Forest Service, Texas Division of Emergency Management (TDEM, local reporting, and other sources).

Existing Plans and Regulations

The following existing plans and regulations served as a foundation for gathering background information and initiating discussions on past and current capabilities, hazards, and mitigation actions.

Local Mitigation Planning Policy Guide – The Guide was published by the Federal Emergency Management Agency (FEMA) in 2022 to provide official policy and guidance on Local Hazard Mitigation planning requirements. The Guide’s primary role is to help local government facilitate consistent evaluation and compliance with planning requirements. Another role is to provide examples for communities on how to leverage community stakeholders and partnerships to increase community resiliency.

Local Mitigation Planning Handbook – FEMA published an updated Handbook for mitigation planning in 2023. The Handbook serves as a supplementary guide to the Local Mitigation Planning Policy Guide. The main role of this Handbook is to provide additional guidance to local governments on how to comply with the rules and regulations of Hazard Mitigation Planning.

Texas State Hazard Mitigation Plan – The primary role of the plan is to motivate state agencies and local government, as well as the private sector, to prevent catastrophic impact to property and people from natural hazards by addressing their risk potential, identifying mitigation actions, and establishing priorities to follow through with those actions through collaborative, analytical mitigation planning. An additional role of the plan is to provide the framework for local planning teams to use as a springboard and resource when addressing their local mitigation planning requirements and strategies. The 2023 State Plan is the most recent update.

Lee County Flood Damage Prevention Ordinance - The Lee County Flood Damage Prevention Ordinance establishes the process for regulating development in the flood-prone areas across Lee County. The ordinance establishes that the flood insurance study used as the basis for flood risk is from 2014, and that the Lee County Development Services Director shall serve as the floodplain administrator for all flood hazard areas in Lee County. The county judge shall be responsible for approving or denying floodplain development permits, indicating that new residential, commercial, or industrial development, or substantially damaged or substantially improved properties, shall be elevated to 1 foot above the base flood elevation. Manufactured homes in zones without base flood elevation must be constructed to resist flood damage, or if BFE is available, elevated one foot above BFE. After 180 days in one location, Recreational Vehicles must either be highway-use ready or elevated one foot above BFE.

Lee County Subdivision and Development Regulations – These regulations establish the regulations for the subdivision and development of land in Lee County.

Interlocal agreement between City of Giddings and Lee County, and Interlocal agreement between City of Lexington and Lee County – Two interlocal agreements were established

between the municipalities and Lee County, where the County regulates the development process in the ETJ, unless any portion of the proposed development falls within city boundaries, in which case, the city of Lexington or Giddings has the authority to regulate that process.

City of Lexington Code of Ordinances

The City of Lexington's Code of Ordinances establishes the organization of the City and its rules and regulations for those living, working, and developing in Lexington.

The ordinances establish the Lexington VFD and create the role of Fire Chief, who establishes the rules and regulations for the VFD. The ordinances also acknowledge the Mayor of Lexington as the Emergency Management Director for the City, who is responsible for supervising emergency planning operations, coordinating with outside organizations and jurisdictions for support or supplies, and declaring a local state of disaster and taking necessary administrative actions to ensure the protection of health, life, or property.

Chapter 22 establishes a building official who is responsible for the administration of the inspection and permit-issuing processes. The Code of Ordinances also adopts the 2012 editions of the International Building Code, the International Property Maintenance Code, the International Existing Building Code, and the International Energy Conservation Code. The chapter also establishes the process for identifying and remedying dangerous and substandard buildings in Lexington. Article nine establishes the design and construction standards for manufactured housing in Lexington. Chapter 46 of the Code of Ordinances adopts the 2012 editions of the NFPA 101 Life Safety Code, the International Fuel Gas Code, and the International Fire Code. The chapter establishes the position of the Fire Marshall, who is responsible for fire code inspections and leads the investigation of fires in Lexington.

City of Giddings Code of Ordinances: The City of Giddings Code of Ordinances establishes the rules of city administration and the guidelines for those living, working, and developing in the city of Giddings. Chapter Three establishes the role of the Code Compliance Official, who is responsible for enforcing all building codes in the City of Giddings and addressing illegal or unsafe conditions or construction practices. The Code of Ordinances also adopts the 2018 International Building Code, the 2020 National Electrical Code, the 2018 International Plumbing Code, the 2018 International Mechanical Code, the 2018 International Residential Code, the 2018 International Energy Conservation Code, the 2018 International Property Maintenance Code, and the 2018 International Existing Building Code.

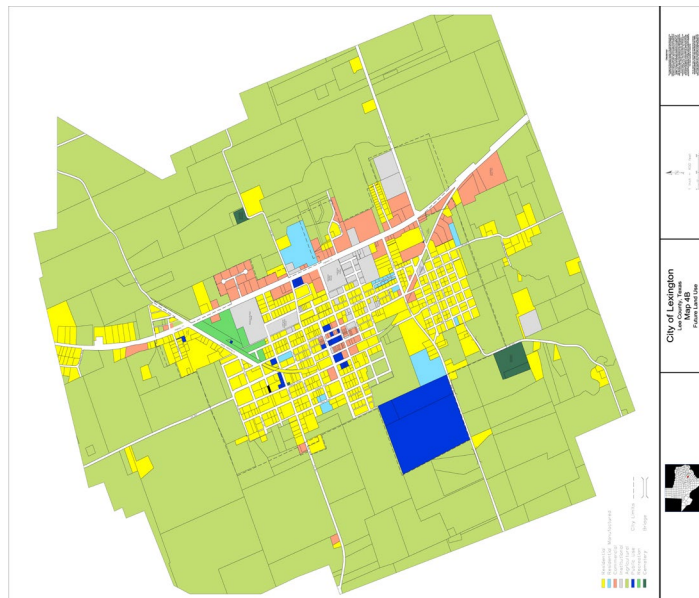
Most important to this plan is Article 14, the Flood Damage Prevention Ordinance, which adopts the 2014 Flood Insurance Study and Flood Insurance Rate Map. The ordinance requires a floodplain development permit for new construction and for properties that have been substantially damaged or substantially improved. The ordinance establishes that the code compliance officer is the Floodplain Administrator, responsible for processing and approving flood development permits. The ordinance requires all new construction and substantial improvements to be designed to avoid structural collapse or flotation, minimize flood damage, and protect utilities from floodwater infiltration. It also requires construction to be elevated at or above base flood elevation, and if no data is provided for areas of shallow flooding, it must be elevated 2 feet.

City of Giddings EDC Downtown Strategic Plan

The City of Giddings created a Downtown Strategic Plan to guide future development and strategic investment. The plan has clear goals of redeveloping important cultural buildings such as the Sterling theatre, improving pedestrian access along key corridors, implementing a wayfinding program with clear gateway markers, and a program encouraging infill development to improve access to housing. This plan promotes more fiscally responsible infill development within the City of Giddings' boundaries, aligning with the community's preference for a small-town atmosphere and distinct sense of community. These changes to development ensure that resources such as EMS and utility lines are not strained as the city grows.

City of Lexington CDBG 2017-2027 Planning Study and Zoning Ordinance

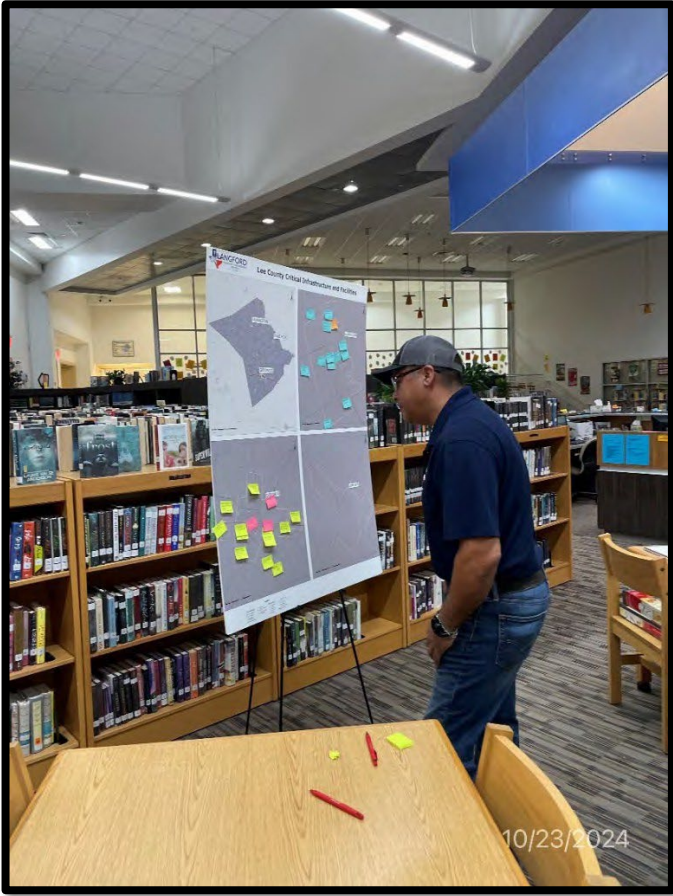
The City of Lexington's Planning Study/ Comprehensive Plan serves as a guide for the future development of the City of Lexington. Most relevant to the concerns of this plan regarding growth impacting community resilience, the City of Lexington encourages infill development to solve an identified gap in affordable housing and identifies over 100 acres of land suitable for infill development. The City of Lexington adopted a zoning code with its 2017 planning study and has more strictly regulated development, ensuring that environmentally and economically important agricultural land is preserved, preventing growth into the surrounding floodplain, and limiting the extension of the WUI.



Public and Stakeholder Involvement

The process of hazard mitigation planning presents an opportunity for Lee County, along with the participating jurisdictions, water utilities, stakeholders, and the public, to assess and develop effective actions to mitigate the risk of loss of life and property damage that may result from a disaster occurring within or around the planning area. Public participation and stakeholder involvement in the Plan are critical to ensure that the components of the Plan are accurate and relevant to the needs of the community. The Planning Team develops a greater understanding of local concerns and legacy knowledge with input from individual citizens and the community. If citizens and stakeholders are involved, it also imparts more credibility to the final Plan and increases the likelihood of successfully implemented mitigation actions.

To engage the public, the Core Team put out a survey to educate community members about the hazard mitigation plan and understand citizens’ priorities for mitigation projects. Additionally, the Core Team hosted two public engagement meetings, one in Giddings on October 16th, 2024, and one in Lexington on October 23rd, 2024.



Public Engagement Meeting on October 23rd, 2024

Table 2-2. Plan Stakeholders

Location	Position	Organization
Lee County	Sheriff	Sheriff’s Office
Lee County	Community and Development Representative	Bluebonnet Electric Cooperative
Lee County	Members	Lions Club
Lee County	Development Services Director	Lee County Development Services

Survey Results

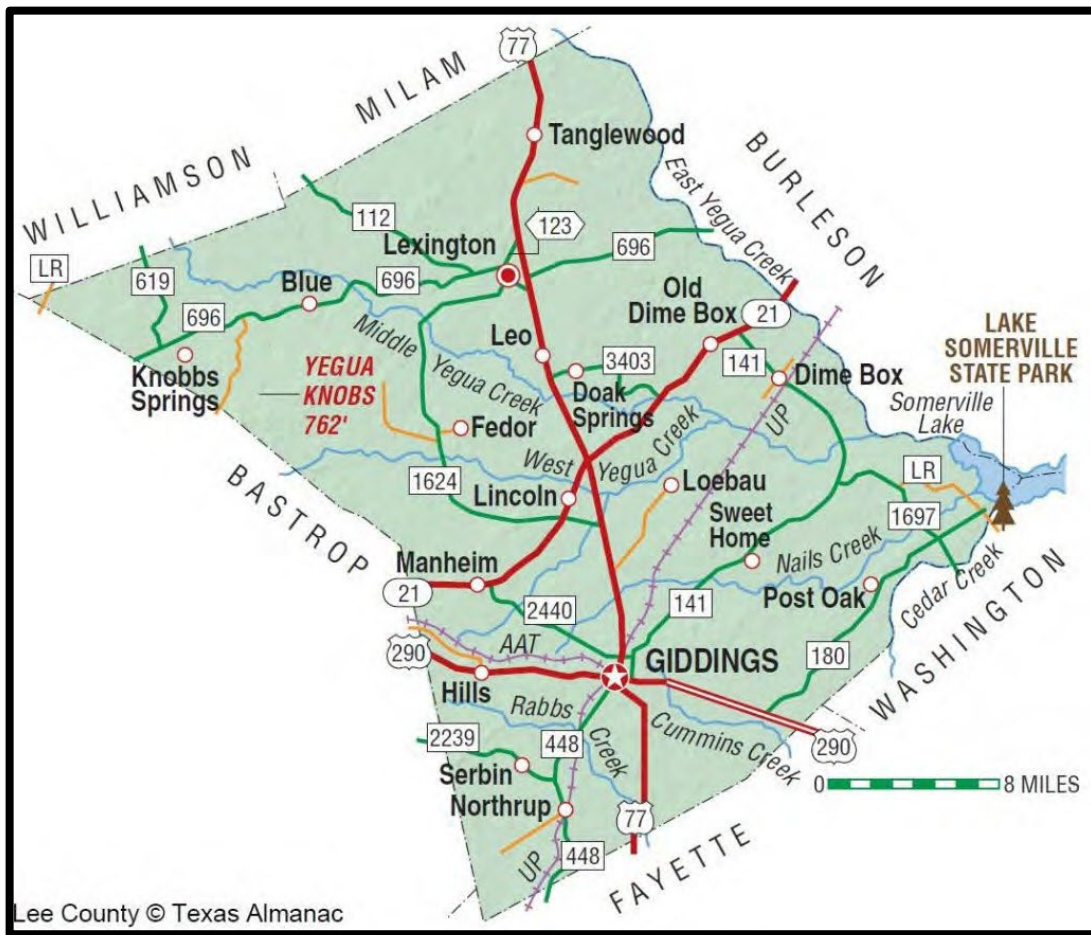
Summary of Findings from the Survey: 58 total survey responses, with zero manually entered.

1. Unincorporated Lee County represents 56.9% of respondents, and Giddings comprises 15.5% of respondents. Lexington residents comprised 25.9% of the survey respondents, with Dime Box residents only providing 1.7% of responses.
2. Droughts were identified as the highest threat, being identified as the top hazard by 22.4% of all responses, with Wildfires ranked second, and Flooding was the 3rd h
3. Severe winter storms are the most frequently experienced hazard, with Extreme Heat, Drought, and Hailstorms tied for the second most experienced hazards.
4. 54 of the 58 respondents (93%) said that they are not located in a floodplain, with 4 respondents (7%) not knowing if they were in a floodplain, and 0 respondents identified their home as being in a floodplain.
5. 81% of respondents identified as not having flood insurance, with around 12% having purchased flood insurance and 7% not knowing if they had flood insurance. The primary reasons for not having flood insurance were that their house was not located in a floodplain (45.5%), their house was elevated or otherwise protected (32.7%), while 9% said it was too expensive, and around 12% said they had never considered it.
6. Most respondents are somewhat concerned about being impacted by a disaster, at slightly over 69%. 22.4% of respondents are somewhat concerned, and a little over 8.6% are not concerned at all.
7. The majority, 54.4% of respondents, have taken steps to make their homes, businesses, or community more hazard-resistant; 73.2% of respondents would like to know more about how to make their families and homes more resilient.
8. The internet was identified as the most effective way for citizens to receive information regarding how to make their homes, businesses, and communities more resistant to hazards, followed by mail and newspaper communication.
9. The top mitigation activities residents favored for government action were improving the resilience of utilities (59.7%), retrofitting essential facilities such as fire, police, and EMS stations (57.9%), and replacing inadequate or vulnerable bridges and roads (45.6%).

SECTION 3: PLANNING AREA PROFILE

This section provides a profile of the hazard mitigation planning area.

Figure 3-1: Lee County Planning Area



Planning Area History

After the Civil War, Lee County was created in the namesake of General Robert E Lee from communities belonging to what were parts of Burleson, Washington, Bastrop, and Fayette counties in 1874. The two main towns, Giddings and Lexington, were established before the creation of Lee County. Lexington was founded as an agricultural and ranching settlement in 1850, and Giddings was founded 21 years later in 1871 with the establishment of the Houston and Texas Central Railway route. Because of its connection to the railroad, Giddings was selected as the county seat of Lee County. The City of Giddings was incorporated in 1913 with a population of around 2000 people. It continued to grow with its agricultural industry until the 1980s, when the oil industry boomed, and the city grew to a population of 5,178. The City of Lexington was incorporated in 1917 with a population that has fluctuated frequently over the past century between 500 and around 1300 residents.

Planning Area Economic Profile

The Lee County economy has around 643 businesses, with a 55% employment rate, and is defined by a strong construction industry, comprising around 1/6 of the working population. The agriculture, retail, and manufacturing sectors are also major sources of employment for Lee County residents.

Table 3-1: Lee County Economic Industries (2022 ACS Estimates)

Lee County Economic Industries By Share of Population		
NAICS Industry	Count	Share
Construction	1,037	17.2%
Agriculture, Forestry, Fishing, and Hunting	628	10.4%
Retail Trade	605	10.1%
Manufacturing	533	8.9%
Public Administration	453	7.5%
Accommodation and Food Services	446	7.4%
Educational Services	424	7.0%
Mining, Quarrying, and Oil and Gas Extraction	398	6.6%
Health Care and Social Assistance	264	4.4%
Finance and Insurance	225	3.7%
Wholesale Trade	213	3.5%
Utilities	166	2.8%
Other Services (excluding Public Administration)	162	2.7%
Professional, Scientific, and Technical Services	139	2.3%
Transportation and Warehousing	111	1.8%
Information	76	1.3%
Real Estate & Rental, and Leasing	71	1.2%
Administration & Support, Waste Management and Remediation	65	1.1%
Arts, Entertainment, and Recreation	3	0.0%
Management of Companies and Enterprises	0	0.0%

The City of Giddings houses more than half of the businesses in Lee County, with construction (19%) and retail (15%) being the primary private industries, and public administration (12%) and education (11%) being the major public sector industries.

The City of Lexington has approximately 88 businesses with the primary industries of wholesale trade (34%) and construction (26%), accounting for over 60% of those employed there.

Planning Area Housing Profile

Table 3-2: Lee County Housing Profile Data

Jurisdiction	Median HH Income	Percent of Homeowners	Median Home Value	Total Housing Units	Vacancy Rate
Lee County	\$66,000	78.1%	\$247,500	7,924	15.2%
Lexington	\$59,821	51.7%	\$186,100	773	9.2%
Giddings	\$51,397	63.6%	\$192,800	2,079	9.5%

Source: 2023 ACS 5-Year Estimate

Lee County and its residents have a lower median household income compared to the state of Texas overall, with the City of Giddings having the lowest median income, nearly \$25,000 less than the state's. Lee County has a higher rate of homeownership overall, at 78.1%, compared to only 62.6% of Texas residents for the year of 2023. Median home values for Lee County are significantly lower than the state of Texas overall, with the state's median value being \$296,000, nearly \$50,000 greater than the median value for Lee County. The incorporated cities in Lee County, Giddings and Lexington, have lower vacancy rates at around 9%, compared to the county vacancy rate of 15.2%, including both units for sale and available to rent.

Planning Area Climate

Lee County is in the humid subtropical climate zone, known for humid and hot summers and milder winters. Lee County experiences, on average, 72 days of precipitation, including the potential for hail, sleet, or snow, with a total average of around 42 inches of precipitation per year, slightly above the US county average of 38 inches. Lee County belongs to the Southern Post Oak Savanna ecoregion, known for its stands of Post Oaks alternating with shrubland. The soil is primarily defined by a clay pan, restricting water flow and limiting the types of plants that can survive in the region.

Figure 3-2: Lee County Climate Graph from U.S. Climate Data

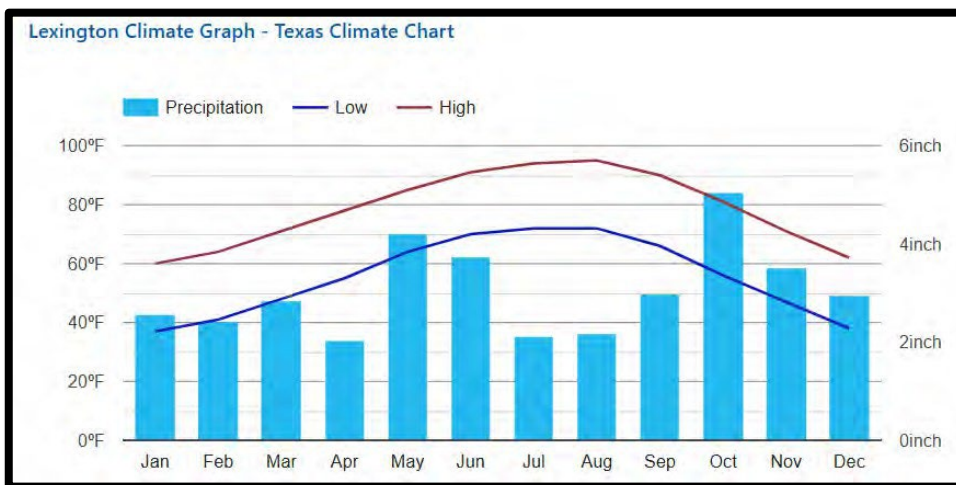


Figure 3-3: Lee County Courthouse



Social and Physical Vulnerability Across Lee County

The Centers for Disease Control use census data and other reliable sources to create a Social Vulnerability Index. Social Vulnerability is defined as the characteristics of a person or group in terms of their capacity to cope with and recover from the impacts of a disaster. Social Vulnerability Indices are tools that government officials use to identify areas that may be more socially vulnerable, i.e., areas that have higher proportions of people with characteristics that might make preparing for and recovering from a disaster more difficult. Examples of these groups include those who have physical or mental disabilities, those who do not speak English as a first language, and those who do not own a vehicle with which they could evacuate. Socially vulnerable populations must be included and considered across all four stages of emergency management, from preparedness to recovery.

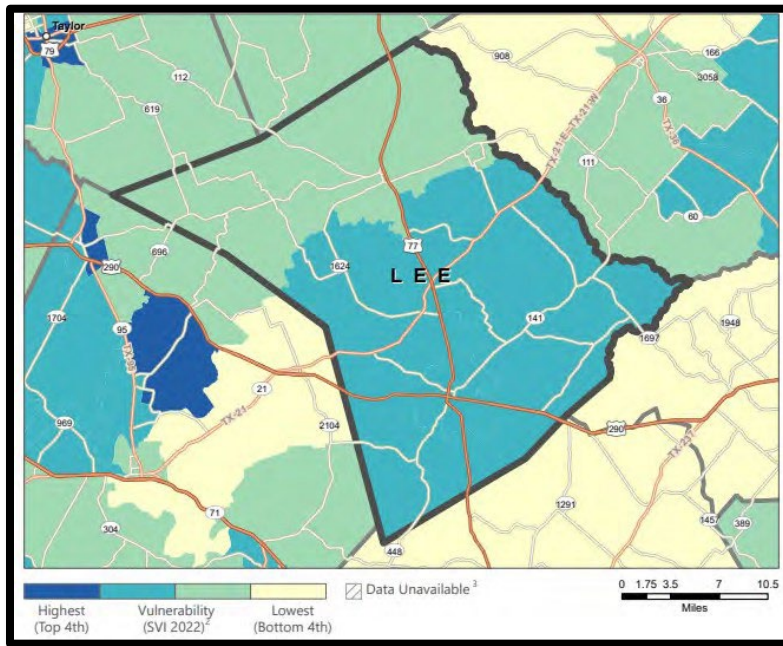


Figure 3-4: Overall Social Vulnerability (2022) From the CDC SVI

A significant portion of Lee County is socially vulnerable, as seen through the teal-colored region throughout the bottom 2/3rds of the county. A majority of the Lee County region falls between the 50th and 75th percentiles, indicating it experiences greater rates of social vulnerability than 50 to 75 percent of census tracts in the United States.

Figure 3-5: 2022 Social Vulnerability by SVI Theme

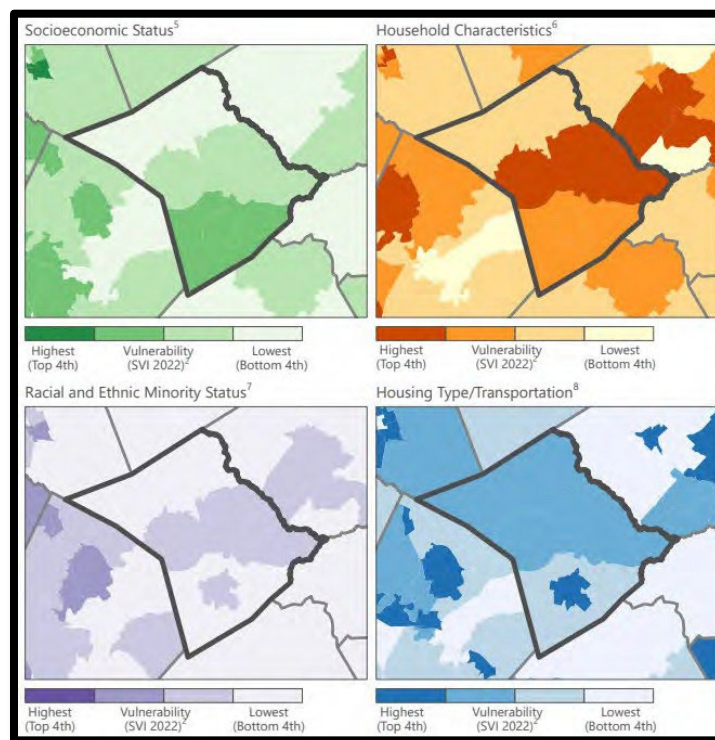


Figure 3-5 shows that higher rates of poverty, lack of access to a vehicle, high percentages of those over the age of 65, and an increased number of mobile homes are the significant factors contributing to Lee County's overall social vulnerability ranking.

Past Development and Community Vulnerability

The City of Lexington has experienced very little development in the past 5 years, and its vulnerability has not changed. While the City of Giddings has experienced some infill development, its vulnerability has also not changed due to updated building codes, smart development practices, and enforced flood damage prevention ordinances. Lee County has experienced some development over the past 5 years, especially as communities like Elgin grow, while it's outside of county boundaries, development has spilled into Lee County. Lee County has modern development regulations and a flood damage prevention ordinance, and enforces regulations in coordination with the cities of Lee County. Because of this, development has not increased the vulnerability of Lee County.

Population and Demographics

Table 3-3: Vulnerable Populations of Lee County, Lexington, and Giddings

Jurisdiction	Population (2023 5-year ACS data)	Estimated Vulnerable Populations		
		Youth (under 5)	Elderly (over 65)	Below the poverty level
Lee County	17,759	1167 (6.6%)	3685 (20.8%)	2167 (12.2%)
Giddings	5085	429 (8.4%)	980 (19.3%)	809 (15.9%)
Lexington	1,522	102 (6.7%)	290 (19.1%)	218 (14.3%)

Lee County, as of 2023, has around 17,759 residents, of whom slightly less than a third reside in the city of Giddings, and around one-twelfth live in the city of Lexington. Echoing the social vulnerability analysis on the previous pages, around 1/5th of Lee County residents is over the age of 65, indicating a potential need for services focused more towards aging in place. The percentage of people below the poverty level for Lee County overall is 12.2%, lower than the Texas average of 13.7% for the year of 2023. However, the cities of Lexington and Giddings have slightly higher concentrations of poverty compared to the unincorporated areas of the county. Slightly more than 6% of Lee County is made up of children under the age of 5, with the City of Giddings having a slightly higher proportion of youth than the county and the City of Lexington.

Population Trends

Jurisdiction	2010 Census	2020 Census	2023 Estimate	Pop. Change 2010- 2020	% of change	Pop. Change 2010- 2023	% of change	Pop. Change 2020- 2023	% of Change
Lee County	16,499	17,478	17758	979	5.9%	1259	7.6%	280	1.6%
Lexington	1,400	1,217	1,493	-183	-13%	93	6.6%	276	22.7%
Giddings	4881	4,969	5,085	88	1.8%	204	4.2%	116	2.3%

Table 3-4: Population Changes from 2010 – 2023 Across Lee County Jurisdictions

Lee County has experienced consistent growth, with a 7.6% increase in population between 2010 and 2023. The city of Giddings has also experienced stable growth, with a total increase of 4.2% between 2010 and 2023. The city of Lexington has experienced the most dramatic population shifts, where between 2010 and 2020 it lost 13% of its population, but between 2020 and 2023 it grew by 22.7% surpassing its 2010 population by nearly 100 people.

Population Projections

Table 3-5: TWDB Population Projections by Jurisdiction

Jurisdiction	P2020	P2030	P2040	P2050	P2060	P2070
Lexington	1,373	1,545	1,642	1,679	1,702	1,715
Giddings	5,792	6,512	6,927	7,078	7,179	7,233
Lee County	19,131	21,511	22,877	23,375	23,709	23,889

The Texas Water Development Board creates population projections to predict future demand on water resources across the state of Texas. Their population projections suggest that Lee County and its jurisdictions will experience the most significant growth between 2020 and 2030, around a 12% increase in population, which will slow down to a 6% increase in population between the year 2030 and 2040, after which growth will continue to slow, with a maximum population of nearly 24,000 for Lee County.

School Districts

Lee County has three school districts that serve the three major communities and their surrounding areas: Lexington ISD, Giddings ISD, and Dime Box ISD.

Lexington ISD

Lexington ISD serves approximately 1027 students across its three campuses: Lexington Elementary School, Lexington Middle School, and Lexington High School. Lexington Independent School District has a mission of fostering a community of lifelong learners by providing an environment that builds self-worth, integrity, and respect for diversity while striving for excellence.

Giddings ISD

Giddings ISD has 4 main schools: Giddings Elementary, Giddings Intermediate, Giddings Middle, and Giddings High School. Across its 4 campuses, the district serves approximately 1,874 students as of October 2024. Giddings ISD has a mission of preparing all students with the academic, leadership, and interpersonal knowledge and skills necessary for success in college, the military, or a career in the 21st Century.

Dime Box ISD

Dime Box ISD serves the unincorporated community of Dime Box and has a vision statement of preparing all students to be successful citizens. Dime Box ISD only has one campus with 165 students and 40 employees.

Table 3-6: Lee County School Districts

ISD	Employees	Students	Students Under 5 Y.O.	Outdoor Employees
Lexington ISD	178	1027	14	4
Giddings ISD	248	1820	72	9
Dime Box ISD	40	165	12	2

SECTION 4: HAZARDS AND RISKS

The Lee County Core team members conducted a full review of the hazards, and their probable risk to the area and identified 13 key hazards: Hurricanes, tropical storms and depressions; floods; droughts; thunderstorm winds; extreme heat; lightning storms; tornados; wildfires; expansive soils; earthquakes; hailstorms; severe winter weather; and dam failure. These were chosen based upon a review of the State Hazard Mitigation Plan, a review of the historical record of disaster declarations for Lee County, historical incidents contained in the National Centers for Environmental Information (NCEI), and local records of magnitude and damages from different and distinct hazard events.

According to the State Hazard Mitigation Plan, Lee County is located in the southern portion of Region 8. The Plan, published by the Texas Department of Emergency Management, identifies that Region 8 is at risk of hurricanes, hailstorms, tornados, and floods. Lee County's location, flat terrain, and multiple rivers make the County at high risk for flash floods. The County maintains a fair amount of agricultural, ranching, and forestry lands; however, it is experiencing an increase in manufacturing and oil and gas production, which increases the region's area for riverine and flash flooding.

Table 4-1: Region 8 Hazard Ranking From 2023 State Hazard Mitigation Plan

<i>Region 8 Hazard Rankings by Total Damages</i>		
Hazard	Hazard Ranking	Total Damages
Flood	1	\$918,648,267
Hailstorm	2	\$523,983,715
Hurricane	3	\$396,448,860
Wildfire	4	\$375,070,231
Drought	5	\$178,167,259
Severe Wind	6	\$165,558,701
Severe Winter Weather	7	\$75,739,872
Tornado	8	\$53,345,816
Lightning	9	\$7,643,801
Extreme Heat	10	\$0
Grand Total		\$2,694,606,522

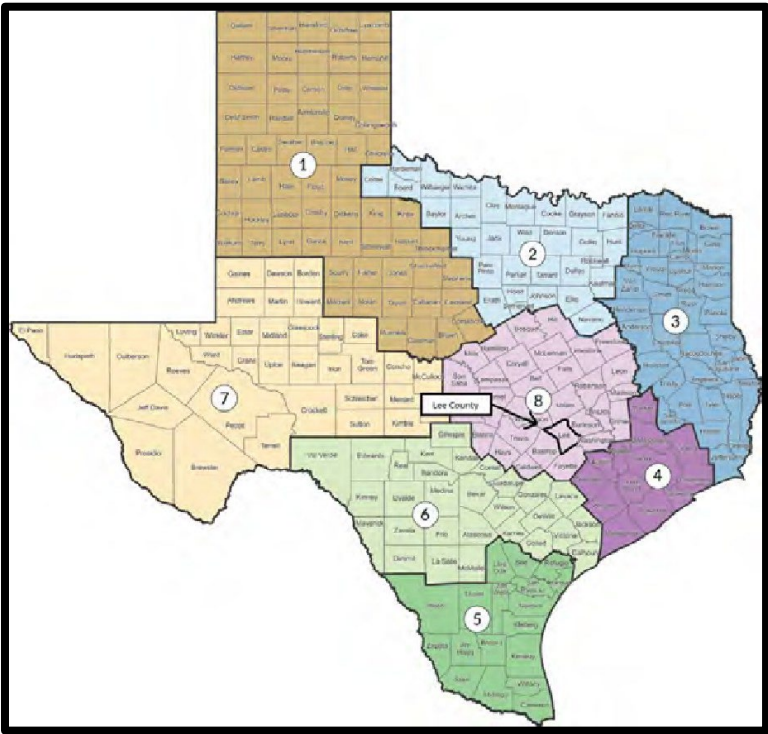


Figure 4-1: Texas State, Texas Division of Emergency Management Regions

Source: Texas Division of Emergency Management

The increased risk for these specific hazards in the planning area is confirmed in the table below. Disaster declarations are made at the county level; however, it is illustrative for local emergency planners to understand the type and frequency of the hazards impacting the larger region. Keep in mind that the incidents listed are only those that had a level of impact sufficient to necessitate a disaster declaration, and that hazards have affected the area more frequently than what the table shows. Statewide disaster declarations are not included.

Table 4-2: Disaster Declarations in Lee County (Source: www.FEMA.gov)

Declaration Date	Disaster Number	Incident Subcategory
07/09/2024	4798	Hurricane
05/17/2024	4781	Flood
04/21/2023	4705	Winter Storm
02/19/2021	4586	Severe Ice Storm
03/25/2020	4485	Biological
08/25/2017	4332	Hurricane
06/11/2016	4272	Flood
05/29/2015	4223	Severe Storm
09/09/2011	4029	Fire
07/01/2011	1999	Fire
01/11/2006	1624	Fire
09/24/2005	1606	Hurricane
08/26/1998	1239	Severe Storm
10/18/1994	1041	Flood
11/20/1987	802	Tornado

Since the U.S. Federal Government began issuing disaster declarations in 1953, Lee County has received 15 major disaster declarations, for which individual and/or public assistance has been approved. Based on Table 4-1 above, 12 of the 15 disaster declarations have been issued in the past 25 years (since 1999/2000). The infographics below provide a summary of the type of hazard, year, and time of year in which it occurred.

Figure 4-2: Image showing disasters by the hazard type (source: Fema.gov)

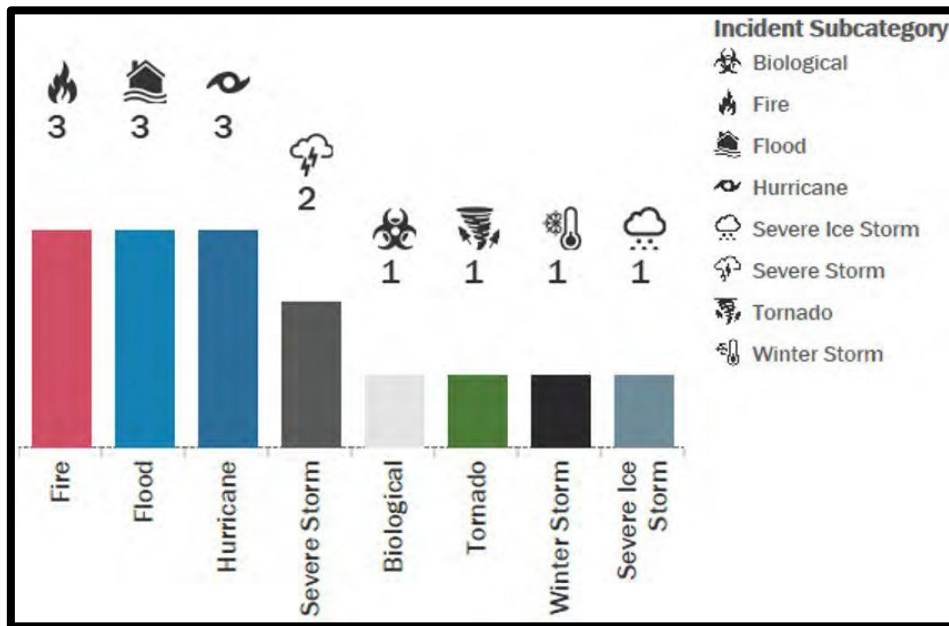


Figure 4-3: Image demonstrating the occurrence of hazards by the month. (Source: Fema.gov)

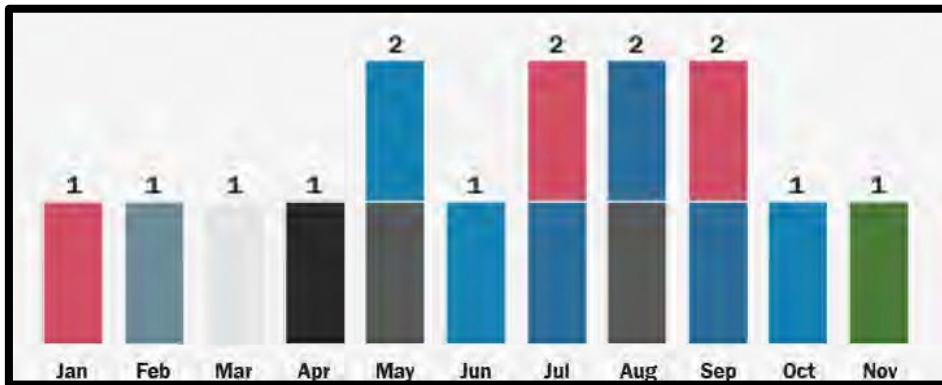
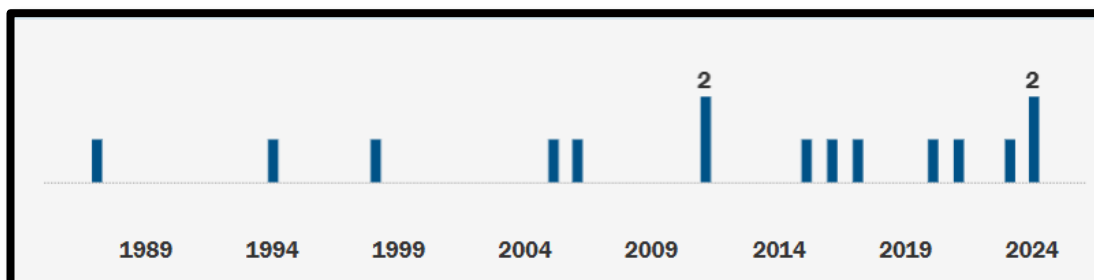


Figure 4-4: Image showing the number of disasters by year. (Source: Fema.gov)



Hazard Descriptions

The following 13 hazards are included in the State of Texas Hazard Mitigation Plan and are determined to be a risk to the planning area. Coastal erosion was left off this list due to the subject area not being on the Texas Gulf Coast, having no history of impact.

Table 4-3: Hazards Impactful to Lee County

HAZARD	DESCRIPTION
HYDROLOGIC	
Drought	A deficiency in precipitation over an extended period, usually a season or more, results in a water shortage, causing adverse impacts on vegetation, animals, and/or people.
Floods	Flooding is a general or temporary condition of partial or complete inundation of water, usually in floodplains. A floodplain is an area of land susceptible to being inundated by floodwater from any source.
Expansive Soils	Expansive soils are soils that can absorb a significant amount of water and, with seasonal fluctuations in water, can expand and shrink in volume dramatically, posing a risk to structures and critical infrastructure.
ATMOSPHERIC	
Extreme Heat	Extreme Heat is a condition when temperatures hover above local excessive heat criteria combined with high humidity levels.
Hailstorm	Hail is frozen precipitation in the form of irregular pellets or balls of ice more than 5 mm (about 0.2 in) in diameter, which often forms in thunderstorms.
Hurricanes, Tropical Storms, and Depressions	A hurricane is a large rotating storm with high-speed winds that forms over warm waters in tropical areas. Hurricanes have sustained winds of at least 74 miles per hour and an area of low air pressure in the center called the eye. Hurricanes, tropical storms, and depressions are associated with heavy rainfall and inland flooding, storm surge, and high winds.
Lightning	These are sudden charges of electricity that develop from storms or excessive heat.
Severe Winter Storms	A condition when temperatures hover below freezing and can include ice, snow, and sleet.
Tornado	A tornado is a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground.
Windstorms	Severe windstorms can occur alone or when accompanied by severe thunderstorms. Flying debris can cause major damage to utilities, infrastructure, and property.
Other	

Wildfire	Wildfires are unplanned, unwanted fires burning in a natural area, like a forest, grassland, or prairie. Buildings and human development that are susceptible to wildfires are considered the wildland-urban interface.
Dam Failure	A structural failure of a dam that results in the sudden, rapid, and often uncontrolled release of impounded water
Earthquake	Earthquakes are the result of a sudden slip along a fault line, releasing seismic energy and resulting in significant shaking, with a great potential for personal injury and structural damage, especially in older structures.

Table 4-4: County Hazard Impact Summary (2000-2025)

Hazard	Deaths	Injuries	Property Damage	Crop Damage	Frequency
Drought	0	0	\$0	\$0	Likely
Floods	2	10	\$135,000	\$0	Highly Likely
Expansive Soils	0	0	\$0	\$0	Highly Likely
Extreme Heat	0	0	\$0	\$0	Highly Likely
Hailstorm	0	0	\$770,000	\$80,000	Highly Likely
Hurricanes, Tropical Storms, and Depressions	0	0	\$350,000	\$0	Unlikely
Lightning	0	0	\$0	\$0	Highly Likely
Severe Winter Storms	1	0	\$370,000	\$0	Highly Likely
Tornado	0	1	\$15,000	\$0	Occasional
Thunderstorm Winds	0	0	\$1,200,500	\$50,000	Highly Likely
Wildfire	0	0	\$0	\$0	Highly Likely
Dam Failure	0	0	\$0	\$0	Unlikely
Earthquake	0	0	\$0	\$0	Unlikely

Table 4-5. Priority Risk Index Definitions

	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Probability	Unlikely	Event Possible in the next 10 years	1	30%
	Occasional	Event Possible in the next 5 years	2	
	Likely	Event probably in the next 3 years	3	
	Highly Likely	Event nearly certain to occur in the next year	4	
Impact (Impact is subdivided into 3 categories: social, property, and CIKR impact.)	Minor	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.	1	30%
	Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	2	
	Critical	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one week.	3	
	Catastrophic	High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	4	
Spatial Extent	Negligible	Less than 1% of area affected	1	20%
	Small	Between 1 and 10% of area affected	2	
	Moderate	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area affected	4	
Warning time	More than 24 hours	Self-explanatory	1	10%
	12 to 24 hours	Self-explanatory	2	
	6 to 12 hours	Self-explanatory	3	
	Less than 6 hours	Self-explanatory	4	
Duration	Less than 6 hours	Self-explanatory	1	10%
	Less than 24 hours	Self-explanatory	2	
	Less than one week	Self-explanatory	3	
	More than one week	Self-explanatory	4	
Source: Adapted from North Carolina Emergency Management Division				

Table 4-6: Priority Risk Index for Lee County

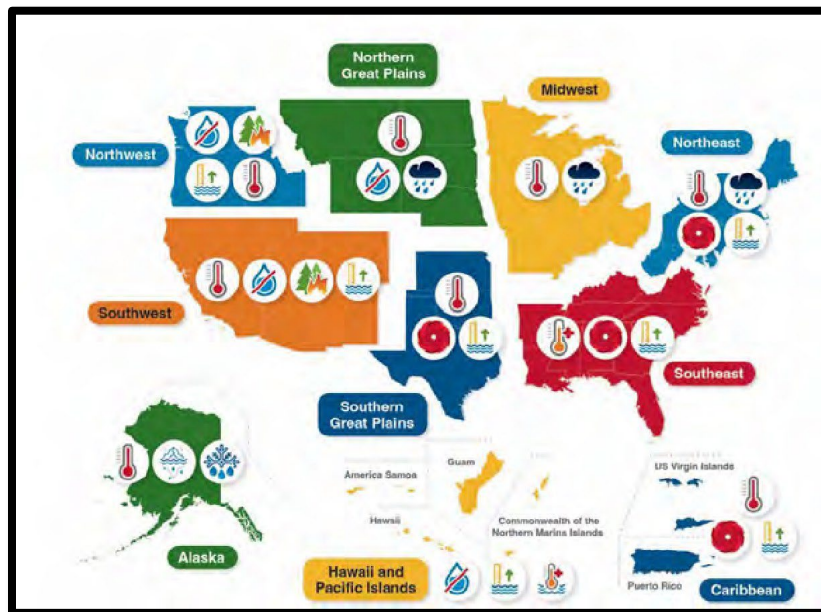
Weights	PROBABILITY	EXTENT	IMPACT					Incident Exposure	Warning Time	Priority Risk Index
	Probability	Spatial Extent	Social Impact		Property Impact	Critical Infrastructure Impact		Duration of Exposure		
			Historical Human	Possible Human	Extent of Damage	Duration of Shutdown	Average Impact			
Weights	0.3	0.2					0.3	0.1	0.1	
Lee County										
Flood	4	3	3	4	4	3	3.5	3	4	3.55
Severe Winter Weather	4	4	2	3	4	3	3	4	1	3.4
Lightning	4	4	1	2	1	2	1.5	1	4	2.95
Expansive Soils	4	4	1	1	2	1	1.25	4	1	2.875
Extreme Heat	4	4	1	3	1	1	1.5	3	1	2.85
Wildfire	4	1	1	2	2	3	2	2	4	2.6
Hailstorm	4	3	1	2	3	2	2	1	1	2.6
Drought	3	4	1	1	1	1	1	4	1	2.5
Dam Failure	1	3	1	3	4	4	3	3	4	2.5
Thunderstorm Winds	4	3	1	2	2	1	1.5	1	1	2.45
Hurricanes/TS	1	4	1	2	3	2	2	3	1	2.1
Tornado	2	2	2	3	3	3	2.75	1	1	2.025
Earthquake	1	4	1	2	1	1	1.25	1	4	1.975

Natural Hazards and Climate Change

Climate change describes the rapid and relatively recent increase in global average temperatures that has helped drive a fivefold increase in the number of weather-related disasters in the last 50 years. Climate change means disasters are happening simultaneously, too.

Figure 4-5 Climate-Related Hazards by Region

LEGEND	 Extreme Heat	 Heavy Rainfall	 Sea Level Rise
	 Rising Temperatures	 Thawing Permafrost	 Reduced Sea Ice
	 Drought Risk	 Hurricane Vulnerability	 Ocean Warming and Acidification
	 Wildfire Risk		



Source: [Climate Adaptation Planning: Guidance for Emergency Managers \(fema.gov\)](https://www.fema.gov/climate-adaptation-planning-guidance-for-emergency-managers)

With increasing global surface temperatures, the possibility of more droughts and increased intensity of storms will likely occur. As more water vapor evaporates into the atmosphere, it becomes fuel for more powerful storms to develop. More heat in the atmosphere and warmer ocean surface temperatures can lead to increased wind speeds in tropical storms. Rising sea levels expose higher locations not usually subjected to the power of the sea and the erosive forces of waves and currents.

Texas is considered one of the more vulnerable states in the U.S. to abrupt climate changes and the impact of gradual climate changes on the natural and built environments. Texas is one of the highest-ranked states in the U.S. concerning the frequency at which it experiences natural and climate-driven disasters. Extreme heat waves and hurricanes will become more frequent, and coastal Texas will face significant sea-level rise. Megadroughts can trigger abrupt changes to regional ecosystems and the water cycle, drastically increase extreme summer temperature and fire risk, and reduce the availability of water resources, as Texas experienced during 2011-2012. Adapting to climate change through efforts like flood control measures or drought-resistant crops partially reduces climate change risks, although some limits to adaptation have already been reached.

Climate Change, Population Growth, and Development Changes

Drought

Climate Change: Climate change is expected to cause decreased precipitation and increased temperatures over a broad time scale, leading to water sources such as lakes and underground aquifers drying up, which will increase the frequency and intensity of droughts.

Population Growth: As the population grows, the demand for water resources also increases, leading to higher water consumption. This can exacerbate drought conditions, especially in regions already experiencing water scarcity.

Increased Development: Land development can alter natural landscapes, leading to reduced water retention and increased runoff. This alteration of the natural hydrological

cycle can worsen drought conditions by reducing groundwater recharge and surface water availability.

Floods

Climate Change: With climate change leading to more intense and frequent rainfall events, riverine flooding and flash flood events are expected to increase in frequency and intensity.

Population Growth: As population growth continues in Lee County, more people will be exposed to flood hazard risks, putting more lives at risk of flooding. Population growth will increase the strain on existing drainage systems, in addition to emergency response efforts.

Increased Development: Increased development in flood-prone areas can lead to increased impervious surface area and the reduction of natural water storage areas such as wetlands, which can lead to more severe flooding, even sunny-day flooding.

Extreme Heat

Climate Change: As mean annual temperatures continue to increase due to climate change, extreme heat events will be more intense and frequent.

Population Growth: With a growing population, there may be an increased demand for water resources, which could impact water supply for both households and agriculture during extreme heat events. Population growth, especially of vulnerable populations such as children and the elderly, can lead to increased strain on cooling centers and medical facilities to treat heat-related illness.

Increased Development: Sprawling development in suburban areas could increase the urban heat index, which would require more planning and development strategies to mitigate. Additionally, more development can strain the power grid, especially during extreme heat events, where infrastructure may be more likely to fail due to damaging temperatures, leading to power outages.

Hailstorm

Climate Change: Evidence shows that warming temperatures may make hail events less frequent as hail formation requires sufficiently cold temperatures, but will likely lead to far more intense hailstorms with larger hail sizes, given increased atmospheric moisture.

Population Growth: As more people move into Lee County, more people and their properties will be impacted by more intense hailstorms, as essential items such as vehicles and residential structures will experience significant damage, leading to significant hardship, especially for those already experiencing financial hardship.

Increased Development: Increased development will dramatically increase the damage of hailstorms, where increased demand for housing may result in less resilient building construction, especially as hailstorm intensity increases.

Hurricanes, Tropical Storms, and Depressions

Climate Change: Climate science research suggests that the frequency of hurricanes and tropical storms or depressions overall will not increase, but the frequency of intense storms will increase, likely due to increased ocean temperatures, and lead to quicker storm development and intensification. This is based on data that shows that while hurricane formation in the North Atlantic Ocean has increased, the number of hurricanes that make landfall in the United States has not increased since 1900.

Population Growth: Increased population growth in Lee County, especially in suburban,

flood-prone areas, will lead to increased exposure to high water levels and extreme winds, likely increasing loss of life, injury, and property damage, and straining emergency response efforts during tropical storm and hurricane events. Increased populations combined with faster storm formation may lead to increased risk.

Increased Development: Increased development in flood-prone areas can lead to increased impervious surface area and the reduction of natural water storage areas such as wetlands, which can lead to more severe flooding as hurricane intensity increases and brings greater rainfall.

Lightning

Climate Change: While research on the topic is still evolving, as average temperatures increase and atmospheric moisture increases, lightning strikes will likely increase in frequency and result in more cloud-to-ground strikes, increasing the intensity of lightning events.

Population Growth: Increased population growth means a denser population, which increases the likelihood of lightning causing death, injury, or property damage when concentrated in an area.

Increased Development: Increased development, especially in suburban and rural WUI areas, means that lightning-ignited wildfires are likely to put more lives and property at risk, in addition to the overall likelihood of property damage and injury from lightning as the potential area of impact to humans increases.

Severe Winter Storms

Climate Change: The impacts of climate change on the frequency and severity of winter storms in Texas are complex and hard to clearly predict, as they depend on interactions between the stratospheric and tropospheric polar vortices, in addition to whether Texas is experiencing dry La Nina or wet El Nino conditions. Overall, winter storms are predicted to become less frequent but more intense.

Population Growth: Population growth will lead to a greater concentration of vulnerable populations to extreme cold brought on by severe winter storms, particularly young and elderly populations.

Increased Development: Increased development can lead to increased strain on grid infrastructure, exacerbated by a need for significant power to heat homes during extreme winter events and common occurrences such as damaged power lines, leading to a greater proportion of community members at risk as development increases. Urbanization and changes in land use can disrupt local microclimates, leading to altered patterns of snow accumulation and melt. When snow does melt, increased impervious surface area may lead to an increased risk of flooding.

Tornado

Climate Change: Changes in the frequency and severity of Tornadoes due to climate change are uncertain for Texas, according to the 2022 State Climate Summary for the State of Texas provided by the NOAA National Centers for Environmental Information. However, recent scientific studies show that Tornado Alley is shifting, and Central Texas is experiencing less frequent tornadoes.

Population Growth: A higher population density in tornado-prone regions increases the potential for casualties and property damage during tornado events.

Increased Development: An increase in infrastructure can obstruct natural wind patterns,

potentially enhancing localized wind damage during tornadoes.

Thunderstorm Winds

Climate Change: As stated for tropical storms, depressions, and hurricanes, the frequency of thunderstorm wind events is not likely to increase, but the intensity of the winds will increase, leading to more damage.

Population Growth: With increasing populations in Lee County, population density will increase, and thunderstorm winds will have a more significant impact on a higher number of people, especially those living in mobile homes and older or more vulnerable structures.

Increased Development: Increased development in a less stringent regulatory environment that's responding to housing demand could result in more vulnerable structures not built to withstand the significant and increasing wind speeds brought by thunderstorms.

Wildfire

Climate Change: Lee County may experience more frequent droughts caused by climate change, combined with higher overall temperatures, which will lead to more frequent wildfires as fuel levels increase. The intensity of wildfires is also likely to increase with increased fuel levels.

Population Growth: As more people move into wildland-urban interface areas (where human development meets natural vegetation), the risk of wildfires and their impacts on communities increases. Human activities can also inadvertently trigger wildfires.

Increased Development: Construction in fire-prone areas may lead to an accumulation of combustible materials, such as buildings, which can serve as fuel sources during wildfire events.

Dam Failure

Climate Change: As rainfall events become more extreme from climate change, dam infrastructure that is built for a certain capacity of water is likely to fail more often. Therefore, dam failures are more likely to occur and become more frequent given the increased frequency of intense hurricanes that weaken dam infrastructure.

Population Growth: In the unlikely event of a dam failure, the effects on the population within the surrounding area could be catastrophic. With a growing population, especially in areas surrounding the dam, the risk for loss of life and loss of property from a high-hazard dam breach would be severe.

Increased Development: Land development near high-hazard dams should be closely monitored. Any development around dams should be subject to strictly adhering to the guidelines laid forth in stormwater and floodplain management plans.

Expansive Soils

Climate Change: As climate change impacts the extremes of weather, Lee County will experience more intense rains and floods, and longer, drier periods of drought that will impact expansive soils in areas with high clay. This change will make it more necessary to update construction regulations.

Population Growth: Increased population growth in Lee County will create more single-family homes that will need to adjust for possible expansive soils. The populations that are most likely to be impacted are vulnerable populations like those living in older homes, and

low-income families that cannot afford the necessary repairs in the event of property damage. Not accounting for this may hinder housing development while the population expands.

Increased Development: Development under the right contexts may be beneficial to preventing expansive soils, with appropriate construction regulations and requirements. However, general infrastructure may be impacted, and families in low-income areas may be adversely impacted and forced to move away from their family homes.

Earthquakes

Climate Change: As climate change leads to glacial melting and sea-level rise, some studies indicate that this will increase stress on fault lines and lead to increased seismic activity.

Population Growth: Increased population growth in Lee County will create more single-family homes that will need to be retrofitted for earthquakes. The populations that are most likely impacted are vulnerable populations like those living in older homes and low-income families that cannot afford the necessary repairs in the event of property damage. Not accounting for this may hinder housing development while the population expands.

Increased Development: Development under the right contexts may be beneficial to preventing expansive soils, with appropriate construction regulations and requirements. However, general infrastructure may be impacted, and families in low-income areas may be adversely impacted and forced to move away from their family homes.

SECTION 5: DROUGHT

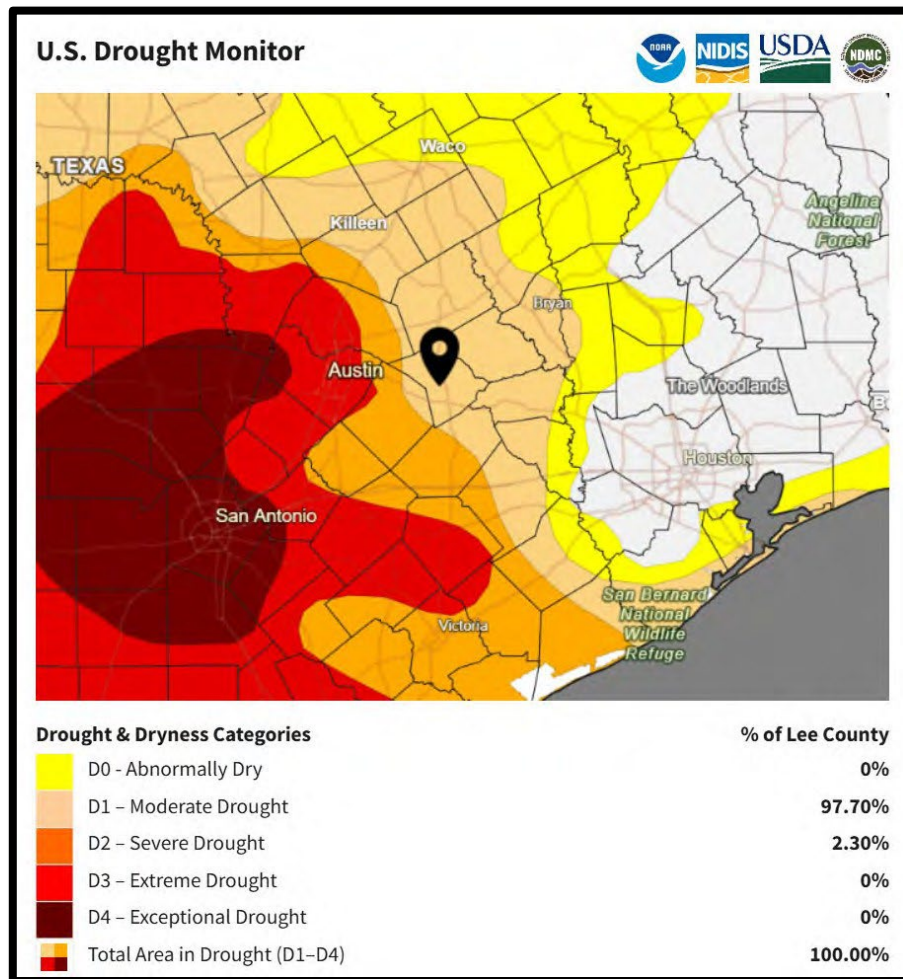
Description

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage, causing adverse impacts on vegetation, animals, and/or people. Droughts are defined as a moisture deficit at a magnitude high enough to have social, environmental, or economic effects, and can become very prolonged and persist from one year to the next. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality. The Texas Hazard Mitigation Plan describes the climate of 2/3 of Texas Counties as arid or semi-arid, with these Counties almost always in varying stages of drought.

Location

Droughts vary greatly in their intensity and duration and can occur regularly throughout Lee County, including all participating jurisdictions, equally. Drought is monitored nationwide by the National Drought Mitigation Center (NDMC), which provides the Drought Monitor map in Figure 5-1 showing the entirety of the planning area currently experiencing moderate drought (D1) conditions or abnormally dry conditions (D0). The planning area has experienced exceptional drought conditions within the last fifteen years, particularly during the drought of summer 2011 when the entire state of Texas was at some level of drought (See Figure 5-2).

Figure 5-1: US Drought Monitor, March 25th, 2025



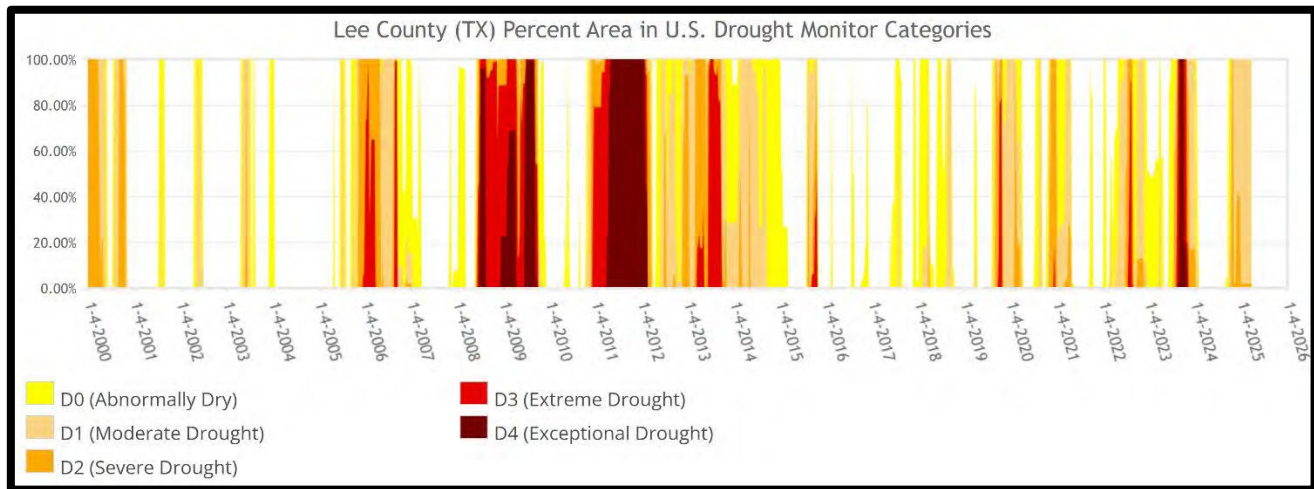
Extent

The Palmer Drought Severity Index (PDSI) is based on precipitation and temperature and is used to measure the extent of drought. The index measures the moisture supply of the environment. The PDSI classifications vary roughly between -4.0 and +4.0, ranging from extremely dry to extremely wet periods. NOAA's United States Drought Monitor (USDM) Categories range from D0 to D4 according to the intensity of drought, and are based on several indicators, including the PDSI, and are used to describe broad-scale drought conditions across the United States. Table 5-1 describes the basic PDSI classification descriptions and depicts the magnitude of drought with descriptions of possible impacts.

Table 5-1: Drought Index Categories and Impacts

Category	Description	Possible Impacts	Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model Percentiles	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator Blends
0	Abnormally Dry	Going into drought: short-term dryness slows planting; the growth of crops or pastures. Coming out of drought: some lingering water deficits, pastures or crops not fully recovered	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
1	Moderate Drought	Some damage to crops, pastures Streams, reservoirs, or wells low, some water shortages developing, or imminent Voluntary water-use restrictions requested	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
2	Severe Drought	Crop or pasture losses are likely. Water shortages common. Water restrictions imposed	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
3	Extreme Drought	Major crop/pasture losses Widespread water shortages or restrictions	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
4	Exceptional Drought	Exceptional and widespread crop/pasture losses. Shortages of water in reservoirs, streams, and wells are creating water emergencies.	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

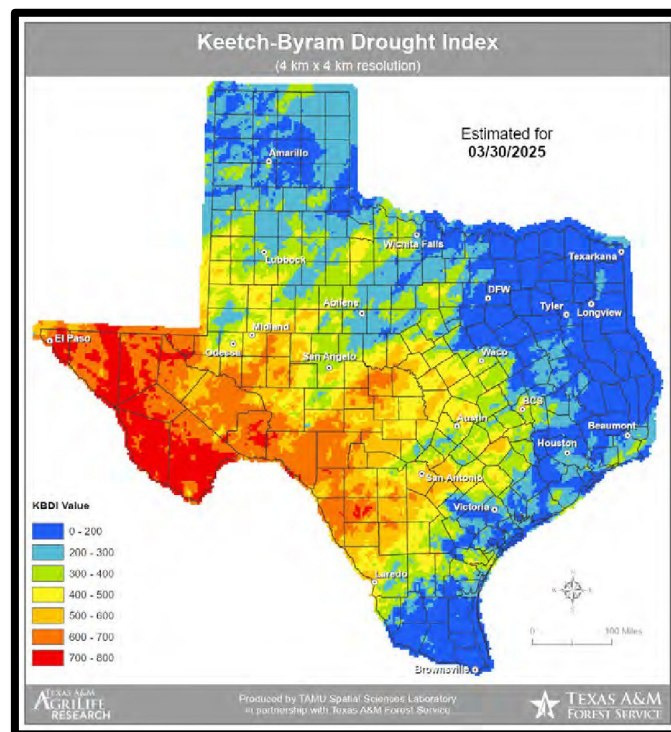
Figure 5-2: Drought Index Timeline from 2000-2025

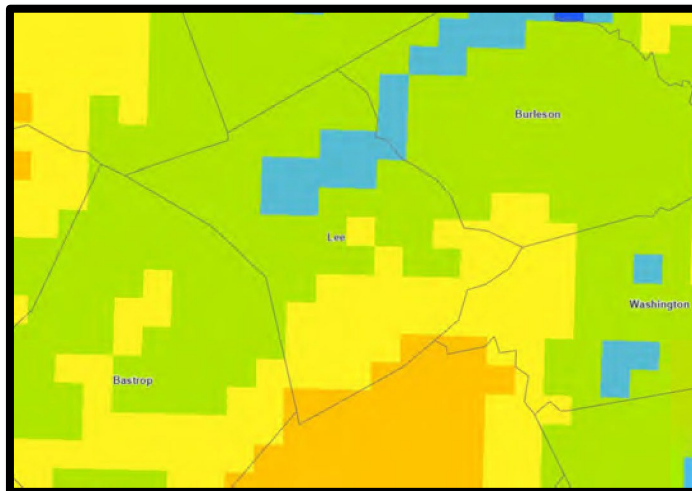


Based on the extent and location of historic and current drought conditions, the Lee County planning area can anticipate a range of drought from abnormally dry to exceptional, or D0 to D4, based on the USDM Drought Intensity Category.

The Keetch-Byram Drought Index is used by the Texas Forest Service to determine the fire potential based on daily water balance, precipitation, and soil moisture. Figure 5-3 shows the Keetch-Byram Drought Index rating classification for all of Texas and color-coded by County with a scale of 0 to 800 (low risk to high risk). Lee County is mostly in the 300- 400 category of medium-low risk, with some smaller areas at higher and lower risk at the time this report was written. The Keetch-Byram Drought Index is also discussed about wildfires in section 6.

Figure 5-3: Keetch-Byram Drought Index





Historical Occurrences

Significant Events 2000 Drought

In the fall of 2000, severe drought struck South Central Texas, including Lee County. Lake and river levels were extremely low, necessitating strong conservation measures, halting agriculture in Lee County.

2011-2012 Drought

The 2011-2012 Drought was devastating to a majority of counties across Texas, including Lee County. Across Texas, agricultural losses total over \$7.6 billion in crop failure and other effects.

2023 Drought

Starting in late July, Lee County was initially experiencing moderate drought, which then worsened quickly to extreme drought, and this drought slowly weakened to D1 conditions by early November.

The data used to assess the historical experience with drought for the planning area came from NOAA's NCEI National Storms Database. This database contains extensive and authoritative information for weather-related events in the country from 2000 through 2025 (25 years). Agricultural producers such as farmers and ranchers purchase crop insurance to protect their yield in a natural disaster such as drought, hail, or flood. Historical crop damages are typically not found in the public record and are likely much higher than quantified by NCEI data due to agricultural losses being a transaction between the agricultural landowner and insurance policyholder. Furthermore, the extent of crop loss due to drought is difficult to quantify because a drought during a growing season can impact the next two years of crop production. Table 7-2 lists historical events that have occurred in Lee County as reported in the NCEI. There have not been any events recorded past the listed dates.

Table 5-2: Historical Occurrences of Drought in Lee County (2000-2024)

Date Range	Duration of Drought	Direct Injuries	Direct Fatalities	Property Damage	Crop Damage
July 1 st - October 23 rd , 2000	114	0	0	\$0	\$0
May 1 st , 2011 – Feb. 29 th , 2012	305	0	0	\$0	\$0
June 1 st – June 30 th , 2012	29	0	0	\$0	\$0
Nov. 1 st , 2012 – Aug. 31 st , 2013	303	0	0	\$0	\$0
Sept. 1 st – Nov. 12 th , 2019	72	0	0	\$0	\$0
Nov. 1 st , 2020 – Jan. 31 st 2021	92	0	0	\$0	\$0
June 1 st , 2022 – Aug. 31 st 2022	91	0	0	\$0	\$0
July 25 th – Nov. 21 st , 2023	113	0	0	\$0	\$0

Table 5-3: Historical Drought Magnitude

Drought Category	Description	Lee County	
None	Normal to Wet Conditions	614	46.6%
D0	Abnormally Dry	224	17%
D1	Moderate Drought	203	15.4%
D2	Severe Drought	109	8.3%
D3	Extreme Drought	92	7%
D4	Exceptional Drought	75	5.7%
Total		1317	100%

Data provided by the NOAA drought monitor also provides a perspective of historical occurrences of drought in the planning area by summarizing the percentage of area in each drought category weekly. The table below provides a summary of the number of weeks in each drought category or the magnitude of the drought that describes the drought condition for the majority of the county for each weekly period from January 4th, 2000, to March 25th, 2025. This 25-year window of drought data provides a clear picture of how often the occurrence of different drought categories can be expected in the future.

Probability of Future Events

Based on available records of historic events from NCEI, there have been eight periods of drought within a 25-year reporting period. This provides a probability of occurrence of one event every 3 to 4 years. Based on the drought monitor data for a 25-year reporting period, the planning area is in moderate to exceptional drought approximately 36.4% of the time. This frequency supports a Likely probability of future events occurring within the Lee County planning area, which means that an event is probable in the next three years.

Frequency of Occurrence
Highly likely: Event probable in the next year.
Likely: Event probable in the next 3 years.
Occasional: Event possible in the next 5 years.
Unlikely: Event possible in the next 10 years.

Vulnerability and Impacts

Drought affects large areas, creating vulnerability for people, animals, property, agriculture, and the environment. Over the entirety of the planning area, the biggest impacts of drought are dead crops and grazing land, edible plants for animals, and even trees. This primarily affects farming and wildlife, but people can be directly impacted as well due to shortages of potable water supply. Communities will also ration the use of water during prolonged drought, particularly for lawn care, swimming pools, and irrigation. Drought is related to and can exacerbate the natural hazards of wildfires and extreme heat. Drought can contribute to the cause of wildfires due to dying vegetation serving as ignition fuel and can be intensified by extreme heat. The impacts of drought mostly affect water shortages and crop/livestock losses and do not typically extend to buildings and critical facilities.

The entire population of Lee County is vulnerable to water supply shortages, which present widespread health risks since people can only survive a few days without water. Potable water is used for many essential functions such as drinking, bathing, heating and cooling systems, and some electricity production. This affects vulnerable populations more acutely, such as children, older adults, and people with illnesses or fragile health conditions. Also, vulnerable populations that do not have adequate air conditioning units in their homes are more at risk for injury or death.

The planning area has a total population of 17,758, according to the 2023 ACS population estimate. Those over the age of 65 represent 20.8% (3685) of the total population, and children under the age of 5 represent 6.6% (1167) of the total population. The total population of the county that is estimated to be below the poverty level is 12.2% (2167). Table 5-4 presents the 2023 American Community Survey population and age cohort estimates below.

Table 5-4: Populations at Greater Risk by Jurisdiction

Jurisdiction	Population 65+	Population < 5	Population Below Poverty Level
Lee County	3685	1167	2167 (12.2%)
Lexington	290	102	181 (14.3%)
Giddings	980	429	809 (15.9%)

*Based On 2023 5-Year ACS Estimates. To avoid overestimating vulnerable populations, Lee County ISDs have been incorporated into city and county values.

The environment of the Lee County planning area is also vulnerable to damage during drought. Through a lack of food and water and habitat degradation, aquatic and terrestrial species can both experience significant reductions due to death and lower reproduction rates.

Water is central to the ability of people to inhabit and transact commerce in a region, and the economic impacts of drought can be significant, especially during prolonged drought. The ability to produce goods and provide services is dependent on direct and indirect access to clean water. Due to the interconnected nature of supply and production chains, the negative effects of droughts can have ripple effects on many industries and sectors of the economy. The overall impact of damage caused by periods of drought is dependent on their extent and duration. Drought alone rarely leads to a direct risk to the health and safety of people in the Lee County planning area; however, severe water shortages could lead to a direct risk to the health and safety of the population. The severity of the impact of a drought can be mitigated by preparedness and planning by the governments, businesses, and citizens of Lee County.

Historic Drought Impacts

The National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln developed the drought impact reporter to provide a national database of drought impacts by county. The number of impacts in ten distinct impact categories from 2000-2025 is provided below. Table 5-5 lists the drought impacts in Lee County based on reports received by the Drought Impact Reporter. These reports are predominantly provided by the media, but can also come from NWS, CoCoRaHS, legacy reports, and user reports.

Figure 5-5: Drought Impacts by Category, 2005-2024

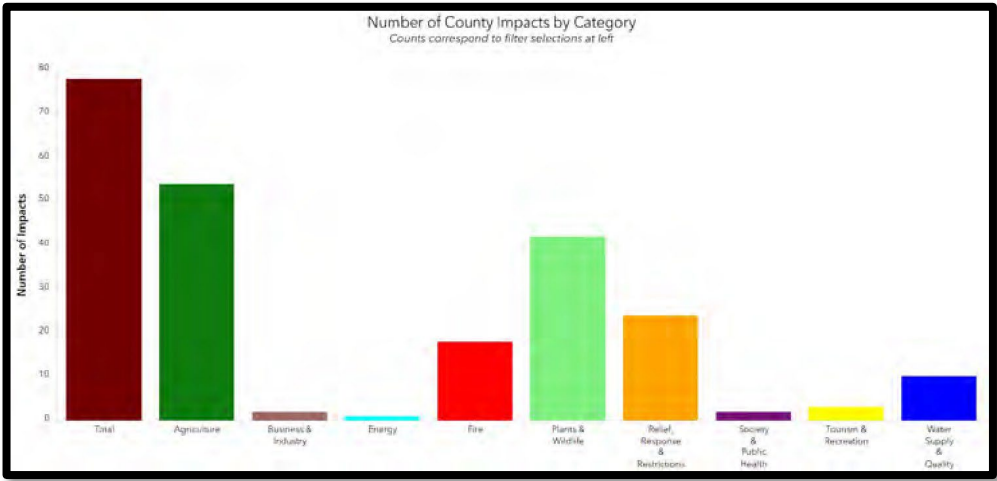


Table 5-5: Drought Impacts, 2005-2024

Lee County Drought Impacts	Count
Total	78
Agriculture	54
Business & Industry	2
Energy	1
Fire	18
Plants & Wildlife	42
Relief, Response & Restrictions	24
Society & Public Health	2
Tourism & Recreation	3
Water Supply & Quality	10

Based on 25 years of data from the NCEI, the direct impacts of droughts in the Lee County planning area have resulted in no known property or crop losses and no known injuries or fatalities. However, drought impact reports like those presented above come from several different sources and provide a different perspective of the impact that drought can have on communities beyond direct monetary property or crop damages that typically aren't reported publicly. It is important to consider that crop damage information is rarely publicly reported, and water availability issues are not easily quantified, so the impact is likely much more pronounced than the direct losses attributed to this hazard.

SECTION 6: WILDFIRE

Description

Wildfires are unplanned, unwanted fires burning uncontrolled in a natural area rich with vegetative fuels, like a forest, grassland, or prairie. Meteorological conditions such as high temperatures, low humidity, droughts, and high winds increase wildfire risk. Sparks from agricultural, industrial, or automobile activity are often the cause of wildfires, with humans the most common source of initial ignition. Wildfires can also be naturally ignited by lightning strikes as a part of the natural management of forest ecosystems. While wildfires can occur any time of year, they are especially likely over the spring and summer months, when fuel is often dry, so flames can move unchecked through a highly vegetative area.

Location

Wildfires are most likely to occur in open grasslands but are not confined to any specific geographic location and can vary greatly in terms of size, location, intensity, and duration. The populated, urban areas of the planning area are less likely to experience large, sweeping fires. The more rural and sparsely populated unincorporated areas of Lee County are more vulnerable to large, sweeping wildfire events. The threat to people and property is greatest in the wildland-urban interface/intermix; however, the entire planning area of Lee County is at risk for wildfires.

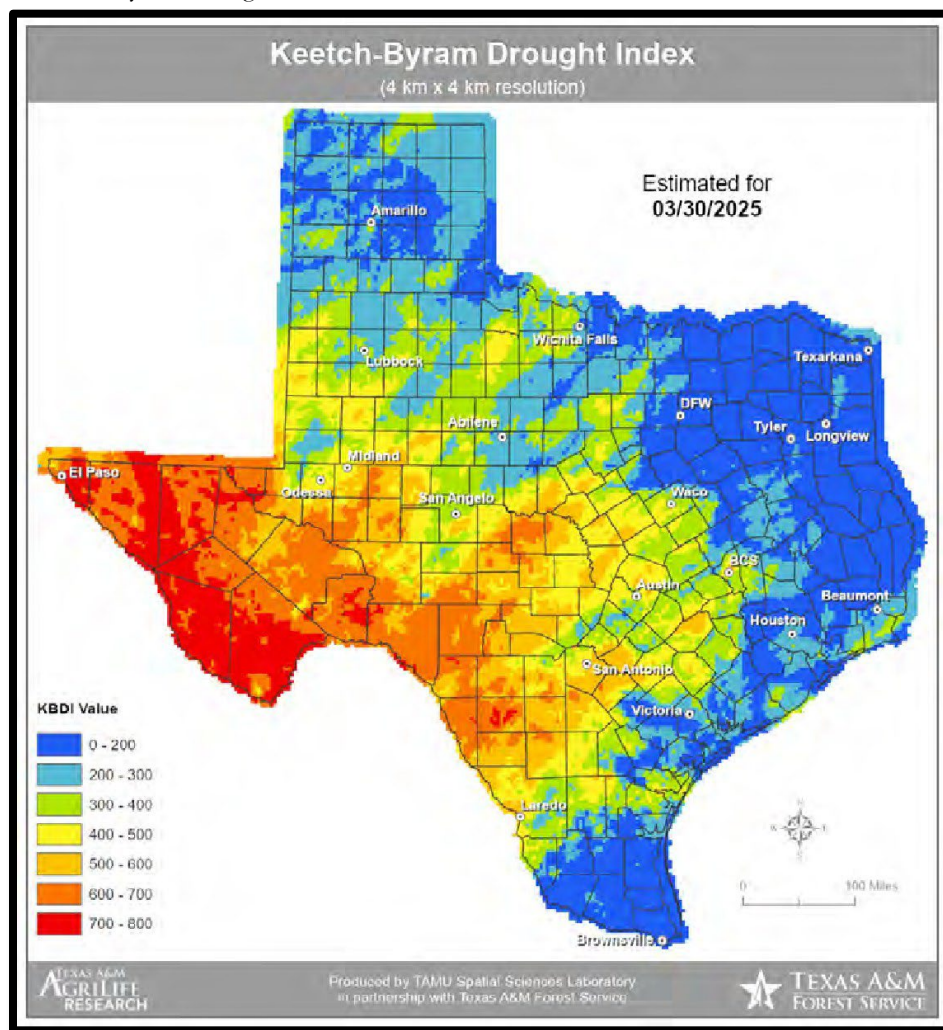
Extent

The likelihood that a wildfire event will occur in the planning area is measured using the Keetch-Byram Drought Index (KBDI) and the Texas Forest Service’s Fire Intensity Scale (FIS). The KBDI describes the potential for wildfire based upon weather conditions such as daily water balance, precipitation, and soil moisture (Table 6-1). The index ranges from 0-800, with a score of 0 indicating no moisture depletion and a score of 800 representing completely dry conditions.

Table 6-1: Keetch-Byram Drought Index Descriptions

KBDI Score Range	Description
0-200	Soil moisture and large-class fuel moisture are high and do not contribute much to fire intensity. Typical early spring following winter precipitation.
200-400	Fuels are beginning to dry and contribute to wildfire intensity. Heavier fuels will still not readily ignite and burn. This is often seen in late spring or early summer.
400-600	Lower litter and duff layers contribute to fire intensity and will burn actively. Wildfire intensity begins to increase significantly. Larger fuels could burn or smolder for several days. This is often seen in late summer and early fall.
600-800	Often associated with more severe droughts with increased wildfire occurrence. Intense, deep-burning fires with extreme intensities can be expected. Live fuels can also be expected to burn actively at these levels.

Figure 6-1: Keetch-Byram Drought Index – March 2025



The KBDI for an area is frequently updated based on environmental conditions. While based on the drought analysis, a majority of the County has not been in significant drought conditions for 63% of the past 25 years, short-term drought measurements can show significant conditions that contribute to wildfire ignition. Based on Figure 6-1 above, the County planning area exhibits values in the 400-600 range on the Southern edge. At these levels, often associated with more intense drought, fire intensity and occurrence begin to increase significantly, and fires could burn for significant durations. The KBDI is a good measure of the readiness of fuels to ignite in the event of a wildfire. Drought or extreme weather conditions can greatly influence the KBDI in a short period, so the current KBDI should always be monitored to assess risk more accurately.

The Texas Wildfire Risk Assessment Portal (TXWRAP) is the primary mechanism for the Texas A&M Forest Service to deploy risk information and create awareness about wildfire issues across the state. www.TexasWildfireRisk.com The tool uses the Fire Intensity Scale (FIS) layer to determine the potential fire intensity for the specified location. FIS quantifies potential fire intensity based on high to extreme weather conditions, fuels, and topography. It is similar to the Richter scale for earthquakes, providing a standard scale to measure potential wildfire intensity by magnitude. FIS consists of five classes where the order of magnitude between classes is tenfold. The minimum class, Class 1, represents very low wildfire intensities, and the maximum class, Class 5, represents very high wildfire intensities.

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 nonspecialized 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 eight feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozers 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. 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.

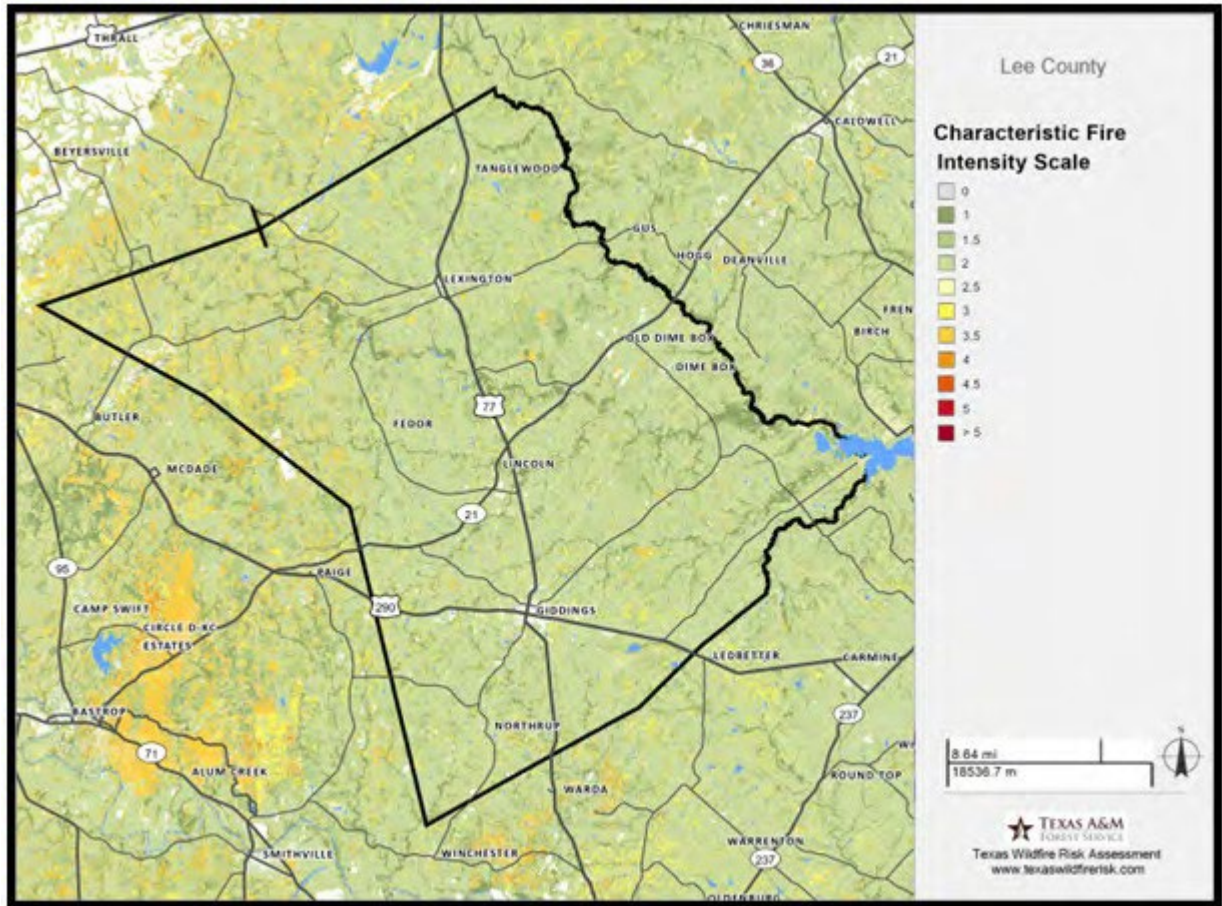
Class 5, Very High: Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack is marginally effective at the head of the fire. Great potential for harm or damage to life and property.

The Fire Intensity Scale evaluates the potential fire behavior for an area, regardless of whether any fires have occurred there in the past. This additional information allows local officials and mitigation planners to quickly identify areas where dangerous fire behavior potential exists in relation to nearby homes or other valued assets. **The wildfire risk for the Lee County planning area is Low based on the characteristic wildfire intensity scale being 2.5 or lower for 89% of the county.**

Table 6-2: Fire Intensity Scale Percent of Area for Lee County School Districts

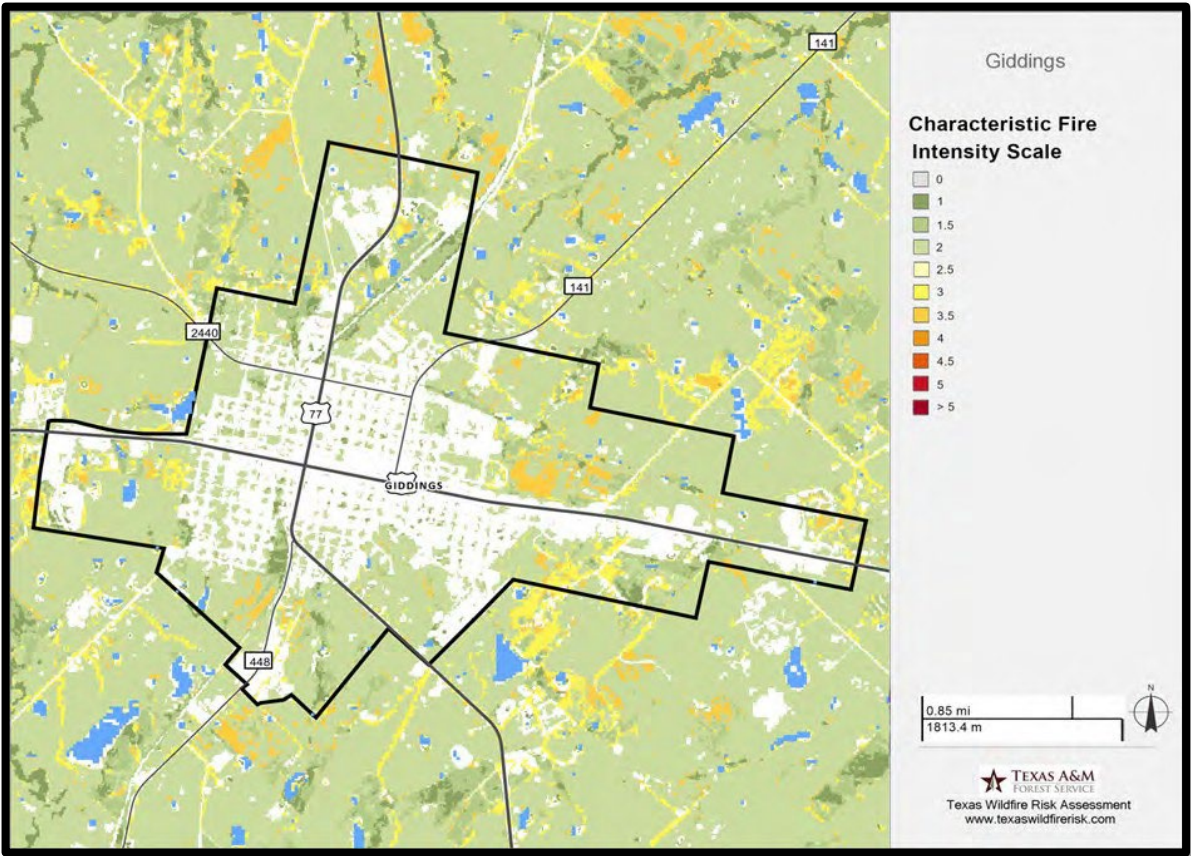
	Characteristic Fire Intensity Scale Category	GISD	DBISD	LISD
	0	6 %	5 %	4 %
	1	6 %	7 %	7 %
	1.5	10 %	13 %	16 %
	2	69 %	64 %	59 %
	2.5	0 %	1 %	1 %
	3	5 %	5 %	6 %
	3.5	3 %	5 %	7 %
	4	0 %	0 %	0 %
	4.5	0 %	0 %	0 %
	5	0 %	0 %	0 %
	> 5	0 %	0 %	0 %
	Total	100 %	100 %	100 %

Table 6-3 and Figure 6-2: Fire Intensity Scale Mapping and Percent of Area for Lee County



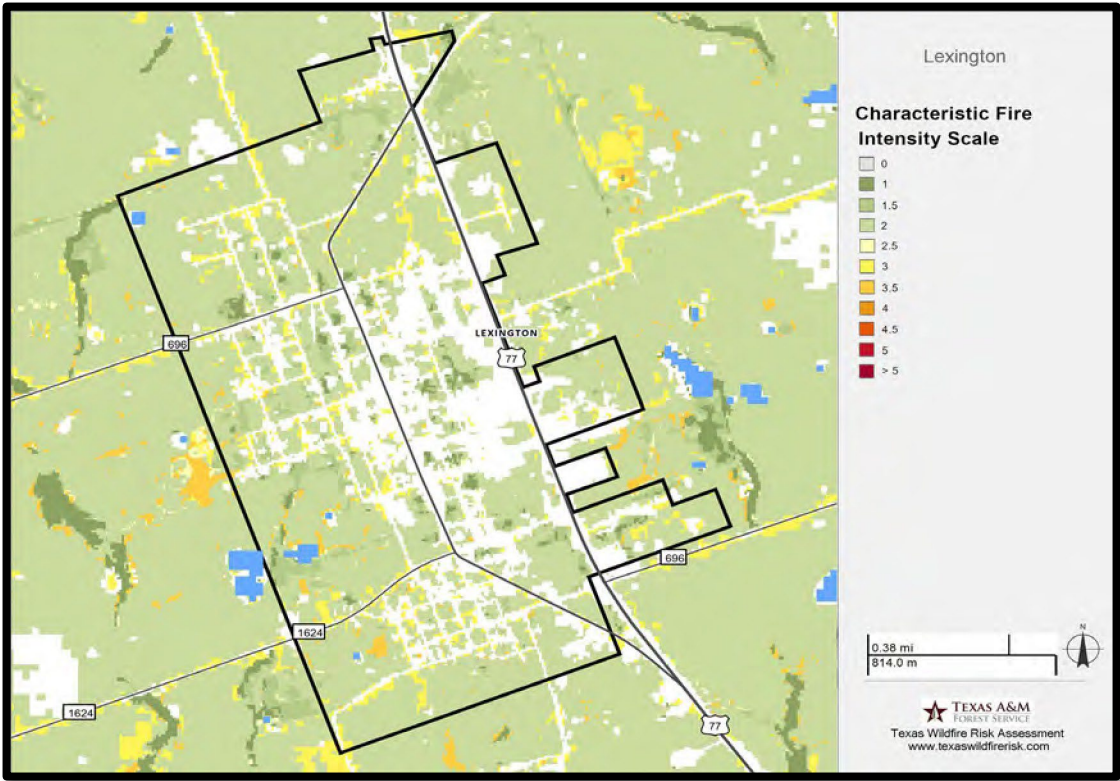
	Characteristic Fire Intensity Scale Category	Acres	Percent
	0	18,988	5 %
	1	30,255	7 %
	1.5	51,795	13 %
	2	261,116	64 %
	2.5	3,056	1 %
	3	22,014	5 %
	3.5	18,458	5 %
	4	58	0 %
	4.5	1	0 %
	5	0	0 %
	> 5	0	0 %
	Total	405,740	100 %

Table 6-4 and Figure 6-3: Fire Intensity Scale Mapping and Percent of Area for City of Giddings



	Characteristic Fire Intensity Scale Category	Acres	Percent
	0	1,334	41 %
	1	67	2 %
	1.5	212	7 %
	2	1,417	44 %
	2.5	4	0 %
	3	116	4 %
	3.5	91	3 %
	4	0	0 %
	4.5	0	0 %
	5	0	0 %
	> 5	0	0 %
	Total	3,241	100 %

Table 6-5 and Figure 6-4: Fire Intensity Scale Mapping and Percent of Area for Lexington



	Characteristic Fire Intensity Scale Category	Acres	Percent
	0	256	32 %
	1	11	1 %
	1.5	38	5 %
	2	445	55 %
	2.5	3	0 %
	3	43	5 %
	3.5	9	1 %
	4	0	0 %
	4.5	0	0 %
	5	0	0 %
	> 5	0	0 %
	Total	804	100 %

Historical Occurrences

The NCEI storm events database carries limited information on wildfire occurrence information including damage estimates of impacts, injuries, or fatalities in the planning area from 1999 to 2024. Figure 6-5 below lists the wildfires reported in Lee County by agency from 2005 to 2021. Figure 6-6 and Table 6-5 show the ignition causes for all wildfires in the planning area between 2005- 2021, the number of times of each unique ignition cause, and the percentage of total ignitions.

Figure 6-5: Wildfires Reported by Agency from 2005-2021

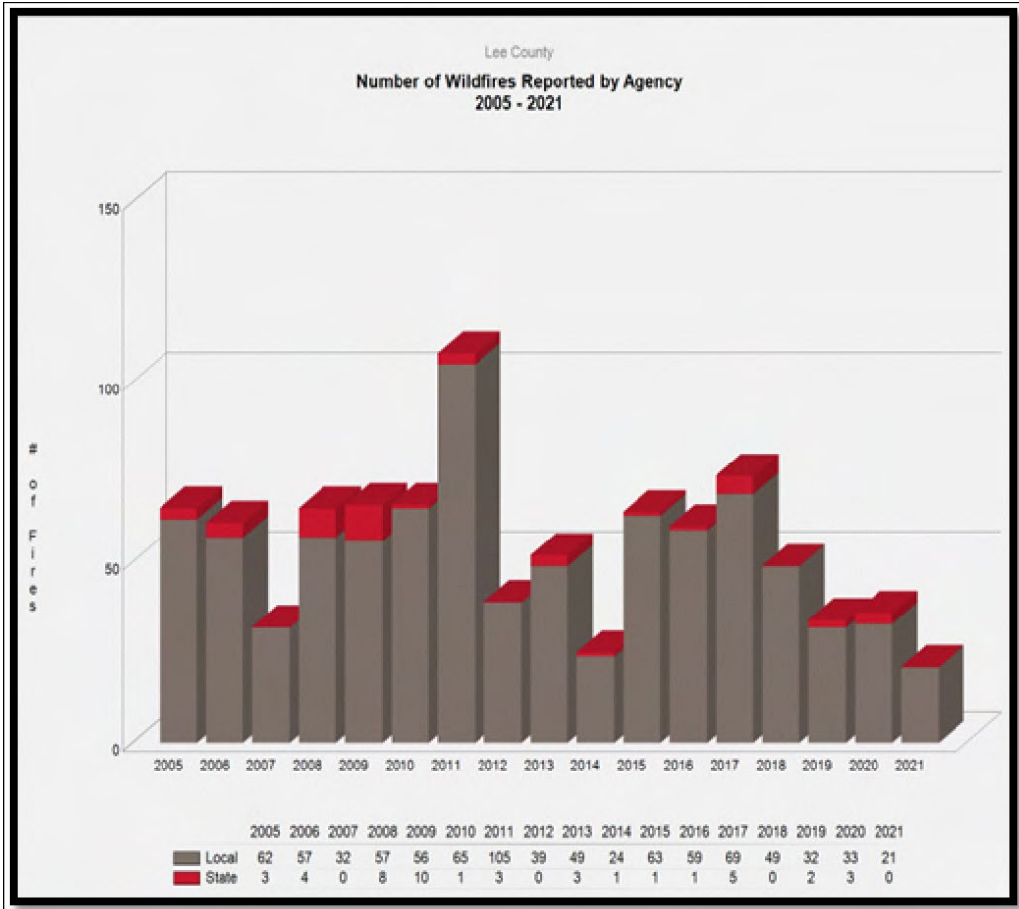


Figure 6-6: Wildfire Ignition Causes from 2005-2021 in Lee County

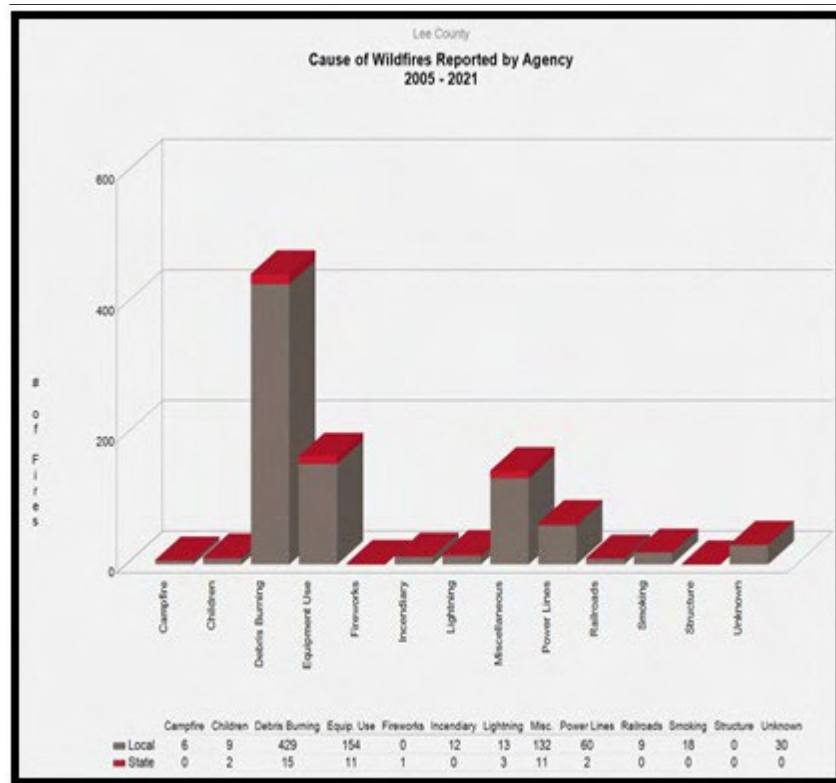


Table 6-6, Wildfire ignition causes from 2005-2021

Ignition Cause	County	% of Total
Campfire	6	.7%
Children	11	1.2%
Debris Burning	444	48.4%
Equipment Use	165	18%
Fireworks	1	.1%
Incendiary	12	1.3%
Lightning	16	1.7%
Miscellaneous	143	15.6%
Power Lines	62	6.8%
Railroads	9	1%
Smoking	18	1.9%
Structure	0	0%
Unknown	30	3.3%
Grand Total	917	100%

Source: Texas Wildfire Risk Assessment Portal (TxWRAP)

Significant Events

There have been four fires that burned about 200 acres across Lee County between 2005 and 2011. One fire was caused by improper debris burning, two by mechanical equipment, and the cause of the fourth fire is unknown. No reports of these fires have been published in local news sources, suggesting they likely had minimal impact on human life and property in Lee County.

Probability of Future Events

Based on reported historical occurrences of wildfire, 917 wildfire events occurred in a 16-year reporting period for Lee County. This data establishes an approximate probability of occurrence of 55 events per year. This frequency supports a yearly probability of future events, meaning a wildfire event is Highly Likely within the next year. The risk of future wildfires with greater impact on people and property will increase if existing development patterns continue into the wildlands.

Frequency of Occurrence	
Highly likely:	Event probable in next year.
Likely:	Event probable in next 3 years.
Occasional:	Event possible in next 5 years.
Unlikely:	Event possible in next 10 years.

Vulnerability and Impact

Populations and structures that are most susceptible to wildfire risk are located in the wildland-urban interface and/or intermix (WUI). WUI fires occur in areas where the built environment meets undeveloped wildland or vegetative fuels. Natural vegetation provides the fuel for wildfires in natural, uninhabited areas, while WUI fires consume both vegetation and materials from the built environment.

The severity of the impact of major wildfire events can be substantial. Such events have caused deaths and injuries, damaged or destroyed property and critical facilities, and disrupted infrastructure and services. The severity of impact is gauged by homes and structures lost, acreage burned, and the number of resulting injuries and fatalities. The vulnerability of the jurisdictions in the planning area to wildfire events is increased where critical facilities are in the WUI, as they are more likely to sustain damage from the hazard event. Functional WUI represents a classification of the land near buildings into zones that describe the wildfire risk mitigation activities appropriate for each zone.

Direct Exposure—The Direct Exposure zone is burnable land cover within 75 m of a structure. Reducing fire intensity and ember production in this zone would reduce the exposure of nearby buildings to heat and embers. Buildings in this zone also require hardening of the structure to resist ignition.

Indirect Exposure—The Indirect Exposure zone is non-burnable land cover within 1500 m of burnable land cover that is within 75 m of a structure, meaning that embers and home-to-home spread could reach within this zone. Indirectly exposed structures would benefit from the hardening of the structure to resist ignition from embers and nearby structures,

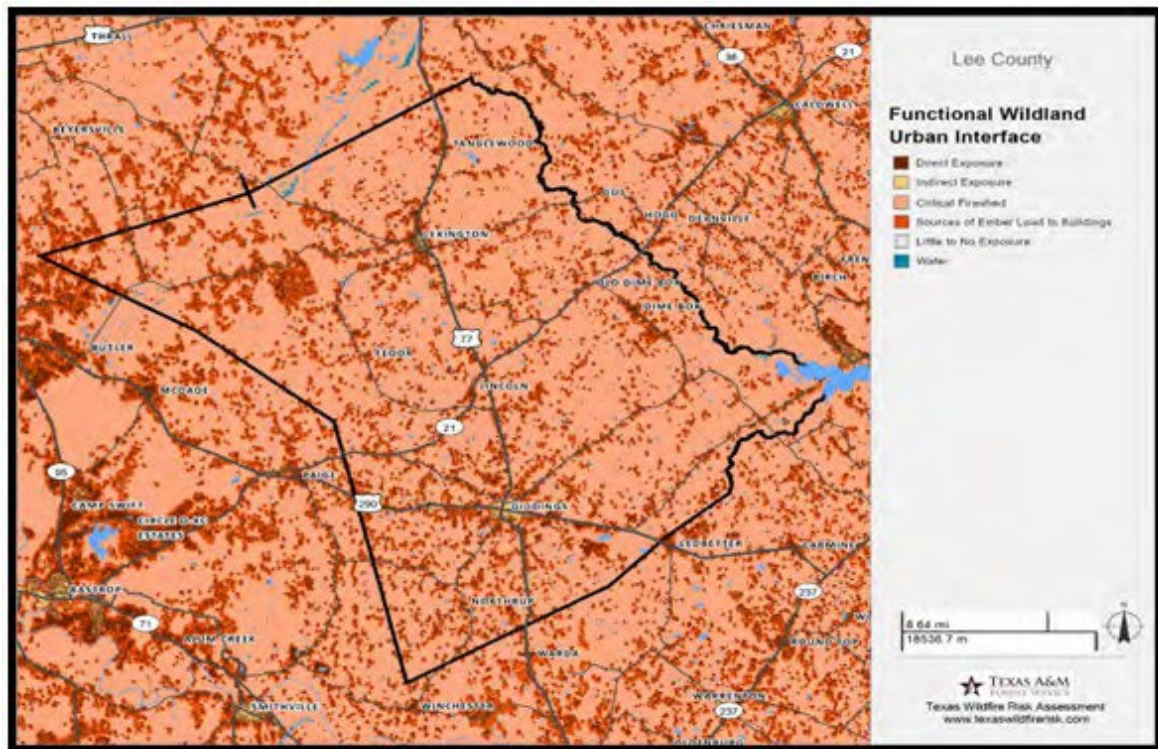


Figure 6-7: Functional WUI Areas Across Lee County

Only 8% of Lee County is under threat of direct exposure from wildfires, with a significant portion of the county belonging to the Critical Fireshed classification (75%) and Sources of Ember Load to Buildings classification (16%). Aligning with the definitions of direct exposure, Lexington and Giddings are much more vulnerable given the density of structures and proximity to wildland fuels. The school district boundaries stretch far beyond the bounds of the incorporated areas, capturing undeveloped land capable of producing embers; the ISDs of Lee County however are not responsible for wildfire mitigation outside of the campus boundaries, which in Lexington, Giddings, and the unincorporated community of Dime Box are within the direct exposure WUI classification.

The impacts from a wildfire on the Lee County planning area would be moderate based on the overall low to moderate-risk rating. Impacts would include air quality degradation due to the wildfire producing large amounts of smoke and other pollutants. This situation can cause health problems for residents, especially those with respiratory issues. If the wildfire is severe enough or close enough to populated areas, it can result in the need for evacuations.

Evacuation can be a traumatic experience for many people, especially if they must leave their homes and possessions behind, including pets. Wildfires often harm or destroy homes, businesses, and other buildings, leading to significant property damage. They can cause power outages, which can disrupt normal life and can cause economic impacts, especially to places that depend on tourism or agriculture. The loss of power and disruption to normal life can result in financial losses for businesses and individuals.

To reduce these vulnerabilities and impacts, cities can take steps to prepare for wildfires, such as creating evacuation plans, conducting regular fire drills, implementing building codes and other regulations to reduce fire risk, and working with fire departments to improve fire suppression and response capabilities.

SECTION 7: LIGHTNING

Description

Lightning is sudden charges of electricity that develop from storms or excessive heat. This massive electrostatic discharge can occur between electrically charged regions within clouds or between a cloud and the Earth's surface. A bolt of lightning, or the visible sparks, can cause air temperatures surrounding the bolt to approach 50,000°F, causing rapid air expansion leading to thunder, which often accompanies lightning strikes. Lightning is most often affiliated with severe thunderstorms and often strikes outside of heavy rain and can occur as far as ten miles away from any rainfall.

Location

The Lee County planning area is located in a region of the country that is very susceptible to lightning strikes. Lightning can occur at any location within the entire planning area, and it is assumed that all areas within Lee County are uniformly exposed to the threat of lightning due to the consistent geography and terrain found throughout.

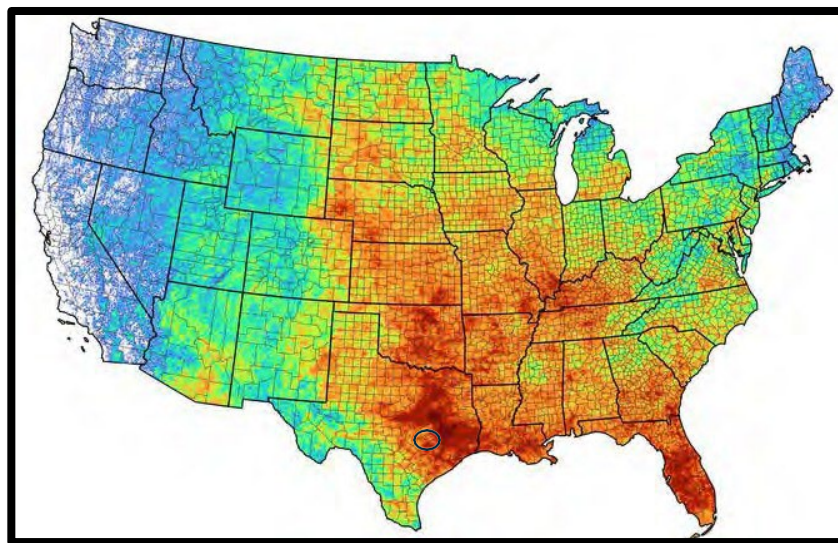
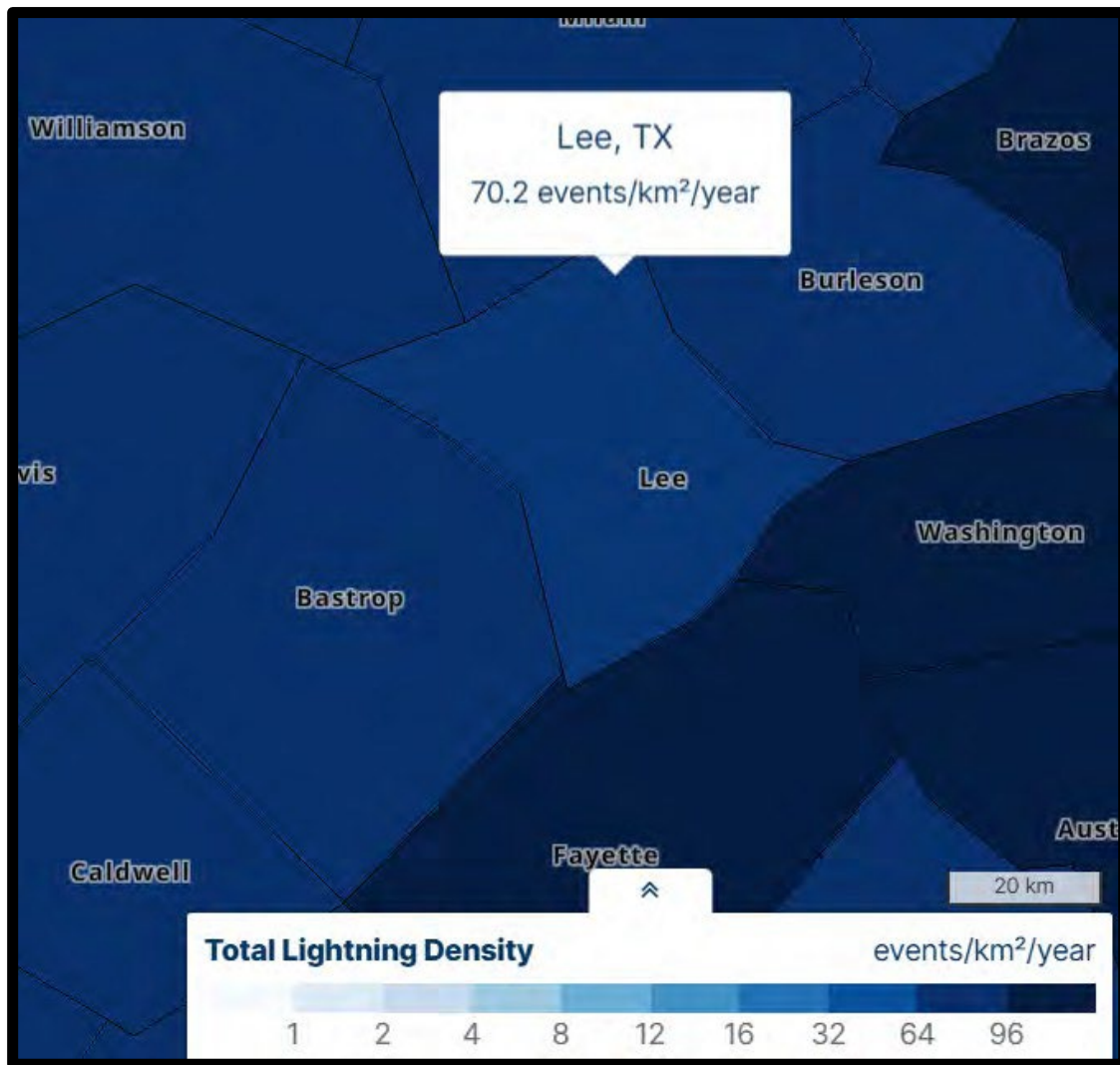


Figure 7-1: Lightning Density Across the United States 2024 – Vaisala XWeather

Extent

Lightning's extent is defined in terms of the frequency of lightning strikes within a defined geographic area and a set period. The Vaisala's U.S. National Lightning Detection Network lightning flash density map, Figure 10-1, shows the average number of lightning events per km² per year. According to the map below, the County planning area has a total lightning density of 70.2 events/km²/year for the planning area from 2016-2023.

Figure 7-2: Lightning Activity in Events Per km²/year

Source: <https://interactive-lightning-map.vaisala.com/>

A total lightning density of more than 64 events/km²/year in an area is considered to be a major severity, and a total lightning density of more than 96 events/km²/year in an area is considered to be an extreme severity. Any lightning strike that causes death or property damage is likewise considered a major severity. The lightning hazard is considered to be a major severity for the planning area, given the density of 70.2 events/km²/year.

The magnitude of lightning hazard events can also be measured in terms of the number of strikes in a smaller interval of time. The Lightning Activity Levels (LALs) scale is used by NOAA to express the extent of lightning events and is on a scale of 1 to 6, along with descriptions of corresponding cloud and thunderstorm development. The LAL rankings scale reflects the frequency of lightning strikes from cloud to ground within a 15-minute interval. Lightning activity levels are described in more detail in Table 7-1 on the next page.

Table 7-1: Lightning Activity Level

LAL	Cloud and Storm Development	Lightning Strikes Per 15 Min
1	No thunderstorms.	0
2	Cumulus clouds are common, but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	1-8
3	Towering cumulus cover less than two-tenths of the sky. Thunderstorms are few, but two to three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common, and lightning is frequent.	16-25
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rain is moderate to heavy, and lightning is frequent and intense.	➤ 25
6	Similar to LAL 3, except thunderstorms are dry.	9-15

The Lee County planning area can generally experience all lightning activity levels based on the extent and location of thunderstorm and hurricane conditions, and all areas are vulnerable to an LAL of 5, the most severe threat of lightning. Lee County is also vulnerable to a LAL of 6, which, while not as intense in terms of the frequency of lightning strikes, has a greater likelihood of igniting a wildfire.

Historical Occurrences

While lightning occurs quite frequently in the planning area, the only lightning data contained within NOAA Storm Data are lightning events that result in fatality, injury, and/or property and crop damage. There were no lightning events reported for the planning area according to the NOAA National Centers for Environmental Information (NCEI) data. Structural damages resulting from lightning events are considered severe, with the risk of injury or death representing the greatest risk. There have not been any events recorded past the listed dates.

Significant Events

No significant lightning events have been recorded for the Lee County planning area.

Describe Events

Texas A&M Forest Service (Wildfires Caused by Lightning)

Lightning occurrences and damage are not well documented in the NCEI data, but other sources and accounts from the Core planning team members indicate that lightning strikes occur frequently in the planning area. The Texas A&M Forest Service maintains a wildfire occurrence database based on state and local reports. The local reports are based on a voluntary online fire department reporting system that is used by both paid and volunteer fire departments. Table 10- 3 lists wildfires caused by lightning strikes recorded by the Texas Forest Service from 2005 to 2021 within the planning area.

Table 7-3: Wildfire Ignitions Caused by Lightning in Lee County Jurisdictions

Location	Ignitions Caused by Lightning
Lee County	16
Lexington	0
Giddings	0

Source: Texas Wildfire Risk Assessment Portal (TWRAP)

Lightning is believed to be responsible for only 16 of the 917 (1.7%) recorded wildfire ignitions from 2005 through 2021, indicating that while lightning is a significant hazard, it has a relatively minimal history of being a compounding or coupled hazard.

Probability of Future Events

With limited reported incidents in the planning area, the team utilized the most current lightning flash density estimate developed by Vaisala, Figure 10-1, for the risk assessment. The most current lightning flash density estimate indicates a probability of occurrence of approximately 70.2 lightning events per square kilometer per year. Lee County is 634 square miles or 1640 square kilometers. The Vaisala flash density estimate combined with the total area produces an estimate of approximately 115,128 flashes per year. A Highly Likely probability of occurrence for future lightning events in the Lee County planning area is supported by this frequency. This means that an event is probable in the next year.

Frequency of Occurrence
Highly Likely: Event probable in next year.
Likely: Event probable in the next 3 years.
Occasional: Event possible in the next 5 years.
Unlikely: Event possible in next 10 years.

Vulnerability and Impacts

Lightning strikes are random, making all property and people within the Lee County planning area vulnerable to the impact of lightning. Lightning can also be responsible for damage to buildings, electrical systems, forests, and/or wildfires, and damage to infrastructure such as power transmission lines and communication towers. Lightning is attracted to tall metal structures, making water towers, electric power stations, and power poles particularly vulnerable to strikes. Lightning strikes can disrupt communication systems, including telephone and internet services, which can impact emergency response times and communication between businesses and customers. Lightning strikes can cause power outages that can affect large areas and cause disruption to businesses, transportation, and other essential services. The damage caused by lightning strikes can have a significant economic impact on cities, particularly in areas where businesses and tourism are major industries. Damage to buildings and electrical equipment can result in costly repairs and downtime. Lightning strikes can cause fires that can spread quickly and cause extensive damage to buildings and surrounding areas, and are a cause of wildfires, making agricultural land vulnerable as well. Agricultural losses from this hazard can be extensive.

Lightning strikes can also pose a risk to public safety, particularly in outdoor areas such as parks, sports fields, and other public spaces. The peak lightning season in the State of Texas is from June to August; however, the most fatalities occur in July, as fatalities occur most often when people are outdoors, working, or participating in some form of recreation. Moving inside will decrease a person’s vulnerability to injury or death due to lightning strikes.

Communities can take steps to mitigate the impact of lightning strikes by implementing lightning protection systems, maintaining electrical infrastructure, and educating the public on lightning safety measures. Doing so can minimize the risks associated with lightning strikes and ensure the safety and well-being of their residents and visitors.

SECTION 8: FLOODS

Description

Floods are defined as the accumulation of water within a water body and the overflow of excess water into adjacent floodplain lands. When surface water runoff enters streams, rivers, or dry creek beds, riverine flooding conditions occur whenever the water carrying capacity of the water channel is compromised by excess runoff. Types of flooding include riverine flooding, coastal flooding, and shallow flooding. If the local basin drainage area is relatively flat, then slow-moving floodwater can last for days. In drainage areas with substantial slopes, or the channel is narrow and confined, rapidly moving and extremely high-water conditions, called a flash flood, can occur.

Common impacts of flooding include damage to personal property, buildings, and infrastructure; bridge and road closures; service disruptions; and injuries and fatalities. In this report, historical damage from flooding is reported here and in Chapter 1 (along with other hurricane-related damages).

Location

The Lee County Flood Damage Prevention Ordinance was most recently updated in 2016 and adopts the 2014 Digital Flood Insurance Rate Map (DFIRM) data provided by FEMA for Lee County, which delineates the Special Flood Hazard Areas as regions with the highest risk of flooding. The DFIRM consists mostly of unnumbered Zone A designations, with Zone AE bordering and within the Cities of Giddings and Lexington. FEMA has recently released Estimated Base Flood Elevation data, which updates the floodplain area zones for Lee County and identifies the .2% or 500-year floodplain in Lee County. Though not officially adopted, it is important to plan with the most accurate and future-looking flood hazard data. Preventing development in the 500-year floodplain is essential for comprehensively reducing flood risk.

Table 8-1: List of Jurisdictions and Percent of Area in the Floodplain

Jurisdiction	Floodplain Type	Percent of Community Area
Lee County	1% Annual	14.93%
	.2% Annual	16.4%
Giddings	1% Annual	6.55%
	.2% Annual	7.44%
Lexington	1% Annual	1%
	.2% Annual	1.24%

Figure 8-1: Lee County 100-year and 500-Year Floodplain and BFE

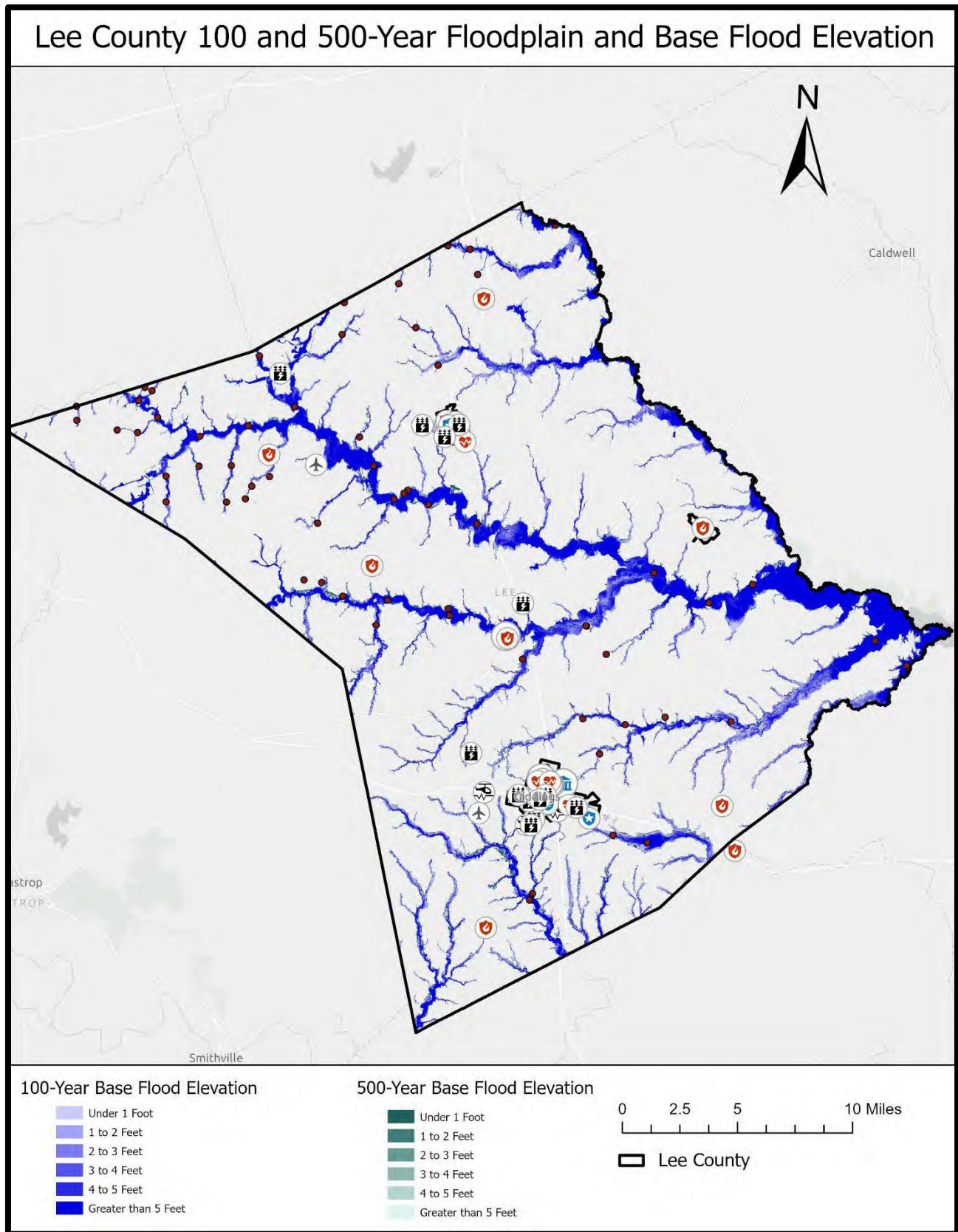


Figure 8-2: Lexington 100-year Floodplain and BFE

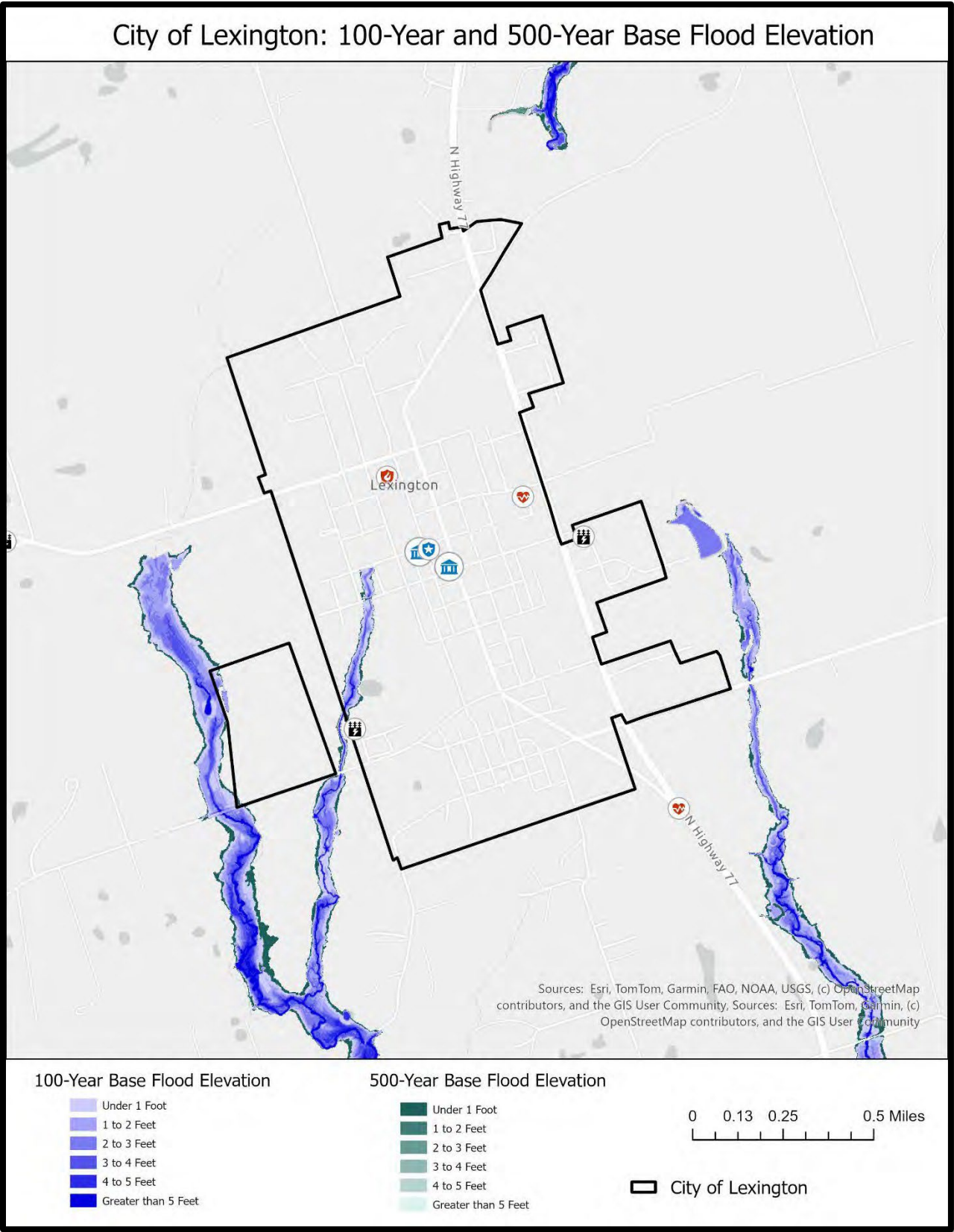
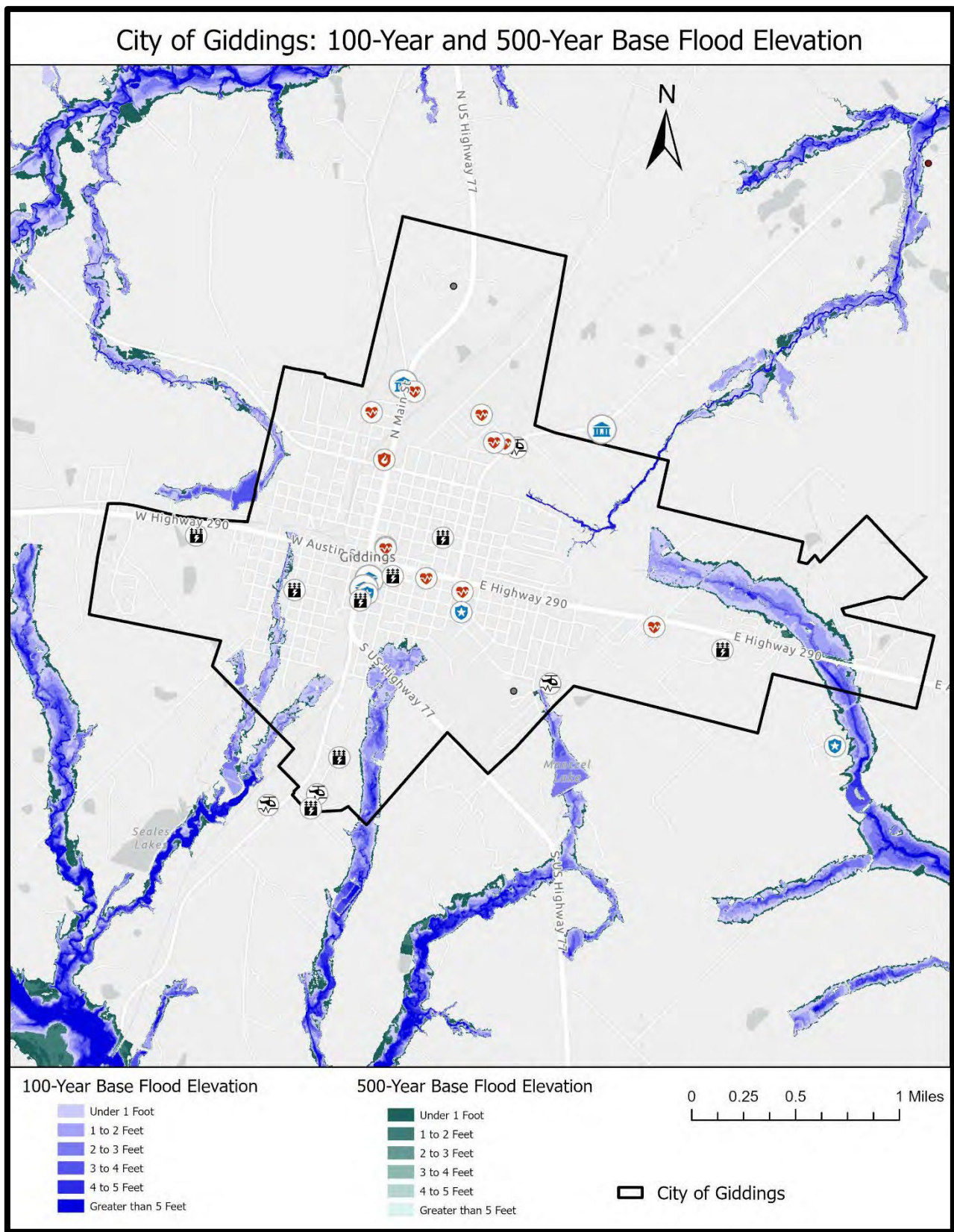


Figure 8-3: City of Giddings 100-year Floodplain and BFE



Extent

Flood event severity is a complex science studied by hydrologists and engineers. The severity of a flood event is established by a combination of several factors, including stream and river basin topography and physiography, precipitation, weather patterns, recent soil moisture conditions, and degree of vegetative clearing and impervious surface. Urbanization, due to its relationship to increased impervious cover, contributes to flood severity. Based on historical occurrences, flood events can last anywhere from a couple of hours to several days.

A flood zone provides a measure of a flood's intensity and magnitude. A base flood is defined by FEMA as a flood having a one percent chance of being equaled or exceeded in any given year. It is also known as the "100-year flood" or the "1% annual chance event". The base flood is the national standard used by the National Flood Insurance Program. Flood zones are delineated on Flood Insurance Rate Maps, and the depths of flooding can be interpreted from the summary data and profiles in the Flood Insurance Study. Flood depths may range from less than one foot to more than five feet in places, depending on the severity of the event (as measured in annual chance exceedance). Table 8-2 provides a description of FEMA flood zones and the flood impact in terms of severity or potential harm. Flood Zones A, AE, AO, and X are the hazard areas mapped in the planning area and determine the intensity of a potential flood event. As stated previously, a majority of Lee County is designated as Zone A, with BFE now available through new hydrological studies accessible through the FEMA Estimated Base Flood Elevation Viewer.

Table 8-2: FEMA Flood Zone Categories

Floodway	A "Regulatory Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations. For streams and other watercourses where FEMA has provided Base Flood Elevations (BFEs), but no floodway has been designated, the community must review floodplain development on a case-by-case basis to ensure that increases in water surface elevations do not occur or identify the need to adopt a floodway if adequate information is available.
Zone A	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	Areas subject to inundation by the 1-percent-annual-chance flood event are determined by detailed methods. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.
Zone AO	Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses

	are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply.
0.2 SFHA	These are the areas that have a 0.2 percent chance of being equaled or exceeded in any given year.
Zone X	The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are Zone X.

Historical Occurrence

Historical evidence indicates that areas within the planning area are susceptible to flooding, especially in the form of flash flooding. It is important to note that only reported flood events have been factored into this risk assessment; therefore, it is likely that additional flood occurrences have gone unreported before and during the recording period. Table 8-3 identifies historical flood events that resulted in damage, injuries, or fatalities within the planning area. Historical Data is provided by the Storm Prediction Center (NOAA), NCEI database for Lee County. There have not been any events recorded past the listed dates.

Table 8-3: Historic Flooding Events Across Lee County

Location	Date	Time	Fatalities	Injuries	Property Damage	Crop Damage
Old Dime Box	6/10/2000	1530	0	0	\$5000	\$0
Northwest Portion	11/2/2000	1800	0	0	\$5000	\$0
West Portion	5/6/2001	2300	0	0	\$5000	\$0
West Portion	11/15/2001	1800	0	10	\$50000	\$0
West Portion	7/2/2002	1600	0	0	\$0	\$0
Countywide	7/14/2002	1330	0	0	\$0	\$0
Countywide	11/4/2002	1300	0	0	\$0	\$0
West Portion	12/4/2002	430	0	0	\$5000	\$0
Countywide	2/20/2003	1000	0	0	\$10,000	\$0
South Portion	6/13/2003	2000	0	0	\$5000	\$0
Countywide	6/9/2004	1700	0	0	\$0	\$0
Countywide	6/25/2004	1900	0	0	\$0	\$0
South Portion	6/29/2004	1300	0	0	\$0	\$0
Countywide	10/2/2004	630	0	0	\$0	\$0
Countywide	11/21/2004	1500	0	0	\$0	\$0

Countywide	11/22/2004	700	0	0	\$0	\$0
Fedor	5/8/2005	1400	0	0	\$0	\$0
Giddings	8/8/2005	2100	0	0	\$0	\$0
Lexington	8/9/2005	930	0	0	\$0	\$0
Giddings	10/18/2006	2100	0	0	\$0	\$0
Fedor	3/13/2007	1630	0	0	\$0	\$0
Serbin	5/2/2007	2300	0	0	\$0	\$0
Giddings	5/26/2007	700	0	0	\$0	\$0
Lexington	5/28/2007	930	0	0	\$0	\$0
Giddings	6/17/2007	1130	0	0	\$0	\$0
Fedor	6/27/2007	330	0	0	\$50,000	\$0
Fedor	7/6/2007	330	0	0	\$0	\$0
Serbin	7/25/2007	1630	0	0	\$0	\$0
Giddings	4/18/2009	800	0	0	\$0	\$0
Lincoln	9/13/2009	245	0	0	\$0	\$0
Lexington	9/13/2009	245	0	0	\$0	\$0
Tanglewood	3/20/2012	345	0	0	\$0	\$0
Fedor	3/20/2012	1830	1	0	\$0	\$0
Loebau	4/24/2015	800	0	0	\$0	\$0
Lexington	5/6/2015	300	0	0	\$0	\$0
Manheim	5/11/2015	759	0	0	\$0	\$0
Lexington	5/11/2015	1030	0	0	\$0	\$0
Dime Box	5/13/2015	1400	0	0	\$0	\$0
Lexington	10/30/2015	1840	0	0	\$0	\$0
Blue	4/18/2016	1000	0	0	\$0	\$0
Giddings	5/26/2016	1708	0	0	\$0	\$0
Loebau	5/26/2016	2226	1	0	\$0	\$0
Lexington	5/3/2019	2052	0	0	\$0	\$0

Significant Events

Communities across Lee County have experienced severe flooding events throughout the period of analysis for this plan.

November 15th, 2001

In mid-November 2001, heavy rainfall led to severe flash flooding, closing many rural roads and low-water crossings across the county. This was the worst reported flooding in nearly half a century, and infrastructure across the county was damaged, and many people had to be rescued.

June 27th, 2007

Flash flooding occurred after heavy thunderstorms crossed through the area. The City of Giddings was particularly hard hit, leading to road closures along central county roads.

March 20th, 2012

After heavy thunderstorms, flash flooding in north-central Lee County swept a car into the West Yegua Creek, killing the driver of the car.

Probability of Future Events

FEMA states that flooding is the most common natural disaster in the United States, affecting every region and every state. Based on recorded historical occurrences and extent within the Lee County planning area, 44 recorded flooding events in the 25-year reporting period provide a probability of occurrence of 1-2 events per year. This frequency supports a Highly Likely probability of future events, meaning that an event is probable in the next year.

Table 8-4: Frequency of Occurrence for Floods in Lee County

Frequency of Occurrence
Highly likely: Event probable in the next year.
Likely: Event probable in the next 3 years.
Occasional: Event possible in the next 5 years.
Unlikely: Event possible in next 10 years.

Vulnerability and Impacts

The flood hazard areas throughout Lee County are subject to periodic inundation, which may result in loss of life and property, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect public safety. Riverine Flooding has killed and injured more people than any other weather-related hazard, and the greatest number of deaths is due to people driving into water while going over roads. For this study, the location and proximity to the floodplain

or SFHA determines a property's vulnerability to a flood. Structures that lie along the banks of a waterway are the most vulnerable and are often repetitive loss structures. Future development outside of a floodplain is encouraged, although there are some critical facilities, homes, and businesses already located in the floodplain due to their development before the current floodplain regulations. No critical infrastructure was identified as falling within 100-year or 500-year floodplain boundaries. Vulnerabilities for properties near or within the floodplain can still be addressed by plan participants with regulatory authority. While the ISDs of Lee County have no significant identifiable vulnerability, given that their facilities do not fall within any flood hazard areas, they are still susceptible to localized pluvial flooding due to poorly designed drainage systems. These exact areas could not be mapped, but mitigation actions to address this data deficiency have been included in this plan.

Flood losses are exacerbated by the cumulative effect of obstructions in floodplains. Occupancy of flood hazard areas is especially hazardous when development is inadequately elevated, flood-proofed, or otherwise protected from flood damage. Moreover, increased development in floodplains can increase flood heights and velocities, making flooding more intense and widespread than predicted. Mitigation actions are included to address flood maintenance issues as well as dam maintenance (Section 15), such as routinely clearing debris from roadside ditches and bridges. Expanding drainage culverts and stormwater structures to convey flood waters more adequately is critical to flood mitigation as well. Table 8-5 below shows Lee County dollar losses from January 1999 through March 2024.

Table 8-5: Flooding Loss Summary in Lee County

Period	Deaths	Injuries	Property Damage	Crop Damage
Loss Summary, Lee County				
25-year Total	2	10	\$135,000	\$0
Per Year	< 1	< 1	\$5,400	\$0
Per Capita Dollar Losses (2023 Pop.)				
25-year Total	< 1	< 1	\$7.60	\$0
Per Year	< 1	< 1	\$0.30	\$0

Table 8-6 below distributes the countywide impacts presented previously in Table 8-3 amongst the various participating jurisdictions based on historic records and scale of flooding impact.

Table 8-6: Flood Losses by Jurisdiction 1999-2024

Jurisdiction	Est. Prop. Losses	Est. Crop Losses	Total Est. Losses
Lee County	\$135,000	\$0	\$135,000
Lexington	\$0	\$0	\$0
Giddings	\$0	\$0	\$0

National Flood Insurance Program (NFIP) Participation

Lee County, the City of Lexington, and the City of Giddings are participants in the National Flood Insurance Program. The NFIP protects businesses and homeowners from devastating losses in the event of a flood hazard. As an additional indicator of floodplain management responsibility, communities may choose to participate in FEMA's Community Rating System (CRS). This is an incentive-based program that allows communities to undertake flood mitigation activities that go beyond NFIP requirements. Currently, none of the communities in Lee County participate in CRS. It is the purpose of all NFIP jurisdictions participating in the Hazard Mitigation Plan to continue to promote public health, safety, and general welfare by minimizing public and private losses due to flood conditions in specific areas. Currently, only Lee County and the City of Giddings have an adopted Flood Damage Prevention Ordinance. They will continue to comply with NFIP requirements through their local permitting, inspection, and record-keeping requirements for new and substantially improved or damaged construction. Per the 2023 NFIP changes, the Substantial Damage Estimator and Repetitive Damage forms have been incorporated into their ordinances. The Floodplain Administrator for unincorporated Lee County is the Development Services Director. The Code Compliance Officer is the Floodplain Administrator for the City of Giddings. The City of Lexington does not currently have a Floodplain Administrator. To ensure compliance with the requirements of the NFIP, the City of Lexington has created mitigation actions to facilitate the adoption of a flood damage prevention ordinance and designation of a floodplain administrator.

Floodplain Management

The Flood Damage Prevention Ordinances for the County and the City of Giddings fully define and address bringing substantial improvement/damage properties up to the most recent flood mitigation standards through the floodplain ordinance permitting process by requiring substantially improved or damaged properties to be elevated or mitigated according to the most recent flood map data. The Lee County Commissioners' Court will also be reviewing building codes for flood resilience in the future and examining strategies to meet the most recent NFIP requirements for structural resilience in flood hazard areas. There are currently only 3 recognized repetitive loss structures in Lee County, two in the City of Giddings and one in the City of Lexington, with each property having two losses.

Table 8-7: Total number of repeat structure damage and losses (Source: FEMA NFIP)

Jurisdiction	Number of Structures	Number of Losses
Lee County	2	4
City of Lexington	1	2

Table 8-8: Repetitive Loss Properties in Lee County

Property Number	Reported City	Community Name	Property Type	Total Losses
1	Giddings	Lee County	SF Residential	2
2	Giddings	Lee County	SF Residential	2
3	Lexington	Lexington	SF Residential	2

SECTION 9: THUNDERSTORM WIND

Description

Severe Windstorms can occur as straight-line events (derechos) or with other natural hazards, including hurricanes and severe thunderstorms. According to the National Weather Service (NWS), a thunderstorm occurs when thunder accompanies rainfall. Thunderstorms create extreme wind events and are created when heat and moisture near the Earth's surface are transported to the upper levels of the atmosphere. The clouds, precipitation, and severe winds that become thunderstorms are the result of this process. Straight-line winds can have gusts of 87 knots (100 mph) or more and are responsible for most thunderstorm wind damage. One type of straight-line wind, the downburst, is a small area of rapidly descending air beneath a thunderstorm. A downburst can cause damage equivalent to a strong tornado and make air travel extremely hazardous.

Location

Thunderstorms are unpredictable and can occur anywhere in the planning area. Lee County, along with all participating jurisdictions, is equally at risk of thunderstorm winds. According to FEMA's Wind Zones map of the United States (Figure 9-1), the planning area falls under Wind Zone III, which is associated with winds that can reach up to 200 mph. This area is also situated near the coast, making it vulnerable to hurricanes.

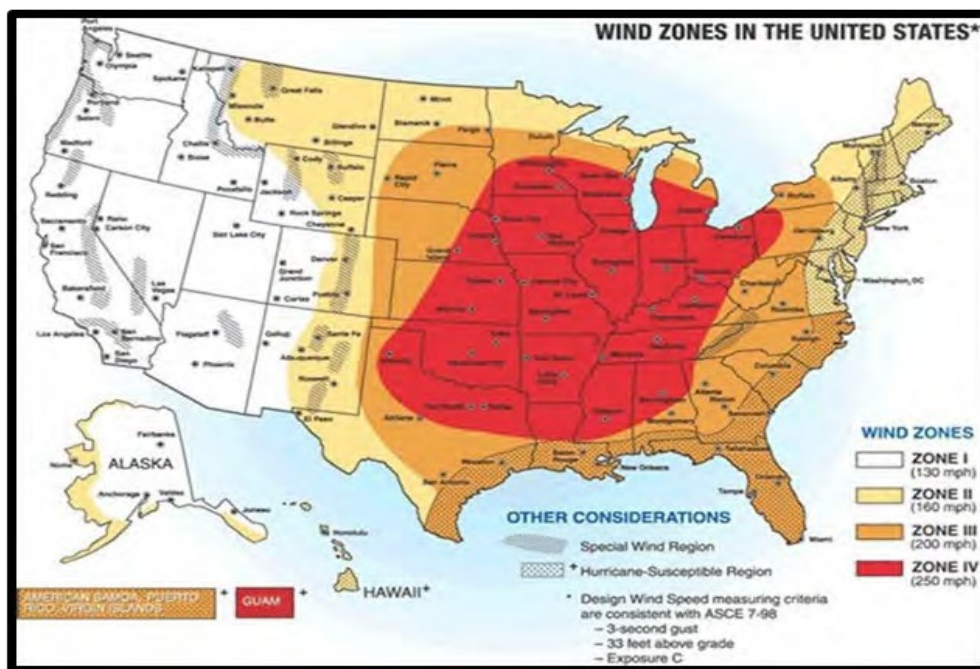


Figure 9-1: Wind Zone Maps in the US

Extent

The extent or magnitude of a specific thunderstorm wind event is measured by the Beaufort Wind Scale, developed in 1805. Table 9-1 describes the Beaufort Wind Scale, with different intensities of wind events in terms of speed and effect, from calm to violent and destructive. Based on historical occurrences, the planning area is expected to experience a windstorm with a maximum magnitude of 200 mph.

Historical Occurrences

Historical occurrences of thunderstorm wind events with resulting damages that have impacted the Lee County planning area are shown in Table 9-1 below. Only high wind events associated with thunderstorm winds are considered in this section. Wind damage associated with other hazards, such as tornadoes or hurricanes, is accounted for in other sections. From 2000 to 2025, there have been 41 thunderstorm wind events recorded in the NCEI storm events database that have impacted the Lee County planning area. The NCEI, organized under the National Oceanic and Atmospheric Administration, is the largest archive available for climate data; however, it is important to note that only incidents and damages reported to the NCEI have been factored into this risk assessment. Some occurrences appear multiple times due to reports from various locations throughout the planning area. There have not been any events recorded past the listed dates.

Table 9-1: Historical Thunderstorm-Wind Events, 2000-2025

Location	Begin Date	Magnitude Kts.	Death	Injuries	Property	Crops
Lexington	5/12/2000		0	0	\$100,000	\$0
Giddings	9/2/2000		0	0	\$90,000	\$0
Fedor	10/22/2000		0	0	\$20,000	\$0
Countywide	3/19/2002		0	0	\$200,000	\$50,000
Lexington	3/19/2002	57	0	0	\$0	\$0
Lincoln	6/16/2002		0	0	\$30,000	\$0
Fedor	6/26/2002		0	0	\$10,000	\$0
Giddings	12/23/2002		0	0	\$50,000	\$0
Giddings	12/30/2002		0	0	\$20,000	\$0
Giddings	6/13/2003	55	0	0	\$10,000	\$0
Lexington	7/23/2003	60	0	0	\$50,000	\$0
Lexington	8/11/2003	60	0	0	\$20,000	\$0
Dime Box	8/11/2004	60	0	0	\$0	\$0
Giddings	3/19/2005	70	0	0	\$200,000	\$0
Giddings	7/7/2005	60	0	0	\$0	\$0
Lincoln	4/20/2006	75	0	0	\$200,000	\$0
Lexington	5/6/2006	70	0	0	\$100,000	\$0
Lexington	5/14/2008	50	0	0	\$5,000	\$0
Giddings	7/19/2009	43	0	0	\$10,000	\$0

Northrup	5/12/2011	60	0	0	\$5,000	\$0
Dime Box	5/12/2011	50	0	0	\$0	\$0
Giddings	6/5/2011	52	0	0	\$2,000	\$0
Giddings- Lee Co. Arpt.	9/29/2011	50	0	0	\$0	\$0
Northrup	1/25/2012	50	0	0	\$40,000	\$0
Lincoln	1/25/2012	43	0	0	\$10,000	\$0
Fedor	6/12/2012	43	0	0	\$1,000	\$0
Northrup	6/12/2012	50	0	0	\$0	\$0
Loebau	8/31/2012	50	0	0	\$10,000	\$0
Lexington	5/6/2015	50	0	0	\$0	\$0
Loebau	5/11/2015	50	0	0	\$0	\$0
Lexington	4/30/2016	52	0	0	\$0	\$0
Lexington	1/2/2017	52	0	0	\$0	\$0
Lexington	2/20/2017	68	0	0	\$0	\$0
Giddings	5/23/2017	65	0	0	\$0	\$0
Giddings	5/23/2017	61	0	0	\$10,000	\$0
Lincoln	5/3/2019	61	0	0	\$5,000	\$0
Giddings Lee Co Arpt.	1/10/2020	52	0	0	\$0	\$0
Manheim	4/29/2020	52	0	0	\$2,000	\$0
Blue	4/9/2024	61	0	0	\$0	\$0
Manheim	4/9/2024	56	0	0	\$0	\$0
Manheim	5/16/2024	52	0	0	\$500	\$0

Significant Events

There have been five major thunderstorm wind events that have caused \$850,000 or 2/3rds of the total damage in Lee County, but there have been 36 additional thunderstorm wind events that have caused a total of \$350,500 in damage to property in Lee County from 2000 to 2025. Fortunately, available records indicate that no significant injuries or fatalities have occurred in Lee County due to thunderstorm wind events.

Probability of Future Events

Thunderstorm season and the winds they bring are commonly associated with late spring and early summer. The months with the highest number of thunderstorm wind incidents are May, with 11 incidents, June, with 6 incidents, and April, with 5 incidents. Wind events categorized as Forces 10-12 on the Beaufort scale, with hurricane-force winds, have routinely impacted the area and are the level of windstorm hazard the area should mitigate for in the future. The Lee County planning area has experienced, on average, 1-2 thunderstorm wind events every year, meaning that an event is Highly Likely within the next year for the planning area.

Frequency of Occurrence	
Highly likely:	Event probable in next year.
Likely:	Event probable in next 3 years.
Occasional:	Event possible in next 5 years.
Unlikely:	Event possible in next 10 years.

Vulnerability and Impacts

Thunderstorm winds exist at different strength levels and occur randomly throughout the planning area, with the potential to cause injury and property damage. All people, animals, existing and future structures, and facilities in the Lee County planning area could potentially be impacted and remain vulnerable to strong winds. A thunderstorm wind event can impact human health, including injuries from windblown debris, direct injuries, traffic accidents, and, in rare cases, fatalities. Debris from damaged structures can also cause damage to other buildings not directly impacted by the event. Infrastructure, such as power lines, poles, radio towers, water towers, and streetlights, is vulnerable to the impacts of severe thunderstorm winds. In addition, street signs, garbage cans, outdoor furniture, storage sheds, roofs, vehicles, trees, and other objects commonly found outdoors are at risk. While these vulnerabilities do exist, the overall impacts of thunderstorm winds are limited in scope and have not yet resulted in any reported injuries or fatalities.

The Lee County planning area features mobile and manufactured home parks, which are more vulnerable to thunderstorm winds than site-built structures. These types of homes are also located in rural areas throughout the county, which could result in limited access to essential services and emergency aid in the event of a disaster. Based on 2023 American Community Survey estimates, there are 7,924 housing units in Lee County, of which 23.2%, or 1,837 units, are mobile or manufactured homes. Additionally, 2,569 (32.4%) of the housing units in the overall planning area were built before 1980. These structures are likely to have been built to less stringent construction standards than newer construction and could be more susceptible to damage during significant events.

Table 9-2: Structures at Greatest Risk by Jurisdiction

Jurisdiction	Total Housing Units	Mobile Housing Units	Housing Built Before 1980
Lee County	7,924	1,837	2,569
Lexington	773	182	425
Giddings	2,079	227	880

*County totals include all jurisdictions, ISDs, and unincorporated areas. Source: 2023 ACS 5-year estimate

Historic Thunderstorm Winds Impacts

Below is the Lee County Thunderstorm Winds Loss Summary, Table 9-3, which shows the 25-year column totals and the average annual (Per Year) losses in these categories. The bottom half of each table shows per capita dollar loss rates for the total and average annual losses. These rates are important measures for comparing losses between different areas. The average annual loss estimate of property and crops is \$50,200 in Lee County.

Table 9-3: Lee County Thunderstorm Wind Loss Summary

Time Period	Fatalities	Injuries	Property Damage	Crop Damage
Loss Summary, Lee County				
25-year Total	0	0	\$1,200,500	\$50,000
Per Year	0	0	\$48,020	\$2,000
Per Capita Dollar Losses (2023 Census Pop)				
25-year Total	0	0	\$1,920.80	\$2.82
Per Year	0	0	\$2.70	\$0.11

SECTION 10: TORNADOES

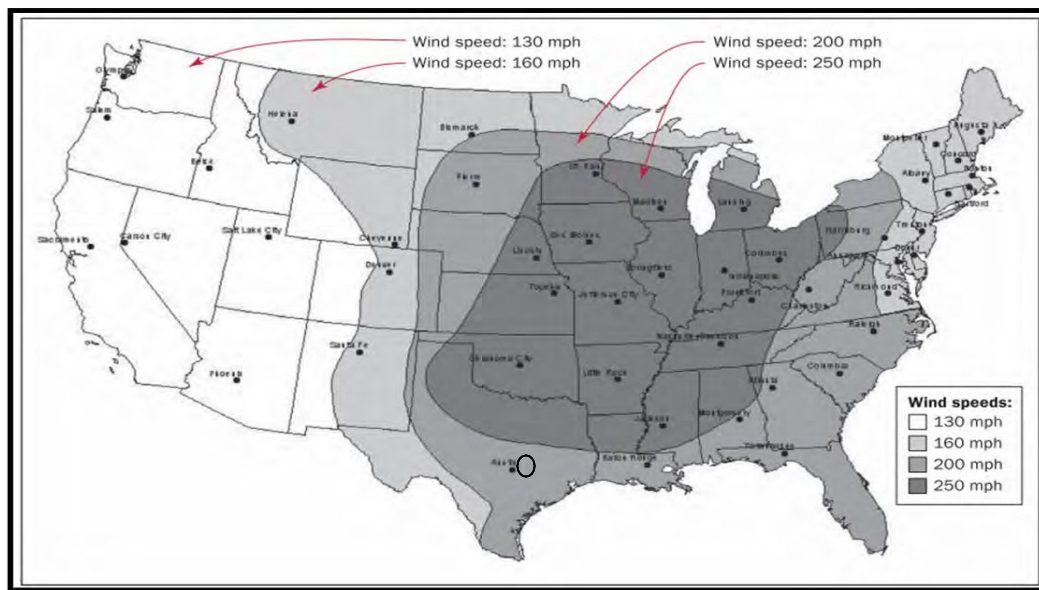
Description

A tornado is a narrow, violently rotating column of air that extends from the base of a cumulonimbus cloud to the ground. Tornadoes, among the most violent storms on the planet, are capable of tremendous destruction, with wind speeds that can reach as high as 250-300mph. Typically, the vortex of air will remain suspended in the atmosphere and be visible as a funnel cloud. If the lower tip of the vortex touches the ground, however, the path of the tornado will often leave destruction in its wake and can be more than one mile wide and 50 miles long. Supercell thunderstorms, created when horizontal wind shears (winds moving in different directions at different altitudes) begin to rotate the storm, can produce the most extreme and powerful tornadoes. The economic and financial impacts of a tornado event on a community can be devastating, depending on the scale of the event and the population density of the area that is hit. The damage caused in the aftermath of a tornado event can be minimized with collaborative preparedness and pre-event planning by the government, businesses, and citizens.

Location

Tornadoes do not have any specific geographic boundary and can occur uniformly throughout the planning area. Lee County is located in Wind Zone Three along the Region (Figure 10-1), where tornado winds can be as high as 200 mph.

Figure 10-1: Wind Zones and Speeds



Tornado Alley refers to an area in the southern plains of the central United States that experiences a higher-than-normal frequency of tornadoes each year due to weather patterns and geography. This area extends from central Texas to northern Iowa, and from central Kansas and Nebraska east to Western Ohio (Figure 10-2). Tornadoes in this region typically occur in late spring and occasionally in the early fall. The Lee County planning area is just outside the area known as tornado alley, but it is still prone to frequent tornado events.

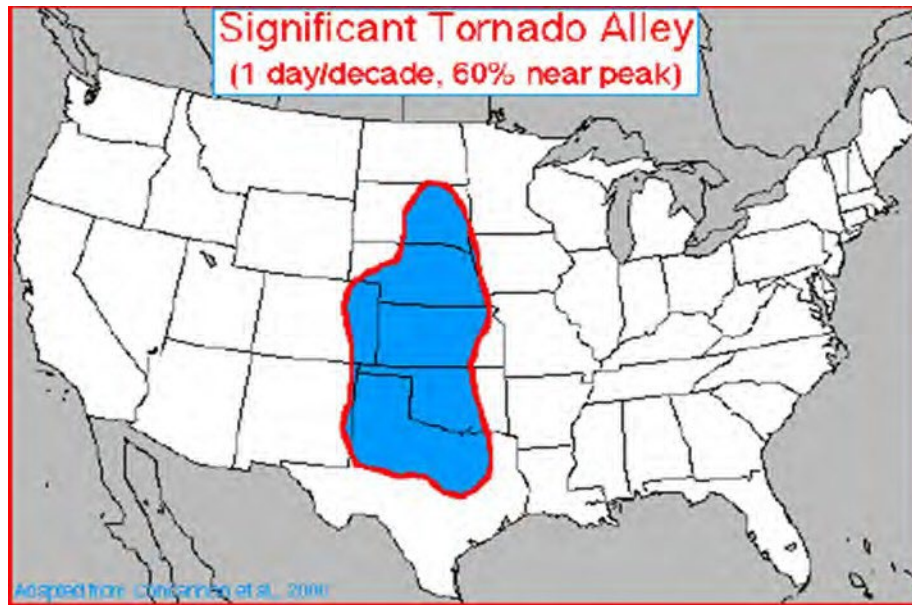


Figure 10-2: Tornado Alley

Recent research indicates that with climate change, Tornado Alley is shifting away from the Midwestern United States and moving towards the Southern and Central East Coast slightly. Climate change will likely also lead to a shift in when the peak of Tornado season occurs in Central Texas. Tornadoes may be less likely to strike in the late Spring and Summer months, spanning from March through August ('Tornado Alley' Has Shifted, Study Says, Weather.com).

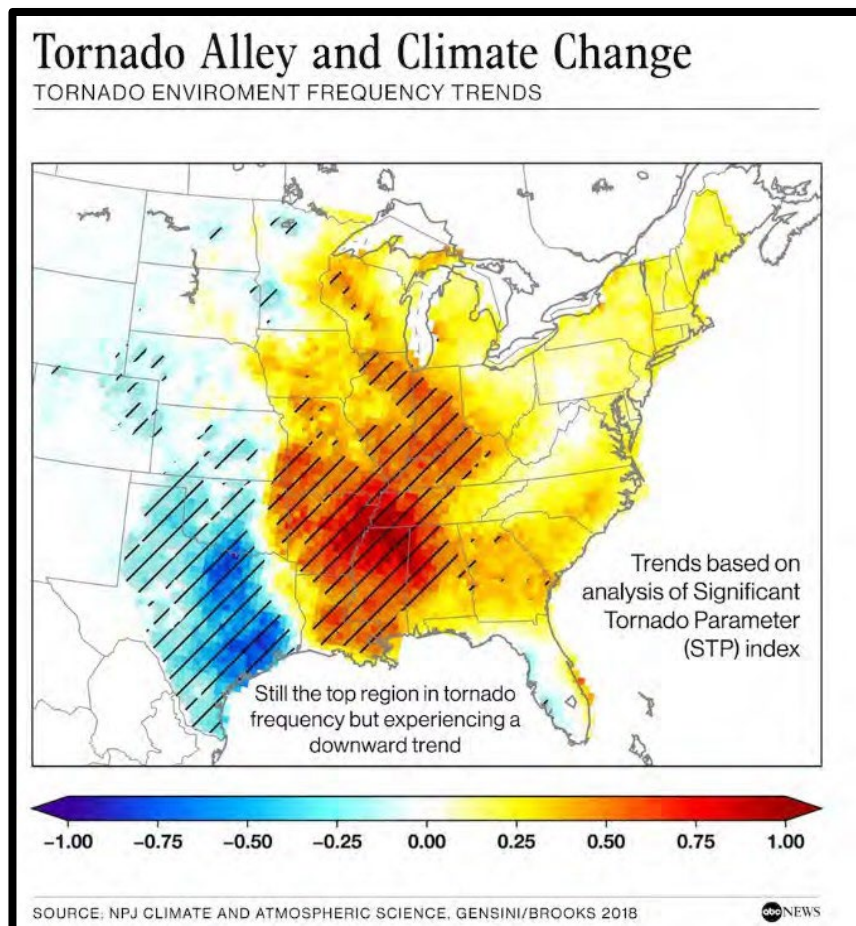


Figure 10-3: Tornado Alley Shifting with Changes in Climate

Extent

Tornado events before 2007 follow the original Fujita scale, seen in Table 10-1 below. The current measure of the extent of tornado damage is the enhanced Fujita scale, which took effect on February 1st, 2007. The scale ranges from EF0, generally weak tornadoes with the ability to do minor damage, to EF5, tornadoes with winds over 200 mph and the ability to do devastating damage to areas they come in contact with. Tornadoes can range from weak to violent and typically cause the greatest damage to structures of light construction, such as single-family, manufactured, and mobile homes.

Table 10-1 The Fujita Tornado Scale

Scale	Wind speed estimate (mph)	Potential damage	Example of damage
F0	40-72	Light damage.	Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
F1	73-112	Moderate damage.	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes are pushed off foundations or overturned; moving vehicles are pushed off the roads; attached garages may be destroyed.
F2	113-157	Significant damage.	Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; high-rise windows broken and blown in; light-object missiles generated.
F3	158-206	Severe damage.	Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forests uprooted; heavy cars lifted off the ground and thrown.
F4	207-260	Devastating damage.	Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown, and large missiles generated.
F5	261-318	Incredible damage.	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile-sized missiles fly farther than 100 meters (110 yards); trees debarked; steel-reinforced concrete structures badly damaged, and skyscrapers toppled.

Table 10-2: The Enhanced Fujita Tornado Scale

Source: <https://www.spc.noaa.gov/efscale/ef-scale.html>

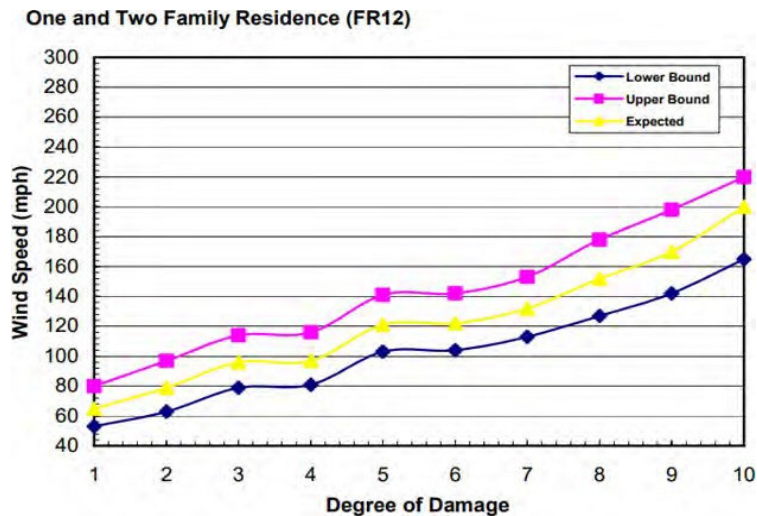
Scale	Wind speed estimate (mph)	Potential damage	Example of damage
EF0	65–85	Minor damage	Peels the surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e., those that remain in open fields) are always rated EF0.
EF1	86–110	Moderate damage.	Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows, and other glass broken.
EF2	111–135	Considerable damage.	Considerable damage. Roofs torn off from well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off the ground.
EF3	136–165	Severe damage.	Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations are badly damaged.
EF4	166–200	Devastating damage.	Well-constructed and whole-frame houses are completely leveled; cars and other large objects are thrown, and small missiles are generated.
EF5	>200	Incredible damage.	Strong-framed, well-built houses leveled off; foundations are swept away; steel-reinforced concrete structures are critically damaged; tall buildings collapse or have severe structural deformations; some cars, trucks, and train cars can be thrown approximately 1 mile (1.6 km).

The Enhanced Fujita Scale has 28 Damage Indicators (DI), or types of structures and vegetation, each with a varying number of Degrees of Damage (DoD). Larger degrees of damage done to the damage indicators correspond to higher wind speeds. Each damage indicator has a unique Degree of Damage scale, summarized in Table 10-3. For example, damage indicator two, One and Two-family Residences, Degree of Damage Scale is provided as Figure 10-3. For Degree of Damage Scales (DOD) for the remaining Damage Indicators, refer to the National Oceanic and Atmospheric Administration website.

Table 10-3: Degrees of Damage Scale

DI No.	Damage indicator (DI)	DOD
1	Small barns or farm outbuildings (SBO)	8
2	One- or two-family residences (FR12)	10
3	Manufactured home – single-wide (MHSW)	9
4	Manufactured home – double wide (MHDW)	12
5	Apartments, condominiums, townhouses [three stories or less] (ACT)	6
6	Motel (M)	10
7	Masonry apartment or motel building (MAM)	7
8	Small retail building [fast-food restaurants] (SRB)	8
9	Small professional buildings [doctor's office, branch banks] (SPB)	9
10	Strip mall (SM)	9
11	Large shopping mall (LSM)	9
12	Large, isolated retail building [K-Mart, Wal-Mart] (LIRB)	7
13	Automobile showroom (ASR)	8
14	Automobile service building (ASB)	8
15	Elementary school [single-story; interior or exterior hallways] (ES)	10
16	Junior or senior high school (JHSH)	11
17	Low-rise building [1–4 stories] (LRB)	7
18	Mid-rise building [5–20 stories] (MRB)	10
19	High-rise building [more than 20 stories] (HRB)	10
20	Institutional building [hospital, government building] (IB)	11
21	Metal building system (MBS)	8
22	Service station canopy (SSC)	6
23	Warehouse building [tilt-up walls or heavy-timber construction] (WHB)	7
24	Electrical transmission lines (ETL)	6
25	Free-standing towers (FST)	3
26	Free-standing light poles, luminary poles, flag poles (FSP)	3
27	Trees: hardwood (TH)	5
28	Trees: softwood (TS)	5

Figure 10-3: Degree of Damage Scale for One and Two-Family Residences



Typical Construction

- Asphalt shingles, tile, slate or metal roof covering
- Flat, gable, hip, mansard or mono-sloped roof or combinations thereof
- Plywood/OSB or wood plank roof deck
- Prefabricated wood trusses or wood joist and rafter construction
- Brick veneer, wood panels, stucco, EIFS, vinyl or metal siding
- Wood or metal stud walls, concrete blocks or insulating-concrete panels
- Attached single or double garage

DOD*	Damage description	Exp**	LB	UB
1	Threshold of visible damage	65	53	80
2	Loss of roof covering material (<20%), gutters and/or awning; loss of vinyl or metal siding	79	63	97
3	Broken glass in doors and windows	96	79	114
4	Uplift of roof deck and loss of significant roof covering material (>20%); collapse of chimney; garage doors collapse inward or outward; failure of porch or carport	97	81	116
5	Entire house shifts off foundation	121	103	141
6	Large sections of roof structure removed; most walls remain standing	122	104	142
7	Exterior walls collapsed	132	113	153
8	Most walls collapsed in bottom floor, except small interior rooms	152	127	178
9	All walls collapsed	170	142	198
10	Destruction of engineered and/or well constructed residence: slab swept clean	200	165	220

* DOD is degree of damage **Wind Speed values are in mph

LB and UB are the lower bound and upper bound for wind speeds. The graph above indicates the wind speeds of a tornado to the expected Degree of Damage. There have been 0 recorded tornadic events in the Lee County planning area pre-2007 and three EF0s and one EF1 post-2006 (Table 10- 5, 10-6). However, because Lee County is in Wind Zone III, the planning area could experience anywhere from an EF0 to an EF4. Therefore, the range of intensity that the planning area would be expected to mitigate is a tornado that could cause minor to devastating damage, an EF0 to EF4.

Historical Occurrences

Table 10-4 lists historical tornado events in the planning area from 1999-2024 that were reported to the NCEI or NOAA. The impact of each tornado event in Lee County is listed

by date with additional impact information related to the specific jurisdiction of touchdown, the magnitude of the event, total dollar losses related to crop and property damage, injuries, and fatalities. There have not been any events recorded past the listed dates.

Table 10-4: Historical Tornado Events by Jurisdiction, 2000 – 2025

Location	Date	Magnitude	Death	Injuries	Property Damage	Crop Damage
Lexington	10/13/2012	EF0	0	0	\$5000	\$0
Giddings	5/19/2015	EF0	0	1	\$10000	\$0
Blue	3/21/2022	EF0	0	0	\$0	\$0
Giddings Lee County Airport	3/21/2022	EF1	0	0	NA	\$0

Table 10-5: Historical Tornado Events Magnitude Summary, 1999 - 2006

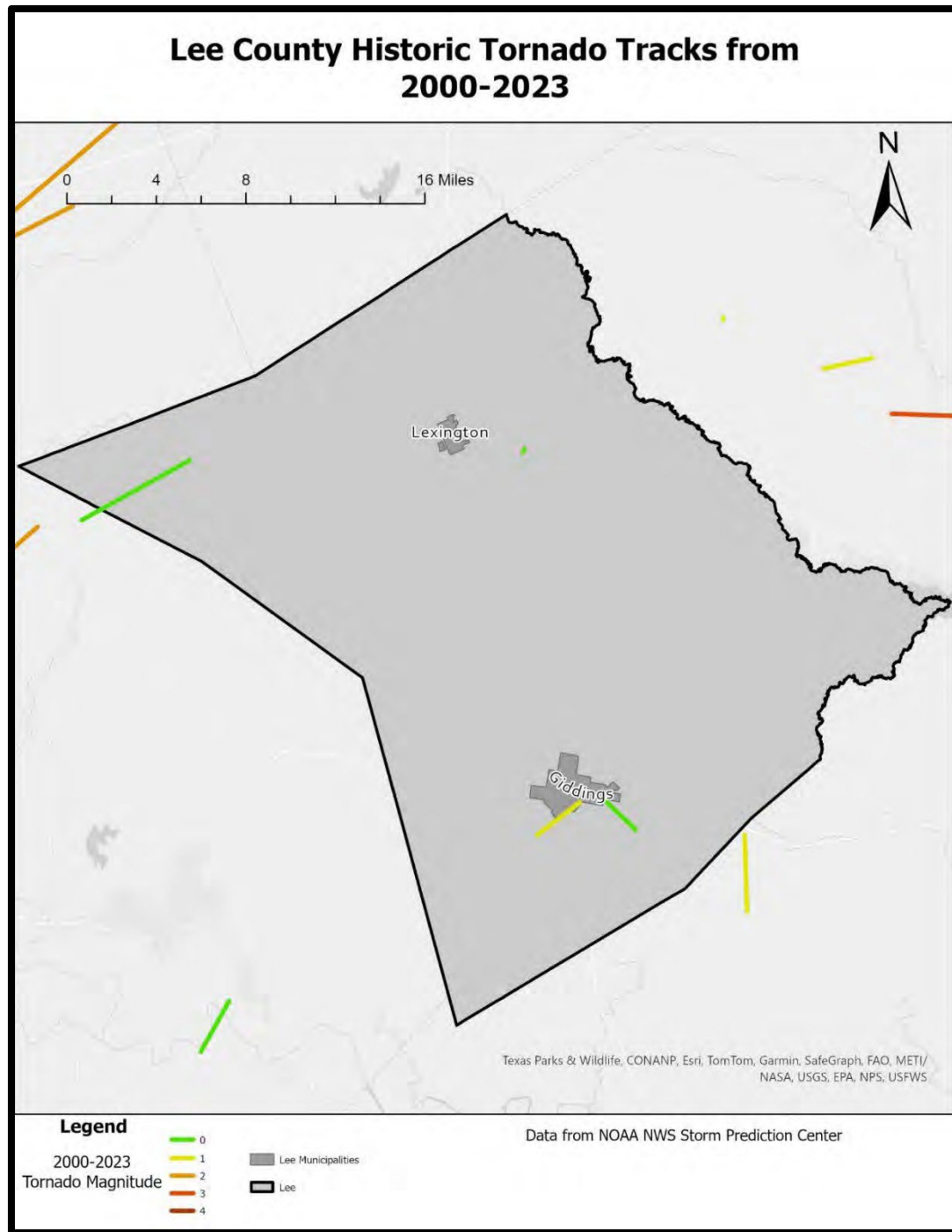
Number of Events	Magnitude (Fujita Scale)						
Lee County	N/A	F0	F1	F2	F3	F4	F5
0	0	0	0	0	0	0	0

Table 10-6: Historical Tornado Events Magnitude Summary, 2007-2024

Number of Events	Magnitude (Enhanced Fujita Scale)						
Lee County	N/A	EF0	EF1	EF2	EF3	EF4	EF5
4	0	3	1	0	0	0	0

The locations of previous occurrences from 2000 through 2023 in the planning area are shown in Figure 10-4. This map displays historic tornado tracks, the distance traveled, and the direction in which they traveled. Only reported tornadoes were plotted and factored into the risk assessment; however, several occurrences have likely gone unreported over the past 67 years. Not all tornado paths were available in GIS form.

Figure 10-4: Historic Tornado Tracks 2000-2023, Distance Travelled, Magnitude, and Direction



Significant Events

EF0 Tornado – May 19th, 2015

A strong EF0 tornado touched down in the eastern area of Giddings, damaging a hotel with trees and outbuilding debris that it picked up before making contact with the main hotel building. One person was injured by the tornado.

EF1 Tornado – March 21st, 2022

Due to inaccessible damage reports, the impact of this tornado was listed as Not Available; however, a significant number of structures were damaged across Lee County. The tornado touched down outside the City of Giddings, near the airport, and moved northeast to the southern edge of the city. At its strongest, it reached 95 mph, with a width of 50 yards. It damaged the roofs of six main structures, uprooted many trees, and damaged additional outbuildings.

Table 10-7: Tornado Categories and Associated Impacts

Weak Tornadoes	Strong Tornadoes	Violent Tornadoes
69% of all tornadoes	29% of all tornadoes	2% of all tornadoes
Less than 5% of tornado deaths	Nearly 30% of all tornado deaths	70% of all tornado deaths
Lifetime 1-10+ minutes	May last 20 minutes or longer	Lifetime can exceed one hour
Winds less than 110 mph	Winds 110 – 205 mph	Winds greater than 205 mph

Probability of Future Events

According to historical records, there were 4 events in a 25-year reporting period in the planning area. This provides a probability of occurrence of approximately once every six to seven years for the County planning area. This frequency supports an Occasional probability of future events for the planning area, including all participating jurisdictions, meaning that an event is probable in the next five to seven years.

Frequency of Occurrence	
Highly likely:	Event probable in next year.
Likely:	Event probable in next 3 years.
Occasional:	Event possible in next 5 years.
Unlikely:	Event possible in next 10 years.

Vulnerability and Impacts

All existing and future buildings, facilities, and populations in the Lee County planning area are vulnerable to tornadoes and could potentially be impacted. High wind velocity, wind-blown debris, lightning, and large hail are typically the causes of damage done by a tornado. The high winds and flying debris can cause roofs to collapse, windows to shatter, and walls to crumble. Tornadoes can also cause significant damage to buildings, roads, bridges, and other infrastructure in cities. First responders and those needing to evacuate an area may encounter blocked roads as a result of the debris, rendering some areas inaccessible or inescapable. Tornadoes can have a significant impact on the local economy as well, causing

damage to businesses and homes, disrupting access to jobs, and causing productivity losses. The psychological trauma of experiencing a tornado, losing property or loved ones, or being displaced from one's home can have lasting effects on mental health.

Tornadoes pose a severe threat to communities as they often result in power outages, which could cause health and safety risks to vulnerable populations who rely on electricity for medical necessities, as well as patients in hospitals. Power outages can also disrupt electricity supply to neighborhoods and even

entire cities, causing problems with heating, cooling, lighting, and communication. Anyone in the path of a tornado can incur serious injuries or even fatalities. Falling trees, branches, utility lines, poles, and flying debris pose safety risks, and people caught in the open or unable to take adequate cover are at the highest risk of injury or death. Certain buildings and structures are more prone to damage than others from the high wind velocity associated with tornado events. The three most susceptible types of structures to tornado damage are:

- 1. Manufactured Homes
- 2. Homes on crawlspaces (more susceptible to lift), and
- 3. Buildings with large spans, such as shopping malls, gymnasiums, and factories.

The Lee County planning area features mobile and manufactured home parks. Because manufactured and temporary housing is located sporadically throughout rural portions of the planning area, they are not only vulnerable to tornado hazards but also more prone to being isolated from essential needs and emergency services in the event of a disaster. Additionally, any structures built before 1980 are likely to have been built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant events.

Table 10-8: Structures at Greater Risk by Jurisdiction

Jurisdiction	Total Housing Units	Mobile Housing Units	Housing Built Before 1980
Lee County	7,924	1,837	2,569 (32.2%)
Lexington	773	182	425 (54.9%)
Giddings	2,079	227	880 (42.3%)

*County totals include all jurisdictions, ISDs, and unincorporated areas. Source: 2023 ACS 5-year estimate

Historic Tornado Impacts

The summary table, 10-9, shows the 25-year property and crop damage totals as well as the average annual (Per Year) losses summarizing historic tornado impacts. The bottom half of the table shows per capita dollar loss rates for the total and average annual losses. These rates are important measures for comparing losses between different hazards and areas. The average annual loss estimate of property and crops is \$600 for Lee County.

Table 10-9: County Loss Summary for Tornadoes

Time Period	Fatalities	Injuries	Property Damage	Crop Damage
Loss Summary, Lee County				
25-year Total	0	1	\$15,000	\$0
Per Year	0	< 1	\$600	\$0
Per Capita Dollar Losses				
25-year Total	0	< 1	\$0.84	\$0
Per Year	0	< 1	\$0.03	\$0

Since weather varies from year to year, forecasts of specific years are less likely to be true (less reliable) than these totals and averages for the period. The second summary table shows per capita dollar loss rates based on 2020 Census population counts. This is an important measure for comparing historical losses between different hazards and areas. Table 10-10 below displays the tornado losses by jurisdictions within the planning area.

Table 10-10: Tornado Losses by Jurisdiction 2000-2025

Jurisdiction	Est. Prop. Losses	Est. Crop Losses	Total Est. Losses
Lee County	\$0	\$0	\$0
Lexington	\$5,000	\$0	\$5,000
Giddings	\$10,000	\$0	\$10,000

*Unincorporated Areas, ISD, and other district losses are included in County Totals.

SECTION 11: HURRICANES

Description

A hurricane is an intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 mph or higher. Hurricanes, along with tropical storms and depressions, produce a variety of potential hazards, including damaging winds, coastal flooding due to storm surge, severe storms with heavy rainfall and high winds, and even tornadoes.

The information in this section covers historical damage within Lee County associated with hurricanes, tropical storms, and depressions associated with severe winds. Tornadoes and flooding, other hazards associated with this hazard event, are addressed in Chapters 10 and 8, respectively. Severe winds threaten the lives of community members, their property, and the vital utilities that are mainly disrupted due to flying debris or downed trees and power lines. Severe winds typically cause the greatest damage to structures of light construction, particularly manufactured homes.

Location

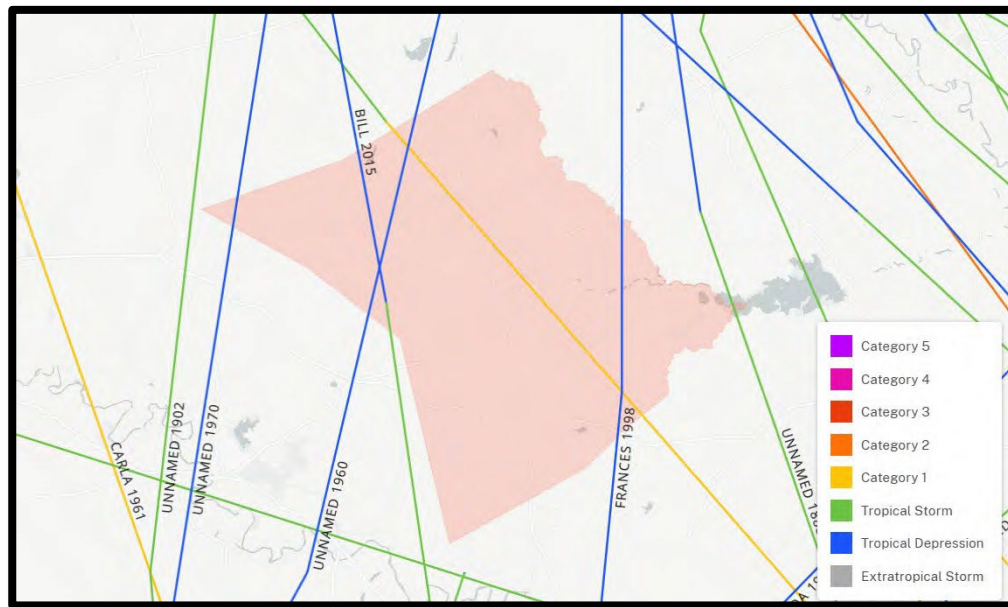
Hurricanes and tropical storms can occur throughout the planning area and are not confined to any geographic area; however, the likelihood of impact decreases the further a location is from the Texas coast. Lee County is approximately 110 miles away from the Gulf of Mexico at its closest point and has experienced 52 storms within 60 NM going back to the 1800s, although the hurricanes are often weakened to tropical storms by the time they cross Lee County. The table below lists hurricanes or tropical storm events with a storm track (center of the storm) that crossed the planning area, listed in order of the reported event date. Storm tracks are categorized according to the Saffir-Simpson wind intensity scale, with the category assigned as the “peak magnitude” of the storm at some time during its lifespan and not necessarily when the storm track crossed the planning area.

Table 11-1: Hurricane/TS/D Storm Track Events Table

Storm Name	Year	Dates	Category
Unnamed	1888	June 16 th -18 th	Hurricane
Unnamed	1932	Aug. 12 th – 15 th	Hurricane
Unnamed	1960	June 22 nd -28 th	Tropical Storm
Unnamed	1970	Sept. 1 st – 2 nd	Tropical Depression
Frances	1998	Sept. 8 th – 13 th	Tropical Storm
Bill	2015	June 16 th – 21 st	Tropical Storm
Harvey	2017	Aug. 26 th - 28 th	Hurricane

The map below shows the historical tracks of hurricanes through the planning area from 1842 to 2022. The category assigned to each storm on the map is its magnitude at the time it crossed into Lee County. Based on data provided by NOAA’s National Climatic Data Center (NCDC) and FEMA’s National Risk Index, Lee County’s hurricane risk is relatively low when compared to coastal counties.

Figure 11-1: Historic Hurricane Tracks from 1842-2022



Extent

For Hurricanes, the extent can be expressed separately for flood, wind, and surge. Flooding is examined in section 8, but storm surge is not an issue for Lee County since it is located too far from the coast. For hurricane wind extent, the Saffir-Simpson Hurricane Wind Scale (SSHWS) is the scientific scale most often used to measure hurricane winds. The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures. Wind speeds range from 39-73 mph for Tropical Storms, and Tropical Depressions have wind speeds equal to or less than 38 mph.

Table 11-2: Saffir-Simpson Wind Scale

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roofs, shingles, vinyl siding, and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles will likely result in power outages that could last a few to several days.
2	96-110 mph	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.

3 (Major)	111-129 mph	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (Major)	130-156 mph	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with the loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles will be downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (Major)	157 mph or higher	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

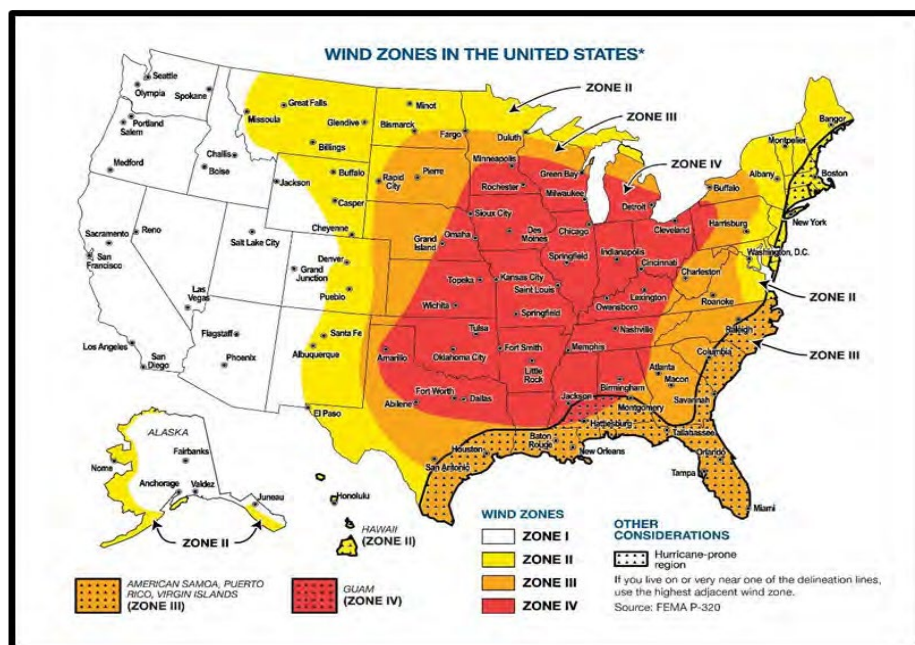


Figure 11- 2: FEMA Wind Zones

According to the FEMA Wind Zones Map used to determine building standards, Lee County is partially in the hurricane-prone region. Based on the location and the historical storm tracks for hurricanes and tropical storms in the Lee County planning area, tropical depressions and storms are the key events to be mitigated.

Historical Occurrences

Hurricanes and Tropical Storms that had a direct path through the County planning area, as well as tracks that went through adjacent counties yet still impacted the County planning area, are identified in this section. Based on historical storm data provided by NOAA’s National Climatic Data Center (NCDC), 6 Tropical Storms and Hurricane events have passed through, and an additional 2 events have been documented as impacting the planning area since 1842. Table 11-3 below lists the storms that have impacted the planning area and been documented by the National Center for Environmental Information. There have been other historically significant storms that will be discussed below.

Table 11-3: Historic Hurricane Impacts from 2000-2024

Events	Magnitude	Injuries	Fatalities	Property Damage	Crop Damage
1	Hurricane	0	0	\$250,000	\$0
1	Tropical Storm	0	0	\$100,000	\$0

Significant Events

There have been two historically significant events impacting Lee County from 2000 through 2025: most notably, Tropical Storm Bill and Hurricane Harvey, which was a tropical storm by the time it reached the planning area.

Tropical Storm Bill

Tropical Storm Bill made landfall near Matagorda Island and moved north, with the eye of the storm going directly through Lee County, Texas. High winds downed trees and damaged utility infrastructure, and many inches of rain caused shallow floods.

August 27th-28th, 2017– Hurricane Harvey

Lee County was significantly impacted by Hurricane Harvey, experiencing over 20 inches of rain in the southern half of Lee County. This led to devastating flooding, with major damage done to 25 homes, and many trees were downed across the county by strong winds. Flood damage estimates from Hurricane Harvey are included in the table above.

Vulnerability and Impact

The more remote proximity of Lee County to the Texas Coast makes this area less vulnerable to flooding from hurricane-brought rain and hurricane-force winds that cause damage across large areas. When these powerful events do occur, they expose all buildings, facilities, and populations in the planning area equally to their impact. Damage to towers, trees, and underground utility lines from uprooted trees and fallen poles can cause damage to utility infrastructure, resulting in considerable disruption. Debris such as small items left outside, signs, roofing materials, and trees can become extremely hazardous in hurricanes and tropical storms, and fierce winds can easily destroy poorly constructed buildings, barns, and mobile homes. Hurricanes and tropical storms also produce copious amounts of rain, increasing the risk of flooding. This rain can overwhelm drainage systems, as hurricanes and tropical storms that have weakened after making landfall can continue to drop significant quantities of water. The impacts on communities from a Category 5 storm can result in the

complete destruction of houses, commercial property, and cropland. This would result in large-scale economic impacts and population displacement. Warning time for hurricanes, however, has lengthened due to modern early warning technology allowing the community time to reduce the impact of tropical storms and hurricanes.

The Lee County planning area features mobile and manufactured home parks, which are more vulnerable to hurricane winds than site-built structures. In addition, manufactured and temporary housing is located sporadically throughout rural portions of the planning area, which are more prone to being isolated from essential needs and emergency services in the event of a disaster.

Based on 2023 American Community Survey (ACS) estimates, there are 7,924 housing units in Lee County, of which 23.1%, or 1837 units, are mobile or manufactured homes. In addition, 32.4% (2569) of the housing units in the overall planning area were built before 1980. These structures are likely to have been built to less stringent standards than newer construction; therefore, they may be more susceptible to damage during significant events.

Table 11-4. Structures at Greater Risk by Jurisdiction

Jurisdiction	Total Housing Units	Mobile Housing Units	Housing Built Before 1980
Lee County	7924	1837 (23.1%)	2569 (32.4%)
Lexington	773	182 (23.5%)	425 (55%)
Giddings	2079	227 (10.9%)	880 (42.3%)

*County totals include all jurisdictions, ISDs, and unincorporated areas. Source: 2023 ACS 5-year estimate

Probability of Future Events

The probability of future events relies on measuring the number of previous occurrences of a hurricane or tropical storm event over the relevant period. There have been 52 storm events over the past 180 years, an average of one every 3-4 years but only 2 tropical storm or hurricane events over the past 25 years, or an average of one every 12 years, and given the likelihood that climate change decreases the frequency of hurricane events, taking the average of the occurrences over the 2 time scales results in a frequency of occurrence once every 10 years. This frequency provides an Unlikely probability that a hurricane or tropical storm will impact some portion of the planning area.

Frequency of Occurrence	
Highly likely:	Event probable in next year.
Likely:	Event probable in next 3 years.
Occasional:	Event possible in next 5 years.
Unlikely:	Event possible in next 10 years.

SECTION 12: SEVERE WINTER STORMS

Description

A severe winter storm event is when temperatures hover below freezing, and precipitation includes freezing ice, snow, and sleet. Strong winds often accompany severe winter storms and combine with freezing precipitation to produce a low wind chill. Severe winter storms may include snowstorms, blizzards, cold waves, and ice storms. Snowstorms include four or more inches of snow in a 12-hour period. Blizzards are characterized by low temperatures and strong winds in excess of 35 mph, with large amounts of drifting snow. A cold wave is a winter cold front with a drastic drop in temperature. An ice storm occurs when rain falls out of the warm and moist upper layers of the atmosphere into a cold and dry layer near the ground. The rain freezes on contact with the cold ground and accumulates on exposed surfaces. If a half-inch of rain freezes on trees and utility wires, damage can occur, especially if accompanied by high winds. Half an inch is used as the criterion before an icing event is categorized as an “ice storm”.

Location

Severe winter storm events are not confined to specific geographic boundaries and vary in intensity and duration. All existing and future buildings, facilities, and populations in the Lee County planning area are considered to be uniformly exposed to a winter storm hazard and could potentially be impacted.

Table 12-1: Severe Winter Weather Warnings

Winter weather advisory	This alert may be issued for a variety of severe conditions. Weather advisories may be announced for snow, blowing or drifting snow, freezing drizzle, freezing rain, or a combination of weather events.
Winter storm watch	Severe winter weather conditions may affect your area (freezing rain, sleet, or heavy snow may occur separately or in combination).
Winter storm warning	Severe winter weather conditions are imminent.
Freezing rain or freezing drizzle	Rain or drizzle is likely to freeze upon impact, resulting in a coating of ice glaze on roads and all other exposed objects.
Sleet	Small particles of ice are usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.
Blizzard warning	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is for the most perilous winter storms with visibility dangerously restricted.
Frost/freeze warning	Below-freezing temperatures are expected and may cause significant damage to plants, crops, and fruit trees.

Wind chill	A strong wind combined with a temperature slightly below freezing can have the same chilling effect as a temperature nearly 50 degrees lower in a calm atmosphere. The combined cooling power of the wind and temperature on exposed flesh is called the wind–chill factor.
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Extent

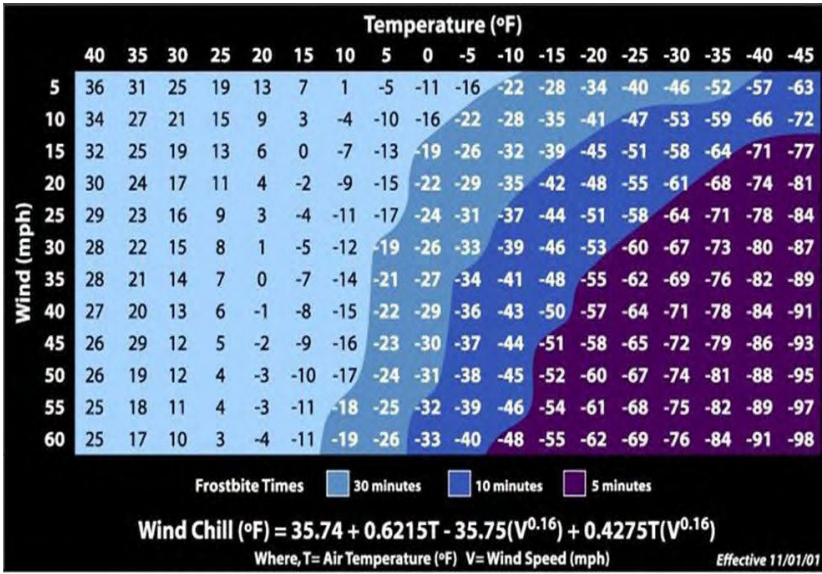
The extent or magnitude of a severe winter storm is measured on an intensity scale from “Mild” to “Severe” based on temperature ranges and snow accumulation levels. Table 12-2, Magnitude of Severe Winter Storms, is an index developed by the National Weather Service (NWS). This table should be referenced with the wind chill factor, Figure 12-2, to better determine the intensity of a winter storm. Based on past events, the planning area can expect to experience severe winter storms with extreme intensity in the future.

Table 12-2: Magnitude of Severe Winter Storms

Intensity	Temperature Range (°F)	Extent Description
Mild	40°-50°	Wind less than 10 mph and freezing rain or light snow falling for short durations, with little or no accumulation.
Moderate	30°-40°	Winds 10 – 15 mph and sleet and/or snow up to 4 inches
Significant	25°-30°	Intense snow showers accompanied by strong gusty winds, between 15 and 20 mph, with significant accumulation
Extreme	20°-25°	Wind-driven snow that reduces visibility, heavy winds (between 20 to 30 mph), and sleet or ice up to 5 millimeters in diameter
Severe	Below 20°	Winds of 35 mph or more and snow and sleet greater than 4 inches

Wind chill temperature is a measure of how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a 30° day would feel just as cold as a calm day with 0° temperatures. Figure 12-2 is a chart for calculating wind chill using the wind speed and air temperature. Please note that it is not applicable in calm winds or when the temperature is over 50°F.

Figure 12-1: Wind Chill Index



Significant Events

Based on NCEI data, from 1999 through March 2024, the Lee County planning area experienced 20 severe winter events in the form of winter storms, winter weather, and extreme cold and wind chill. One fatality was reported for the following severe winter events.

Table 12-3: Historical Severe Winter Weather Events

Location	Date	Event Type	Fatalities	Injuries	Property Damage	Crop Damage
Lee	12/12/2000	Winter Storm	0	0	\$0	\$0
Lee	11/28/2001	Winter Storm	0	0	\$0	\$0
Lee	2/25/2003	Winter Storm	0	0	\$0	\$0
Lee	12/7/2005	Winter Storm	0	0	\$0	\$0
Lee	1/15/2007	Winter Storm	0	0	\$0	\$0
Lee	2/3/2011	Winter Storm	0	0	\$0	\$0
Lee	1/16/2018	Winter Storm	0	0	\$0	\$0
Lee	1/10/2021	Winter Storm	0	0	\$0	\$0
Lee	2/13/2021	Winter Storm	0	0	\$0	\$0
Lee	2/9/2011	Winter Weather	0	0	\$0	\$0
Lee	12/7/2017	Winter Weather	0	0	\$0	\$0
Lee	1/20/2022	Winter Weather	0	0	\$0	\$0
Lee	2/3/2022	Winter Weather	0	0	\$0	\$0

Lee	2/12/2022	Winter Weather	0	0	\$0	\$0
Lee	2/1/2023	Winter Weather	0	0	\$370,000	\$0
Lee	2/15/2021	Extreme Cold	1	0	\$0	\$0
Lee	12/23/2022	Extreme Cold	0	0	\$0	\$0
Lee	1/14/2024	Cold/Wind Chill	0	0	\$0	\$0
Lee	1/15/2024	Cold/Wind Chill	0	0	\$0	\$0
Lee	1/16/2024	Cold/Wind Chill	0	0	\$0	\$0

Significant Events

Mid-February 2021 - Winter Storm Uri

An arctic front brought Winter Storm Uri to Central Texas in mid-February, covering Lee County in sleet, ice, and snow. The Texas Department of Health and Human Services reports one death in Lee County related to the extreme winter weather. Damage to infrastructure, especially water infrastructure, was widespread, and the monetary value of damages could not be collected due to a lack of access to insurance data.

Probability of Future Events

According to historical records, the Lee County planning area experiences approximately one extreme winter weather event every one to two years. The probability of a future winter storm event occurring in the planning area is Highly Likely, with a winter storm likely to occur within the next years.

Frequency of Occurrence	
Highly likely:	Event probable in next year.
Likely:	Event probable in next 3 years.
Occasional:	Event possible in next 5 years.
Unlikely:	Event possible in next 10 years.

Vulnerability and Impacts

All infrastructure, critical facilities, populations, and buildings in the Lee County planning area are vulnerable to severe winter events. Winter weather, such as ice hazards and extremely cold temperatures, as well as snow and wind chill, presents a risk to the planning area.

Populations of people and animals are subject to direct health risks from extended exposure to cold air and precipitation. Animals, such as pets and livestock, typically cannot survive the effects of direct exposure to severe winter weather and should be provided with shelter. In addition, House fires can occur more frequently during winter storm events due to increased and improper use of alternative heating sources, which can cause injury or death. Moreover, house fires during winter storms present a greater danger because some areas

may not be easily accessible due to icy roads, and water supplies may freeze and impede firefighting efforts. The people most at risk of the effects of severe winter storms are children younger than five and older adults over 65. Vulnerable populations are at greater risk of death from hypothermia during these events, especially in the rural areas of the county where populations are sparse, icy roads may impede travel, and there are fewer neighbors to check in on the elderly.

The planning area has a total population of 17,758, according to the 2023 ACS population estimate. Those over the age of 65 represent 20.8% (3685) of the total population, and children under the age of 5 represent 6.6% (1167) of the total population. The total population of the county that is estimated to be below the poverty level is 12.2% (2,167). Table 12-4 presents the 2023 American Community Survey population and age cohort estimates below.

Table 12-4: Populations at Greater Risk by Jurisdiction

Jurisdiction	Population 65 and Older	Population Under 5	Population Below Poverty Level
Lee County	3,685	1,167	2,167 (12.2%)
Lexington	290	102	181 (14.3%)
Giddings	980	429	809 (15.9%)
Lexington ISD	NA	14	NA
Giddings ISD	NA	72	NA
Dime Box ISD	NA	12	NA

*Based On 2023 5-Year ACS Estimates

Public and private infrastructure is also vulnerable to severe winter storms. These events can disrupt electric service for long periods. In addition, extended periods of freezing temperatures can cause water pipes to freeze and crack. The buildup of ice can cause power lines and tree limbs to break under the weight, potentially causing damage to property or the electric grid. During these times of ice and snow accumulation, response times will increase until public works road crews can clear roads of ice, snow, and other obstructions.

Historic Severe Winter Storm Impacts

A total of \$370,000 of property damage was reported over the 25-year analysis period. Based on historical records, annual loss impacts and estimates are negligible.

SECTION 13: HAIL

Description

Hail is showery precipitation in the form of irregular pellets or balls of ice that typically measure between 0.2 inches and 6 inches in diameter. It is a particularly damaging form of frozen precipitation resulting from thunderstorms, with the size of the hail being a direct result of the size and severity of the storms. Hail is produced when warm air rapidly rises into the upper atmosphere, and the air mass is cooled. Frozen droplets within the cooled air mass accumulate to form ice crystals that then fall to the Earth as precipitation. The strength of the updraft is dependent on heating on the surface of the Earth, with larger temperature gradients between the upper atmosphere and the surface responsible for increased suspension time and, therefore, increased hailstone size.

Location

Hailstorms are not confined to any specific geographic location and can vary greatly in size, location, intensity, and duration. As a result, all areas within the Lee County planning area are equally at risk of hail.

Extent

The NCEI Intensity Scale, depicted in Table 13-1, shows how the intensity category of a hailstorm depends on hail size and the potential damage it could cause. The intensity scale ranges from H0 to H10, with increments of intensity or damage potential about hail size (distribution and maximum), texture, fall speed, speed of storm translation, and strength of the accompanying wind. The National Weather Service (NWS) classifies a storm as “severe” if there is hail one inch in diameter (approximately the size of a quarter) or greater, based on radar intensity or as seen by observers. Based on historical data, hail of up to 4.5 in. can be expected in the planning area.

Table 13-1: Hail Intensity and Magnitude

Size Code	Intensity Category	Size (Inches)	Descriptive Term	Typical Damage
H0	Hard Hail	Up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33 - 0.60	Marble	Slight damage to plants and crops
H2	Potentially Damaging	0.60 - 0.80	Dime	Significant damage to plants and crops
H3	Severe	0.80 - 1.2	Nickel	Severe damage to plants and crops
H4	Severe	1.2 - 1.6	Quarter	Widespread glass and auto damage
H5	Destructive	1.6 - 2.0	Half Dollar	Widespread destruction of glass, roofs, and the risk of injuries

H6	Destructive	2.0 - 2.4	Ping Pong Ball	Aircraft bodywork dented and brick walls pitted
H7	Very Destructive	2.4 - 3.0	Golf Ball	Severe roof damage and risk of serious injuries
H8	Very Destructive	3.0 - 3.5	Hen Egg	Severe damage to all structures
H9	Super Hailstorms	3.5 - 4.0	Tennis Ball	Extensive structural damage could cause fatal injuries
H10	Super Hailstorms	4.0 +	Baseball	Extensive structural damage could cause fatal injuries

The Lee County planning area may experience hailstorms ranging from an H0 to an H10 based on previous occurrences for the area discussed further below. The Core Team can plan to mitigate storms ranging from hard hail (low risk) to destructive hailstorms (high risk), the latter potentially leading to widespread destruction of glass and roofs and the potential risk of injuries. Given that climate change is likely going to make hailstorms more intense in the future, preparing for an H10-magnitude hailstorm is recommended.

Historical Occurrence

Historical evidence for Lee County suggests that the entire planning area is vulnerable to hail events. Historical events with reported damage, injuries, or fatalities are shown in Table 13-2 below. A total of 53 reported historical hail events impacted Lee County during the 25-year period from 2000 through 2025. These reported events may not represent all hail events to have occurred during this time since they were only the events reported to the NCEI and NOAA databases. There have not been any events recorded past the listed dates.

Table 13-2: Historical Hailstorms in Lee County

Community	Date	Hail Size	Injuries	Deaths	Property Damage	Crop Damage
Giddings	3/10/2000	1.5	0	0	\$100000	\$0
Giddings	3/16/2000	3.5	0	0	\$500000	\$0
Giddings	5/12/2000	1	0	0	\$0	\$80000
Lincoln	4/16/2001	1	0	0	\$0	\$0
Lexington	4/16/2001	1	0	0	\$0	\$0
Fedor	6/26/2002	0.75	0	0	\$0	\$0
Lexington	12/23/2002	4.5	0	0	\$150,000	\$0
Lexington	12/23/2002	1.75	0	0	\$0	\$0
Manheim	4/4/2008	0.75	0	0	\$0	\$0
Dime Box	4/4/2008	1	0	0	\$0	\$0
Loebau	4/4/2008	0.88	0	0	\$0	\$0
Lexington	4/25/2008	0.75	0	0	\$0	\$0
Lexington	3/27/2009	0.75	0	0	\$0	\$0
Giddings	4/9/2009	1	0	0	\$0	\$0

Tanglewood	4/17/2009	0.88	0	0	\$20000	\$0
Giddings	5/25/2011	1.75	0	0	\$0	\$0
Northrup	5/25/2011	1	0	0	\$0	\$0
Fedor	6/5/2011	0.75	0	0	\$0	\$0
Blue	4/3/2012	0.75	0	0	\$0	\$0
Blue	4/3/2012	0.75	0	0	\$0	\$0
Giddings	1/29/2013	1	0	0	\$0	\$0
Lexington	3/19/2013	2	0	0	\$0	\$0
Lexington	3/19/2013	1.75	0	0	\$0	\$0
Lexington	3/19/2013	1.5	0	0	\$0	\$0
Lexington	3/19/2013	1.5	0	0	\$0	\$0
Dime Box	3/20/2013	1	0	0	\$0	\$0
Lexington	4/27/2013	0.88	0	0	\$0	\$0
Giddings	4/27/2014	2.75	0	0	\$0	\$0
Giddings	4/27/2014	1.25	0	0	\$0	\$0
Giddings	4/27/2014	3	0	0	\$0	\$0
Lexington	5/1/2016	1	0	0	\$0	\$0
Blue	1/2/2017	0.88	0	0	\$0	\$0
Giddings	5/3/2017	0.88	0	0	\$0	\$0
Giddings	5/23/2017	1.25	0	0	\$0	\$0
Giddings	5/23/2017	1	0	0	\$0	\$0
Tanglewood	3/18/2018	1	0	0	\$0	\$0
Northrup	3/18/2018	2.5	0	0	\$0	\$0
Giddings	3/18/2018	1.75	0	0	\$0	\$0
Dime Box	3/18/2018	2.5	0	0	\$0	\$0
Giddings	4/6/2019	0.75	0	0	\$0	\$0
Manheim	5/3/2019	1	0	0	\$0	\$0
Giddings	5/24/2020	1	0	0	\$0	\$0
Lexington	5/26/2020	0.88	0	0	\$0	\$0
Dime Box	5/26/2020	0.75	0	0	\$0	\$0
Fedor	5/26/2020	1.25	0	0	\$0	\$0
Lexington	5/26/2020	1	0	0	\$0	\$0
Lexington	5/26/2020	1.75	0	0	\$0	\$0
Lexington	5/26/2020	1.75	0	0	\$0	\$0
Lexington	5/26/2020	2	0	0	\$0	\$0
Fedor	4/25/2023	0.88	0	0	\$0	\$0
Giddings	4/28/2023	1	0	0	\$0	\$0
Lexington	5/9/2024	1	0	0	\$0	\$0
Giddings	5/9/2024	2	0	0	\$0	\$0

Figure 13-1: Historic Hailstorm Locations by Magnitude

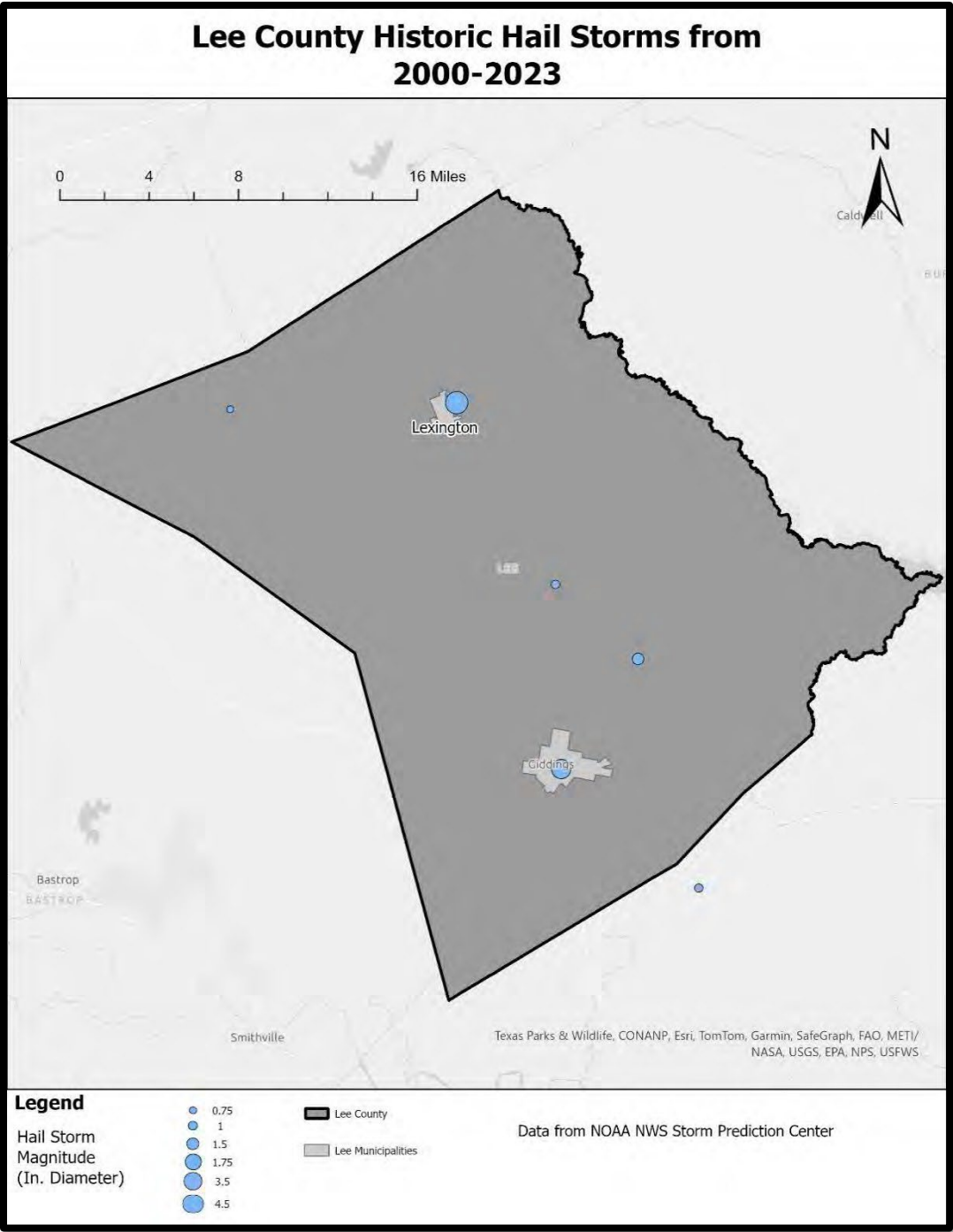


Figure 13-1 above plots this historical evidence by locating past hail events in the Lee County planning area where latitude and longitude were available.

While there have been no documented deaths or injuries related to hailstorms in Lee County, hailstorms over the past 25 years have caused \$850,000 in damages. Given that it is just damage reported, the true financial impact of hailstorms is likely greater. All reported hailstorms have been at H10 magnitude or lower.

Significant Events

March 16th, 2000 – Hailstorm

The City of Giddings experienced what was likely its most devastating hailstorm for the past 50 years and the next 25 years. Hundreds of cars were severely damaged, and dozens of homes had their roofs damaged significantly by tennis-ball-sized hail.

Dec. 23rd, 2002 – Hailstorm

On a Monday evening in late 2002, significant damage was done to the windows, roofs, and vehicles of Lexington residents by softball-sized hail.

Probability of Future Events

Based on available records of historic events, there were 53 events in a 25-year reporting period for the Lee County planning area. This provides a probability of, on average, 2 storms per year. This frequency supports a Highly Likely probability of future events, meaning that an event is probable somewhere in the planning area in the next year.

Frequency of Occurrence	
Highly likely:	Event probable in next year.
Likely:	Event probable in next 3 years.
Occasional:	Event possible in next 5 years.
Unlikely:	Event possible in next 10 years.

Vulnerability and Impacts

Hail can cause significant injury to humans and has been fatal in some circumstances. People could be struck by hail, falling trees, and branches. Also, hail could cause power outages, which could cause health and safety risks to more vulnerable populations in the planning area. The most common impacts of hailstorms are on crops, trees, and landscaping, since even small hail can tear plants apart in a short amount of time. Vehicles, roofs of buildings, and homes are also commonly damaged by hail. Older structures not built to current codes may be more susceptible to hail damage than newer structures. HVAC and electrical service systems, particularly those on roofs, at schools, and in critical facilities, would be vulnerable and could also be damaged.

The Lee County planning area features mobile and manufactured home parks, which are more vulnerable to hailstorms than site-built structures. In addition, manufactured and temporary housing is located sporadically throughout rural portions of the planning area, which are also vulnerable to the hailstorm hazard and more prone to being isolated from essential needs and emergency services in the event of a disaster. Also, structures built before 1980 are likely to have been built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant events.

Table 13-3: Structures at Greater Risk by Jurisdiction

Jurisdiction	Total Housing	Mobile Housing Units	Housing Built Before 1980
Lee County	7,924	1,837 (23.1%)	2,569 (32.4%)
Lexington	773	182 (23.5%)	425 (55%)
Giddings	2,079	227 (10.9%)	880 (42.3%)

*County totals include all jurisdictions, ISDs, and unincorporated areas. Source: 2023 ACS 5-year estimate

Based on the ACS 2023 data, Lexington is the most vulnerable regarding housing built before 1980, while Giddings and Lee County overall have a relatively younger housing stock. Giddings has only 45 more mobile housing units than Lexington, but Lexington has more than double the percentage of mobile homes when adjusted for the total number of units. To reduce the risks from hailstorms, it is important to have early warning systems, build structures that can withstand high-velocity impacts, and establish emergency response plans for quick disaster response.

Historic Hailstorm Impacts

The summary table below, 13-4, shows the 25-year property and crop damage totals as well as the average annual (Per Year) losses summarizing historic hailstorm impacts. The bottom half of the table shows per capita dollar loss rates for the total and average annual losses. These rates are important measures for comparing losses between different hazards and areas. The average annual loss estimate of property and crops is \$34,000 for Lee County.

Table 13-4, Lee County Loss Summary

Time Period	Fatalities	Injuries	Property Damage	Crop Damage
Loss Summary, Lee County				
25-year Total	0	0	\$770,000	\$80,000
Per Year	0	0	\$30,800	\$3,200
Per Capita Dollar Losses				
25-year Total	0	0	\$43.36	\$4.51
Per Year	0	0	\$1.73	\$0.18

Since weather varies from year to year, forecasts for specific years are less likely to be true (less reliable) than these totals and averages for the period. The second summary table shows per capita dollar loss rates based on 2023 Census population counts. This is an important measure for comparing historical losses between different hazards and areas. Table 13-5 below displays the hailstorm losses by jurisdiction within the planning area.

Table 13-5: Hailstorm Losses by Jurisdiction 2000-2025

Jurisdiction	Est. Prop. Losses	Est. Crop Losses	Total Est. Losses
Lee County	\$20,000	\$0	\$0
Lexington	\$150,000	\$0	\$0
Giddings	\$600,000	\$80,000	\$0

*Unincorporated communities are included in County Totals

SECTION 14: EXTREME HEAT

Description

Extreme heat is a condition where temperatures exceed local average high temperatures by ten degrees or more for an extended period, with high humidity levels. Extreme heat is a common occurrence in Texas during the summer months. Extended periods of extreme heat are called heat waves and can lead to illness and death, particularly among vulnerable populations. Heat waves have been the top cause of U.S. weather fatalities, on average, over the past 30 years. Texas had a particularly deadly year in 2011, when 203 heat-related deaths were reported. The major human risks associated with severe summer heat include heat cramps, sunburn, dehydration, fatigue, heat exhaustion, and heat stroke. Extreme heat can lead to power outages as heavy demands for air conditioning strain the power grid, and prolonged exposure to excessive temperatures can damage crops and injure or kill livestock. As the Earth's climate warms overall, heat waves are expected to become more frequent, longer, and more intense.

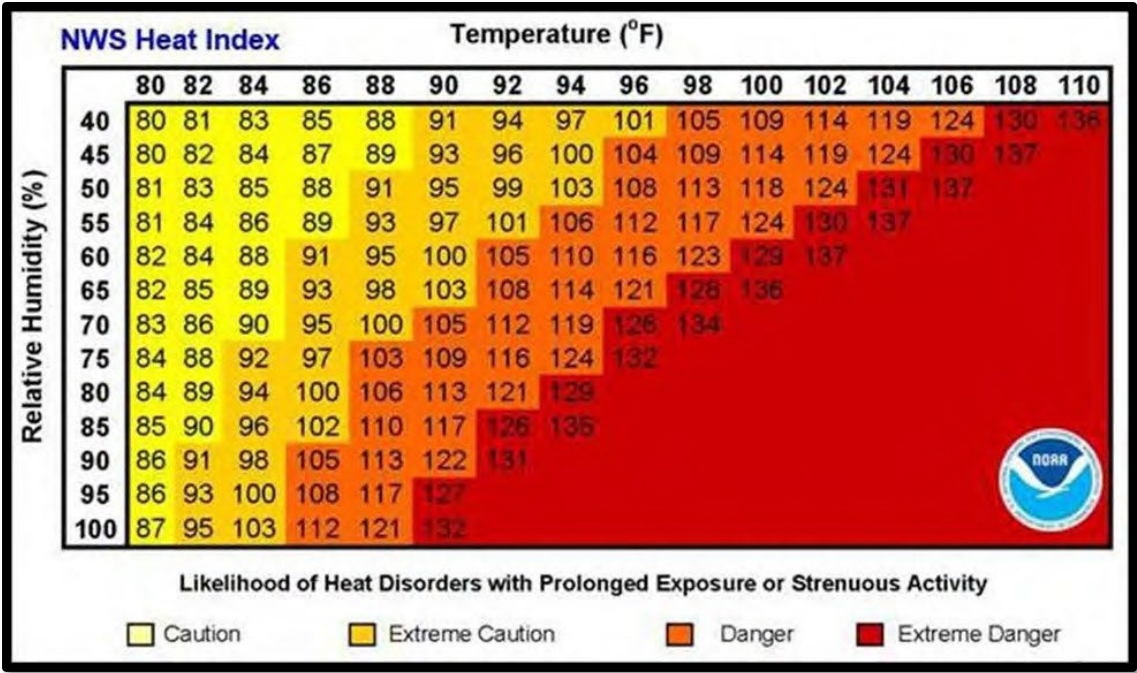
Location

Extreme heat is not confined to any specific geographic area and can occur anywhere within the planning area. City residents can face a heightened risk of extreme heat because of warmer temperatures in cities from the urban heat island effect. The urban heat island effect is caused by large amounts of paved surfaces that absorb and re-radiate heat. The lack of green spaces and tree cover in these areas adds to the issue. Since Lee County does not have any large major metropolitan areas, the urban heat island effect is not as pronounced. This results in a negligible variance in extreme temperatures from heat waves in the unincorporated areas of the counties versus the incorporated areas.

Extent

The "Heat Index" is the relationship between temperature and relative humidity established by the National Oceanic and Atmospheric Administration (NOAA) to measure the magnitude or intensity of an extreme heat event. This index combines the effect of high temperatures with high humidity to determine how hot it feels outside. Figure 14-1 below describes the heat index as it relates to the likelihood of heat disorders due to prolonged exposure or strenuous activity. As an example, if the air temperature is 98°F and the relative humidity is 65%, the heat index, or how hot it feels, is 128°F. The red area indicates extreme danger, and the example below would fall into this category. Also, exposure to full sunshine can increase heat index values by up to 15°F, since the heat index values in the chart below were devised for shady light wind conditions.

Figure 14-1: National Weather Service Heat Index



The likelihood of health disorders associated with ranges of heat index values is displayed below. The classifications of “Caution,” “Extreme Caution,” “Danger,” and “Extreme Danger” are associated with increasingly harmful effects on the body. Effects on the body depend on the magnitude or intensity of the event, with the shaded rows in the table below (Table 14-1) corresponding to the colors in the chart above (Figure 14-1). The National Weather Service will initiate alert procedures when the Heat Index is expected to exceed 105°-110°F, depending on local climate, for at least two consecutive days.

Table 14-1: Heat Index and Warnings

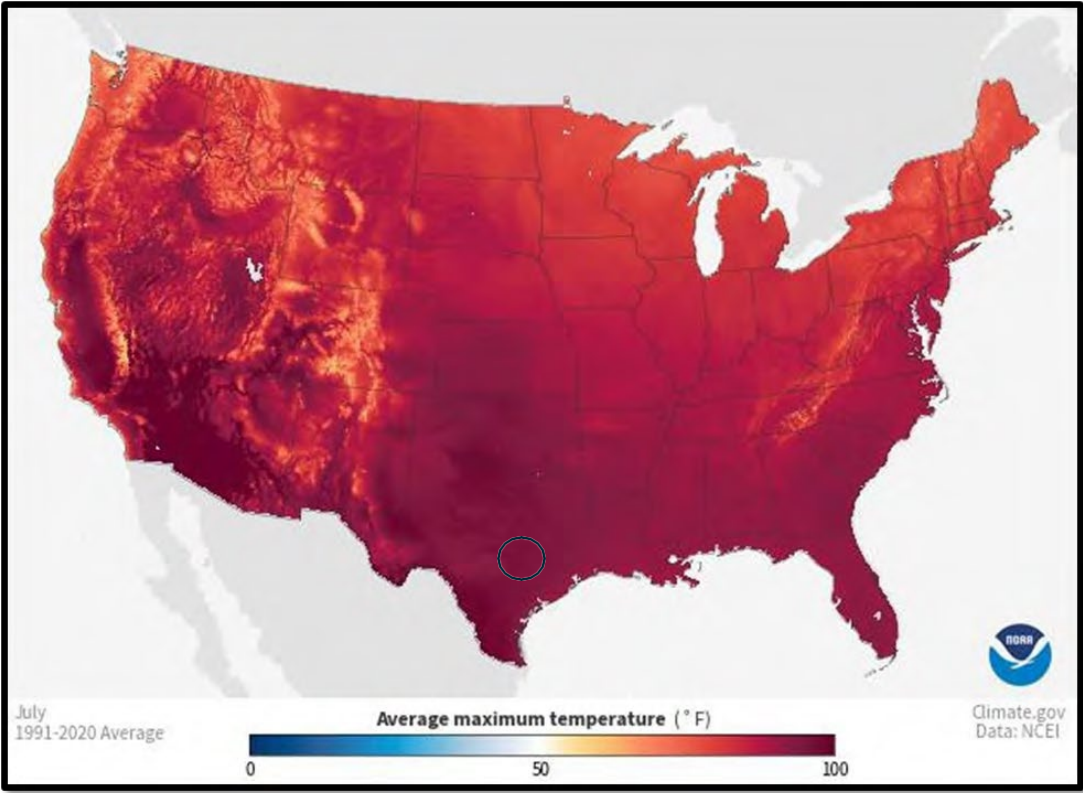
Classification	Heat Index	Effect on the body
Caution	80°F - 89°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 102°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely

The hottest month of the year for the Lee County planning area is typically August, with an average high temperature of 96.2 degrees Fahrenheit and an average relative humidity of 69%.

According to the Heat Index Calculator provided by the National Weather Service’s Weather Prediction Center, this would put the average Heat Index score at around 127 degrees Fahrenheit, on the higher end of the Danger Classification. In sunlight, this would expose community members to extremely dangerous levels of heat. The National Oceanic and Atmospheric Administration (NOAA) provides the map below that shows the long-term average maximum temperature in each climate division across the contiguous United

States for August. This data (Figure 14-2) is based on daily observations from 1981-2010. The planning area exhibits an average maximum temperature of 90-100°F or above based on historical data and has the potential to reach “dangerous” heat index levels at just 92°F and “extremely dangerous” heat index levels at 98°F.

Figure 14-2: Average Maximum Temperature, Contiguous United States, August 1981-2010



Based on the average maximum temperature (90-100°F) and the average relative humidity of 68% from May through September in the County planning area, extreme heat events to the extent of “Danger” and “Extreme Danger” should be mitigated to reduce threats to humans, livestock, and pets. When the heat index reaches a “Danger” classification, effects can include sunstroke, muscle cramps, and heat exhaustion, and prolonged exposure can bring on heatstroke. When the heat index reaches an “Extreme Danger” classification, effects on the body can include all of the above in addition to increasing the risk of heat stroke and even death.

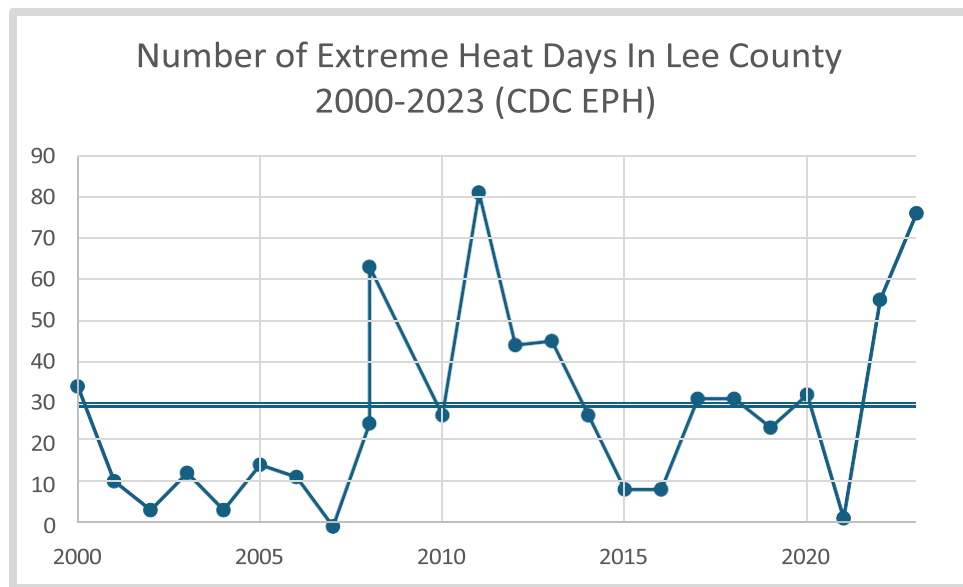
Table 14-2: Historic Extreme Heat Events in Lee County from 2000-2025

Start Date	End Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
7/22/2018	7/23/2018	Excessive Heat	0	0	0	0
7/13/2020	7/13/2020	Excessive Heat	0	0	0	0
6/15/2023	6/21/2023	Excessive Heat	0	0	0	0
8/14/2023	8/27/2023	Excessive Heat	0	0	0	0

Significant Events

The Lee County planning area experiences frequent excessive heat events in the summer months. The NCEI Storm Events data shown in Table 14-2 is not comprehensive.

Figure 14-3: Extreme Heat Days in Lee County from 2000-2023



Source: [National Environmental Public Health Tracking Network Data](#)

Based on historical monitoring data from 1900-2014, the average number of days with extreme heat for Lee County is 28, with yearly spikes reaching as high as 81 extreme heat days. Additional data from the CDC can also help tell a story of how the number of extreme heat days to be expected each summer is increasing. The two maps below depict an average number of extreme heat days over the 29 years from 1981 - 2010, and below it, the average for the 10 years from 2000-2010. The Lee County planning area is depicted within the black circle in Central Texas on the maps below.

Figure 14-4: Average number of extreme heat days from 1981-2010 (Source: CDC)

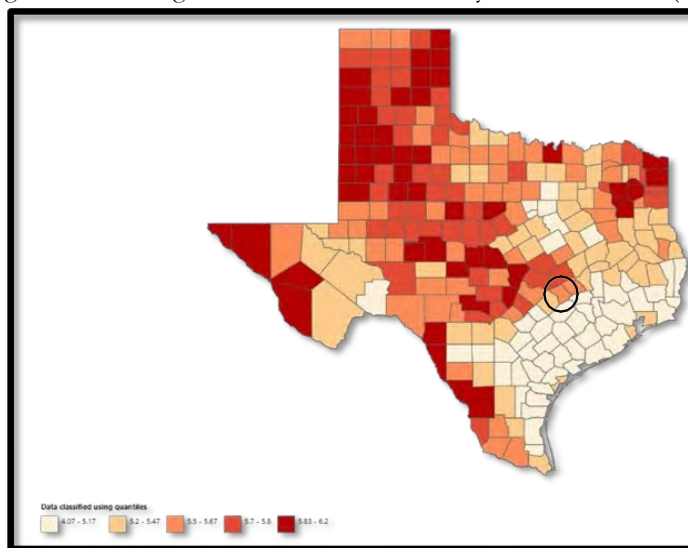
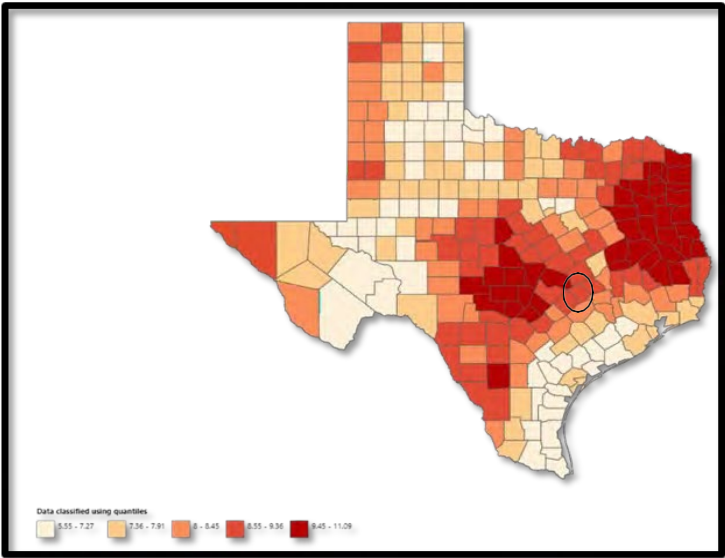


Figure 14-5: Average number of extreme heat days from 2000-2010. (Source: CDC)



The Extreme Heat Events data available on the CDC WONDER website are county-level measures of the number of heat wave days in May through September spanning the years 1981-2010. The CDC defines heat wave days as those that are 95th percentile of the daily maximum Heat Index. The number of heat wave days is computed at the county level, and the choropleth map and associated legends show the average number of heat wave days occurring based on the selected period and location. The average for Lee County shifts from between 5 days over the long term, but increases to an average of 8-9 extreme heat days from 2000 to 2010.

Probability of Future Events

The planning area can expect between 15 to 20 extreme heat days and at least one extreme heat event, or heat wave, each summer due to the warm, sunny, and humid subtropical climate in the Lee County planning area. The probability of the area experiencing at least one extreme heat event in the next year is Highly Likely.

Frequency of Occurrence	
Highly likely:	Event probable in next year.
Likely:	Event probable in next 3 years.
Occasional:	Event possible in next 5 years.
Unlikely:	Event possible in next 10 years.

The probability that the number of extreme heat days will continue to increase in the future is also highly likely. According to NOAA, the top ten warmest years on record (1850-2024) across the globe have all occurred within the past 12 years. The table below ranks the warmest years on record with land and ocean annually averaged measurements compiled from 1850-2024.

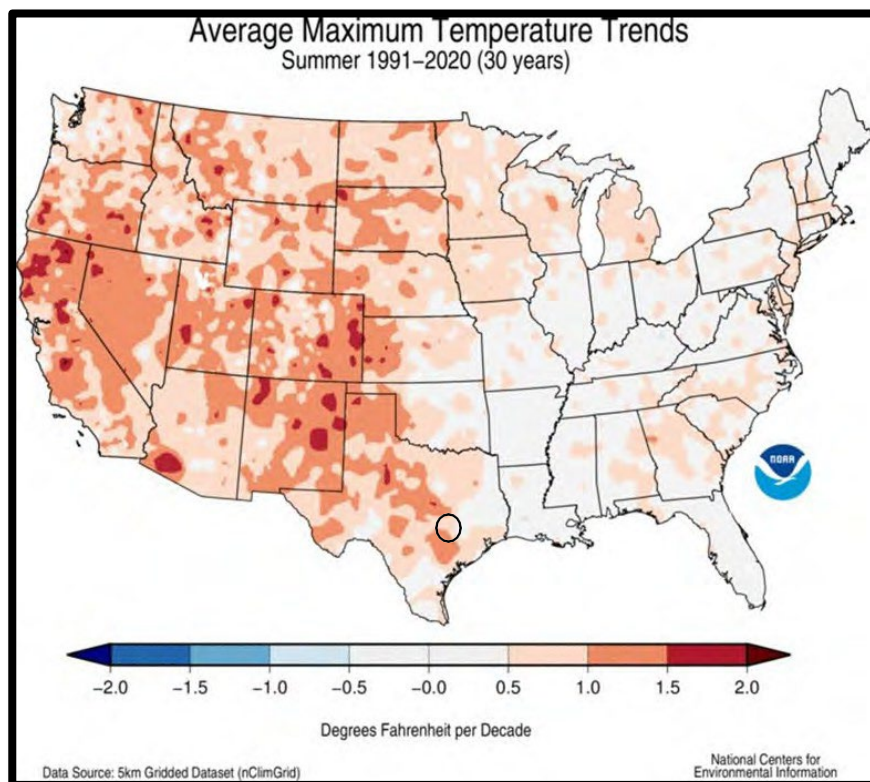
Table 14-3: Top ten warmest years, globally (1850-2024)

Rank: 1 = Warmest Period of Record: 1850–2024	Year	Anomaly °C	Anomaly °F
1	2024	1.29	2.32
2	2023	1.19	2.14
3	2016	1.03	1.85
4	2020	1.02	1.84
5	2019	0.98	1.76
6	2017	0.94	1.69
7	2015	0.91	1.64
8	2022	0.9	1.62
9 (tied)	2018	0.87	1.57
9 (tied)	2021	0.87	1.57

Source: [Annual 2024 Global Climate Report – Climate Institute](#)

The average maximum temperature maps in Figure 14-6 are produced by the U.S. National Climatic Data Center and depict trends for the most recent complete 30-year period as well as the trend when looking at all recorded temperatures since 1896. The maps show average maximum temperature trends across the United States during the summer periods from 1991-2020 and 1896-2020, which show how trends from which forecasts are made can change drastically when looking at different periods of time. The Lee County planning area is in an area that can expect an increase of around 1°F in average maximum summer temperatures over the next century.

Figure 14-6: Average Maximum Temperature Trends from 1991-2020



<https://www.ncdc.noaa.gov/temp-and-precip/us-trends/>

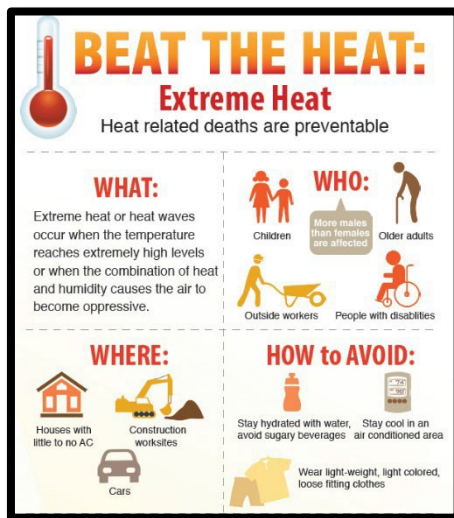
Vulnerability and Impacts

Table 14-4: Vulnerable Populations Across Lee County Jurisdictions

Community	Pop. Age 65+	Pop. Under 5	Outdoor Employees
Lee County	3685	1167	NA
Giddings	980	429	NA
Lexington	290	102	NA
Giddings ISD	NA	72	9
Dime Box ISD	NA	12	2
Lexington ISD	NA	14	4

Residents of the area, especially vulnerable populations such as children under five and those over 65, should exercise caution by staying out of the heat for prolonged periods when a heat advisory or excessive heat warning is in effect. In addition to children and the elderly, the most vulnerable population to heat illnesses and casualties is the infirm, who frequently live on low fixed incomes and cannot afford to run air conditioning regularly. This population is sometimes isolated, with no immediate family or friends to look out for their well-being, so it is important for communities to get to know which immediate neighbors may be at the highest risk of health impacts from heat. It is never safe to leave a baby, child, disabled person, or pet in a locked car. Cars heat up quickly in the sun. This is true even in the winter; in fact, the first toddler death due to being left in a locked car in the U.S. in 2018 occurred in February. The graphic in Figure 14-7 below is produced by the CDC with tips on how to practice heat safety in different situations.

Figure 14-7: Heat Safety Preventative Action



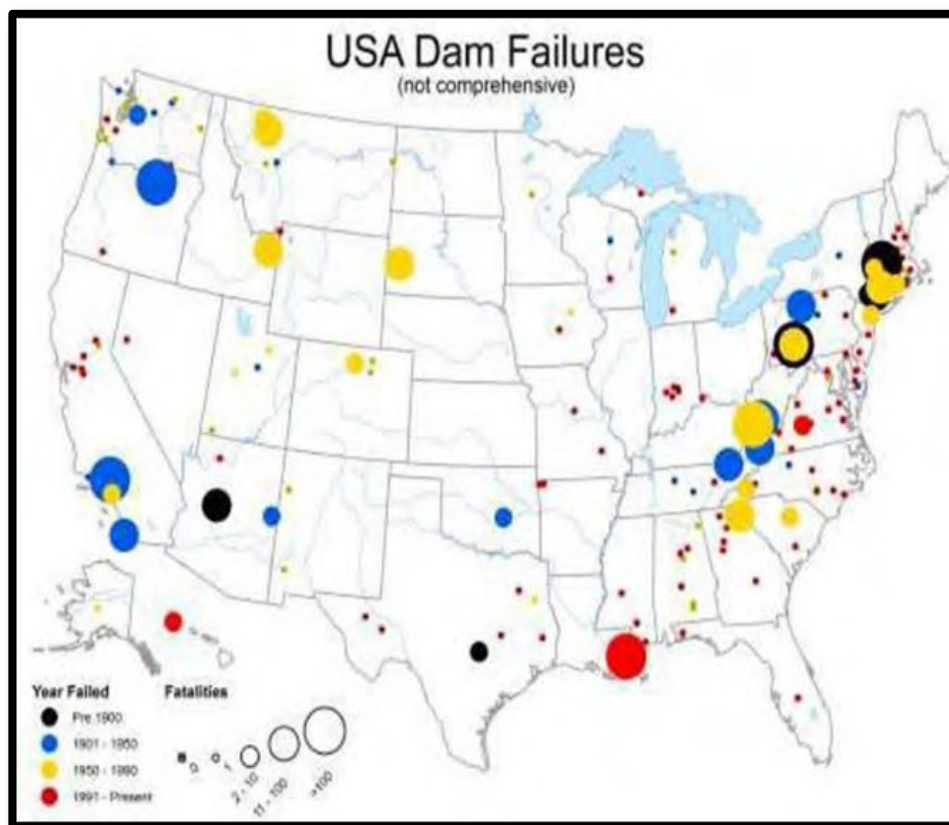
Higher heat index values (which combine temperature and humidity to describe perceived temperature) are expected to increase discomfort and aggravate health issues. Conversely, cold spells are expected to decrease. In most locations, scientists expect daily minimum temperatures—which typically occur at night—to become warmer at a faster rate than daily maximum temperatures. This change will provide fewer opportunities to cool off and recover from daytime heat.

SECTION 15: DAM FAILURE

Description

Dams are water storage, control, or diversion structures that impound water upstream in reservoirs. Benefits provided by dams include water supplies for drinking, irrigation, and industrial uses. Dams also provide flood control, hydroelectric power, recreation, and navigation. At the same time, dams also represent a risk to public safety. Dams require ongoing maintenance, monitoring, safety inspections, and sometimes even rehabilitation to continue safe service.

Dam failure can take several forms, including a collapse or breach of the structure. Hundreds of dam failures have occurred throughout U.S. history. These failures have caused immense property and environmental damage and have taken thousands of lives. As the nation's dams age and population increases, the potential for deadly dam failures grows. No one knows precisely how many dam failures have occurred in the U.S., but they have been documented in every state. From January 2005 through June 2013, state dam safety programs reported 173 dam failures and 587 "incidents" - episodes that, without intervention, would likely have resulted in dam failure. The graphic below depicts the history of dam failures throughout the US.



In the event of a dam failure, the energy of the water stored behind the dam can cause rapid and unexpected flooding downstream, resulting in loss of life and substantial property damage. A devastating effect on water supply and power generation could be expected as well. The causes of dam failures are many, but they are most likely to happen for one of five reasons:

- 1. **Overtopping** is caused by water spilling over the top of a dam. Overtopping of a dam is often a precursor to dam failure. National statistics show that overtopping due to inadequate spillway design, debris blockage of spillways, or settlement of the dam crest accounts for approximately 34% of all U.S. dam failures. Overtopping can happen after periods of prolonged rainfall and flooding for which the dam was not designed, or failure of upstream dams in the same drainage basin.
- 2. **Foundation Defects**, including settlement and slope instability, cause about 30% of all dam failures.
- 3. **Cracking** is caused by movements like the natural settling of a dam.
- 4. **Inadequate maintenance and upkeep.**
- 5. **Piping** occurs when seepage through a dam is not properly filtered, and soil particles continue to progress and form sinkholes in the dam. Another 20% of U.S. dam failures have been caused by piping. 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.

Location

Figure 15-1 provides a summary and illustrates the general locations for each dam in the planning area. Currently, there are 29 dams located in the Lee County planning area: one is classified as “high-hazard”, two as “significant-hazard”, twenty-six as “low-hazard” dams, zero as “undetermined,” and zero as “not available.”

29 Total Dams	64 years Average Dam Age	0% High Hazard Potential Dams with an EAP	0% Federally Regulated Dams
		0% Dams with Hydropower	10% State-Regulated Dams

Figure 15-1: Dams Across Lee County

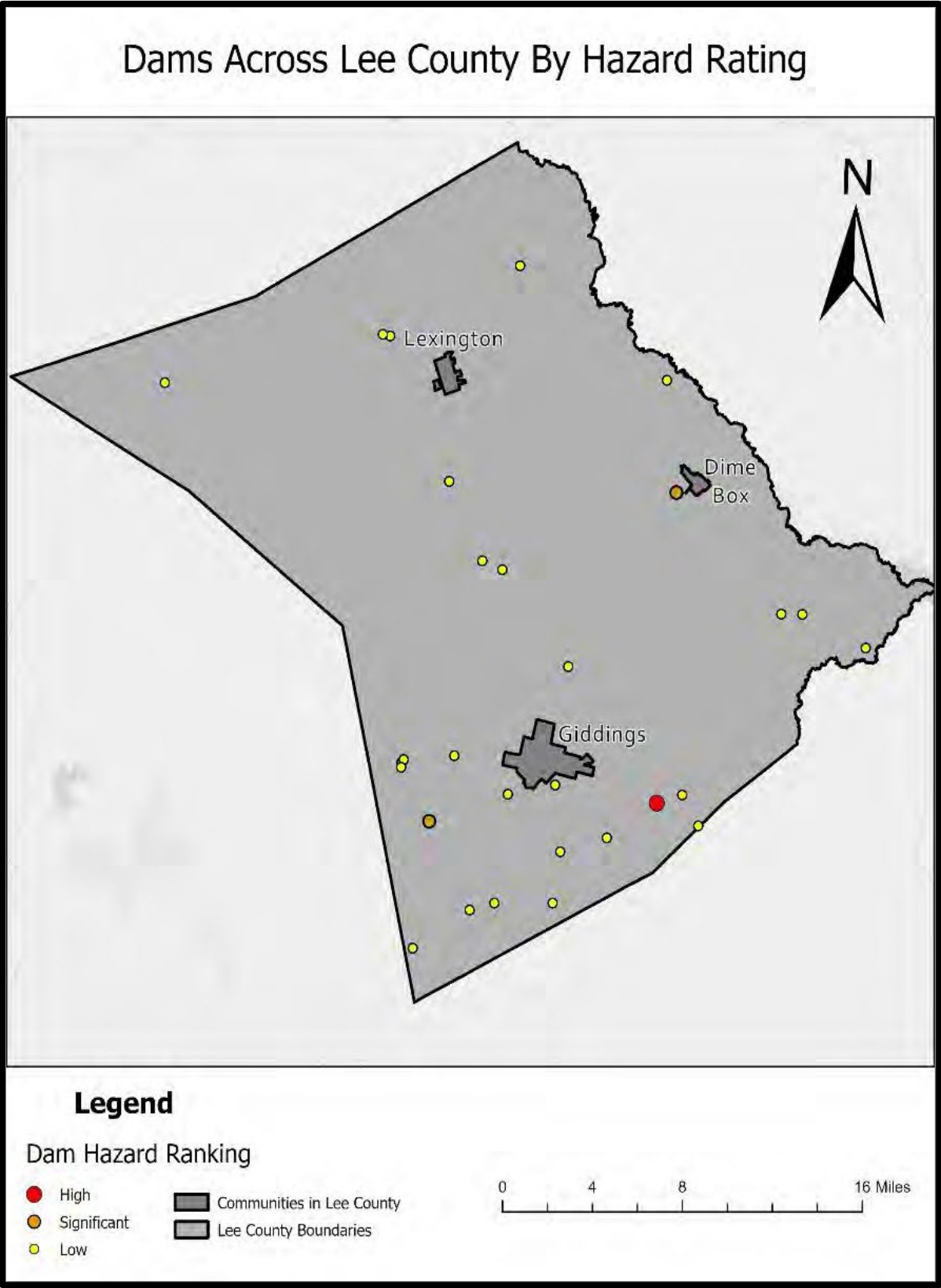


Table 15-1: Dams by Hazard Potential Across Lee County

Dam Name	NID ID	State Regulated Dam	Dam Height (Ft)	Year Completed	Max Storage (Acre-Ft)	Hazard Potential Classification	EAP Prepared
Cummins Creek WS SCS Site 1 Dam	TX02663	Yes	25	1958	5627	High	No
Domaschk Biar Lake Dam	TX05760	No	15	1979	240	Significant	Yes
Bob Gold Dam	TX07508	No	12	1940	100	Significant	Not Required
Cummin Creek WSSCS Site 2 Dam	TX02665	Yes	18	1958	1888	Low	Not Required
Lake Robert L Phinney Dam	TX02667	Yes	21	1959	1505	Low	Not Required
Walker Lake Dam	TX02659	No	24	1962	461	Low	Not Required
Mueller Lake Dam	TX05750	No	30	1960	396	Low	Not Required
C and H Lake Dam	TX04852	No	14	1973	330	Low	Not Required
Bredthauer Lake Dam	TX02668	No	22	1958	290	Low	Not Required
Caraway Lake No. 2 Dam	TX05763	No	23	1972	240	Low	Not Required
Powell Lake Dam	TX05758	No	19	1971	235	Low	Not Required
Mantzel Dam	TX02661	No	19	1947	200	Low	Not Required
Golub Lake Dam	TX05761	No	23	1969	167	Low	Not Required
Wolff Gss	TX06227	No	24	1973	138	Low	Not Required

Sievert Lake Dam	TX02662	No	18	1958	130	Low	Not Required
Bamsch Lake Dam	TX05759	No	18	1974	125	Low	Not Required
Edward Johnson Lake 1 Dam	TX07119	No	20	1930	124.2	Low	Not Required
Hamff Lake No. 2 Dam	TX02657	No	18	1948	123	Low	Not Required
Walter Droemer Lake Dam	TX02660	No	18	1958	108	Low	Not Required
Draeger Lake Dam	TX05764	No	20	1970	104	Low	Not Required
Caraway Lake No. 1 Dam	TX05762	No	20	1973	101	Low	Not Required
Field Lake Dam	TX02670	No	14	1948	101	Low	Not Required
Gerdes Lake No. 2 Dam	TX02669	No	18	1958	101	Low	Not Required
Hamff Lake No. 1 Dam	TX02656	No	20	1948	96	Low	Not Required
Weiser Gss	TX06228	No	18	1977	83	Low	Not Required
Hamff Lake No. 3 Dam	TX02658	No	17	1948	82	Low	Not Required
Kasper Estate Lake Dam	TX05754	No	14	1958	73	Low	Not Required
Goerlitz Lake Dam	TX02664	No	12	1948	58	Low	Not Required
Gerdes Lake No. 1 Dam	TX02666	No	13	1957	53	Low	Not Required

All census blocks within five miles of a dam with a maximum storage capacity of 100,000 acre-feet or more are considered at risk of potential dam failure hazards. For dams with a maximum storage capacity between 10,000 and 100,000 acre-feet, all census blocks within three miles are deemed to be at risk of potential dam failure hazards. For dams with a maximum storage capacity of less than 10,000 acre-feet, all census blocks within one mile are considered to be at risk from potential dam failure hazards.

The number of census blocks at risk as they relate to dam size is to be used only as a rough guide. Inundation maps based on hydraulic and hydrologic modeling can be used to provide precise risk from dam failure. The owners of the high-hazard dams in Lee County do not have the mandated Emergency Action Plans prepared.

Extent

The extent or magnitude of a dam failure event is described in terms of the classification of damages that could result from a dam's failure, not the probability of failure. The National Interagency Committee on Dam Safety defines high-hazard dams as those where failure or misoperation would cause loss of human life. Low-hazard potential dams are those at which failure or mis-operation probably would not result in loss of human life but would cause limited economic and/or environmental losses. Losses would be limited mainly to the owner's property.

Classifications for dam failure extent are found in Table 15-2 on the next page.

Table 15-2: TCEQ Dam Hazard Classification Criteria Source: TAC Ch. 299

Hazard Potential Classification	Loss of Human Life	Economic, Environmental, Lifeline Loss
Low	No loss of life	Minimal Economic Loss
Significant	Loss of Life Possible (1-6 deaths)	Appreciable Economic Loss
High	Significant Loss of Life (7+ deaths)	Excessive Economic Loss

Table 15-3: Lee County Dam Classifications

Jurisdiction	Dams and Classification	Extent Classification	Level of Intensity to Mitigate
Lee County	29 Dams: 1 High Hazard	High	Cummins Creek WS SCS Site 1 Dam The Cummins Creek WS SCS Site 1 Dam is owned by the Lee-Fayette County WCID #1. It is an earthen dam in the Southeastern region of Lee County outside of Giddings. It is just Northeast of the Giddings Municipal Golf Course and south of Highway 290 and a series of businesses along it.
	2 Significant Hazard 26 Low Hazard		Domaschk Biar Lake Dam The Domaschk Biar Lake Dam is a privately owned earthen dam, around two miles east of the Lee-Bastrop County line along FM 2239. It is in a rural area with ranches, a winery, and oil drilling facilities nearby. Bob Gold Dam The Bob Gold Dam is a privately owned earthen dam south of the unincorporated community of Dime Box. It is approximately located at the intersection of County Road 424 and 430. The surrounding area is rural and may have valuable infrastructure for oil drilling.
Giddings	2 Dams less than 1 mile away from the City of Giddings Low Hazard: Walter Droemer Dam	Low Hazard	Walter Droemer Lake Dam The Walter Droemer Lake Dam is a privately owned earthen dam southwest of the City of Giddings, along FM 448. While it has a maximum volume of 108 Acre-Feet, it is close to Lee County critical infrastructure.

	Mantzel Dam		Mantzel Lake Dam The Mantzel Lake Dam is a privately owned earthen dam just southeast of the Giddings city boundaries, off of Highway 77. There are multiple oil drilling businesses in the immediate vicinity of the Dam.
Lexington	No Dams within 1 Mile of Lexington City Boundaries	None	Given the absence of dams within Lexington or 1 Mile of Lexington City Limits, there is no hazard of dam failure that needs to be mitigated against.
Lexington ISD Dime Box ISD Giddings ISD	There are no dams less than 1 mile upstream of any ISD facilities.	None	School districts do not have any land-use or regulatory authority, and they do not oversee infrastructure other than at the campuses they own and maintain. Given that no campus facilities are at risk across the 3 ISDs in Lee County, dam failure poses no risk.

All high and significant hazard dams within Lee County have been profiled within this plan, given that a high or significant hazard classification indicates a high likelihood for loss of life in the immediate inundation area and a significant impact on infrastructure and property. While low-hazard dams pose no threat of injury or death, we have profiled low-hazard dams within a 1-mile radius of the incorporated communities of Lee County, given that there could be a potential impact on city infrastructure through damaging power or water infrastructure, although given the downstream distance and low volume of the dams, any impact is likely to be short-term.

Figure 15-2: Lee County High Hazard Dam Map: Cummins Creek WS SCS Site 1 Dam

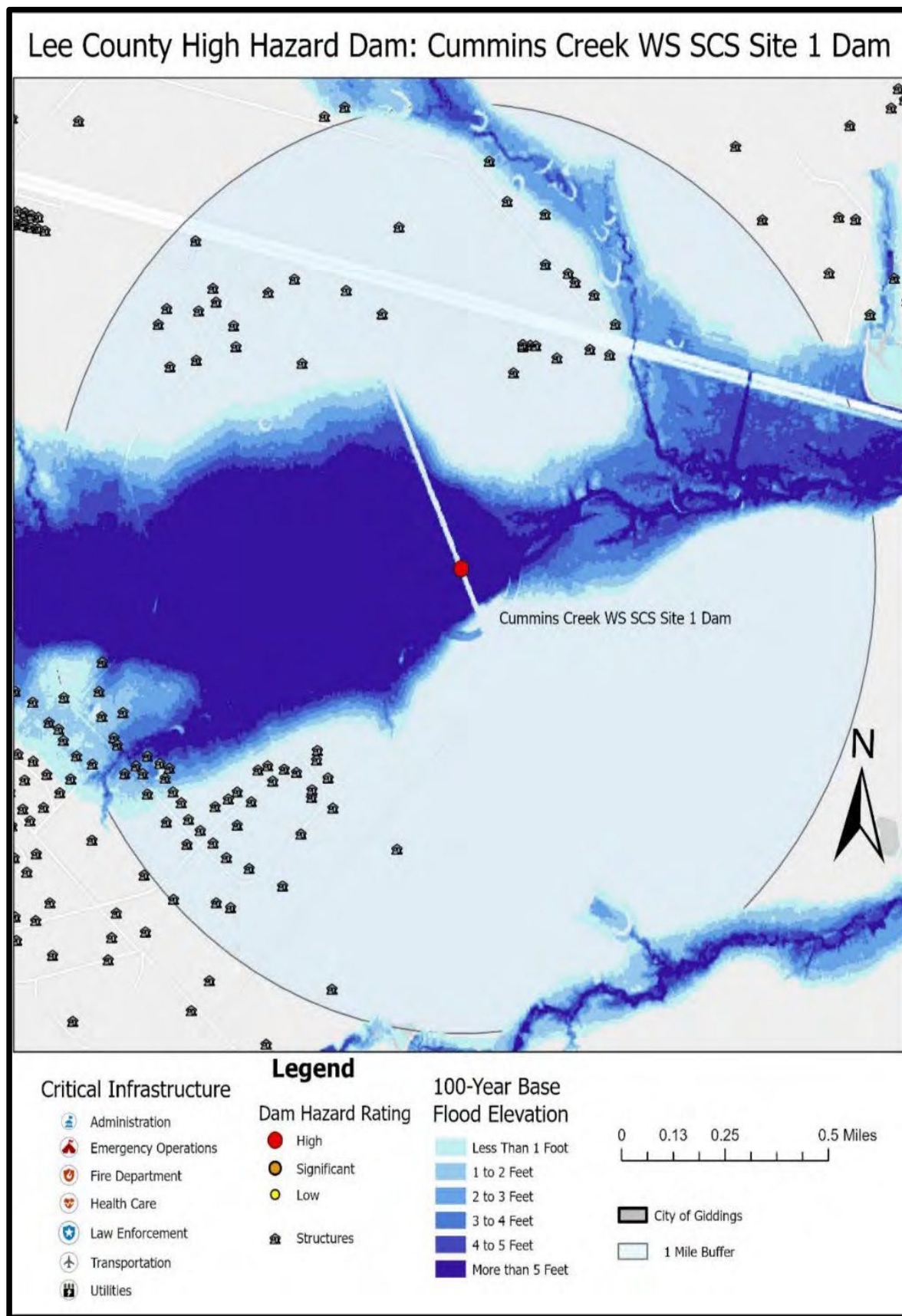


Figure 15-3: Lee County Significant Hazard Dam Map: Bob Gold Dam

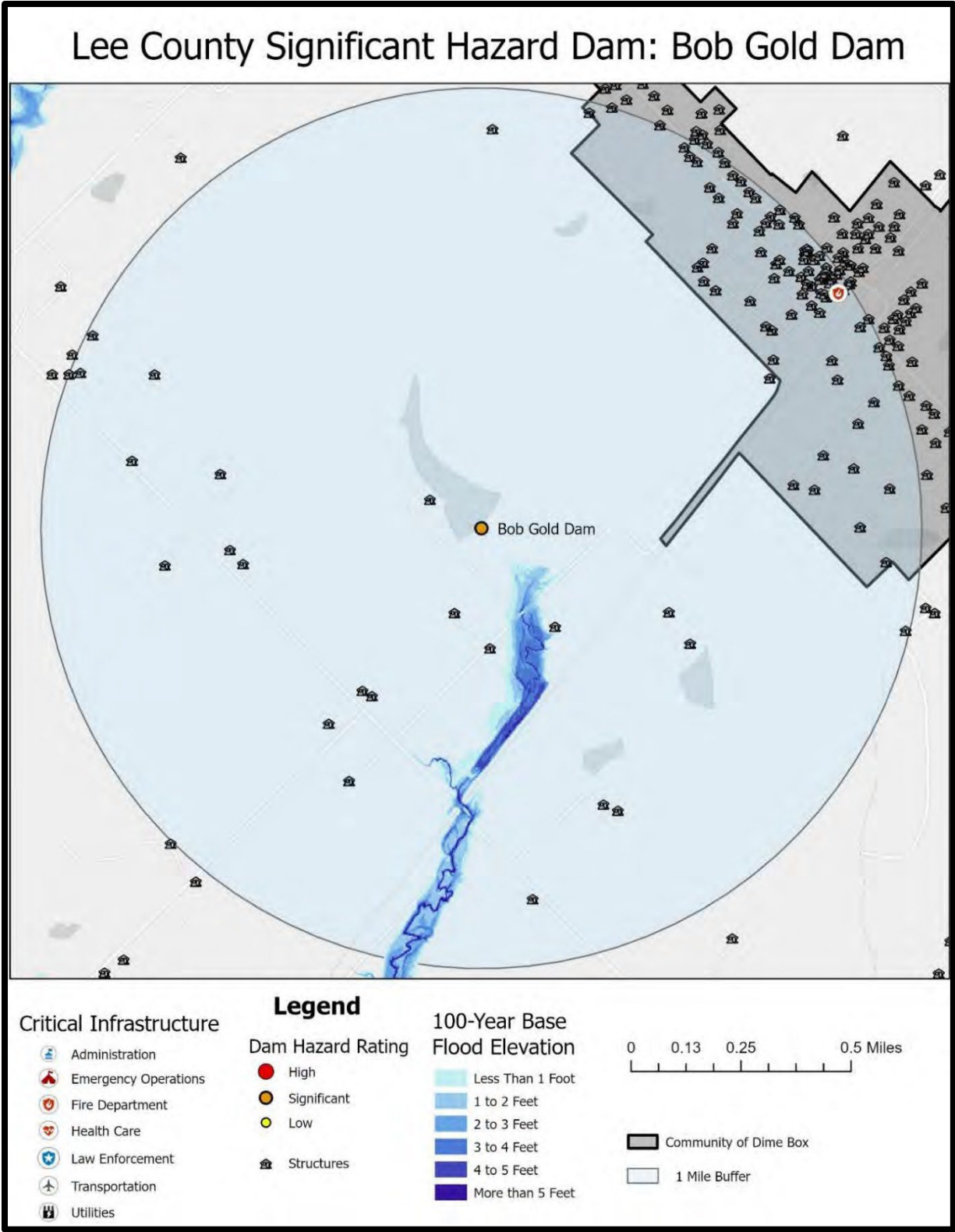


Figure 15-4: Lee County Significant Hazard Dam Map: Domaschk Biar Lake Dam

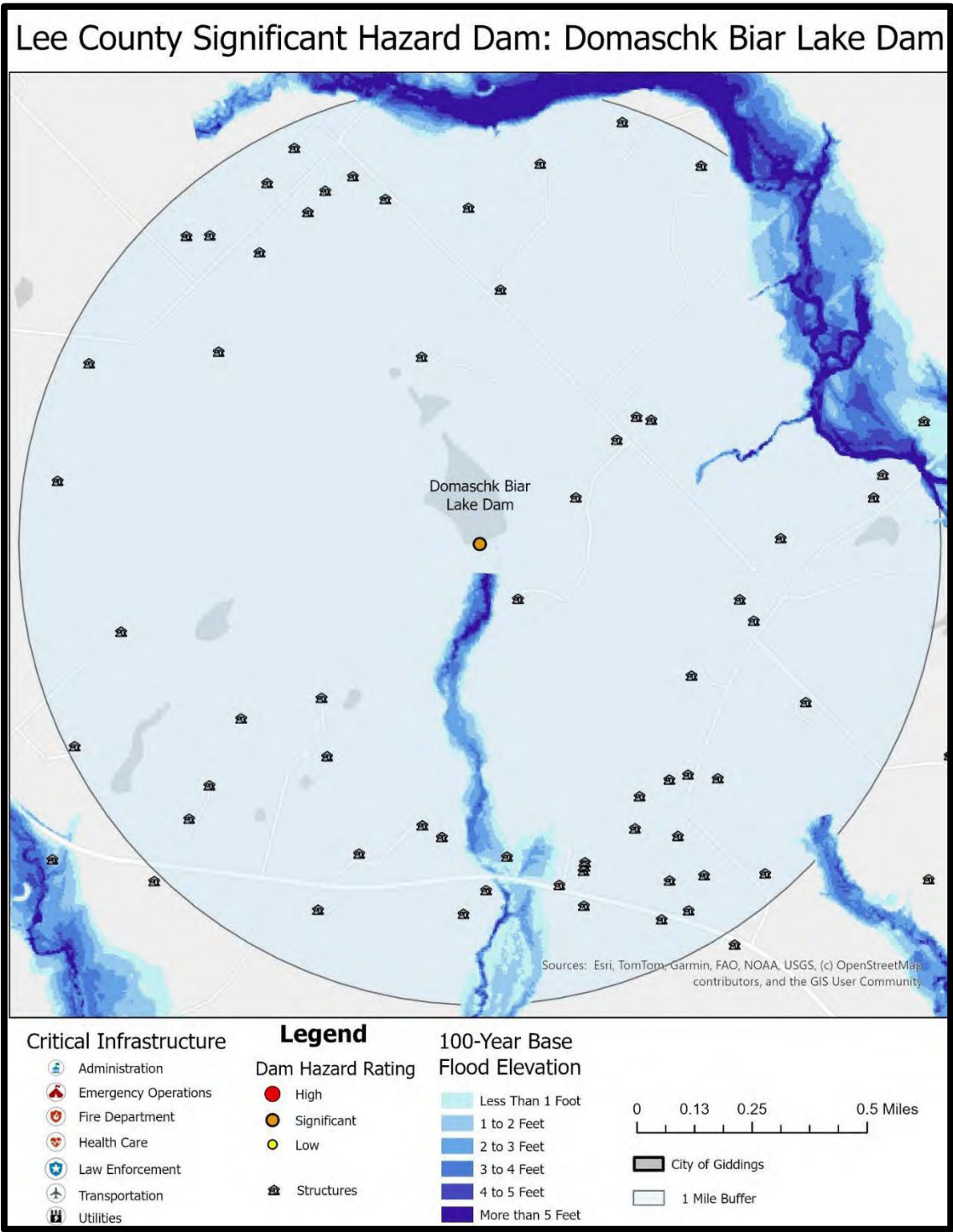


Figure 15-5: City of Giddings Low Hazard Dam Map: Walter Droemer Lake Dam

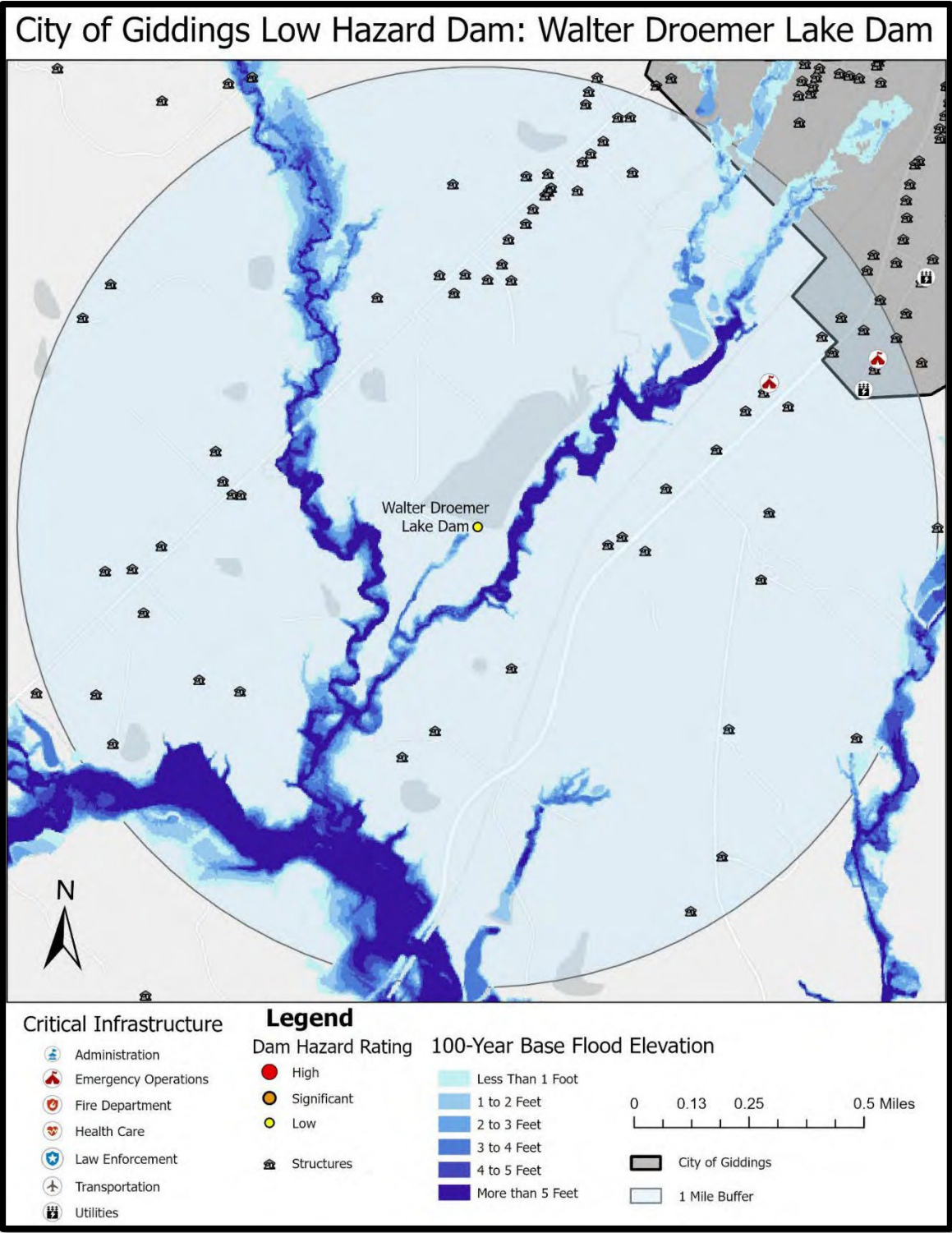
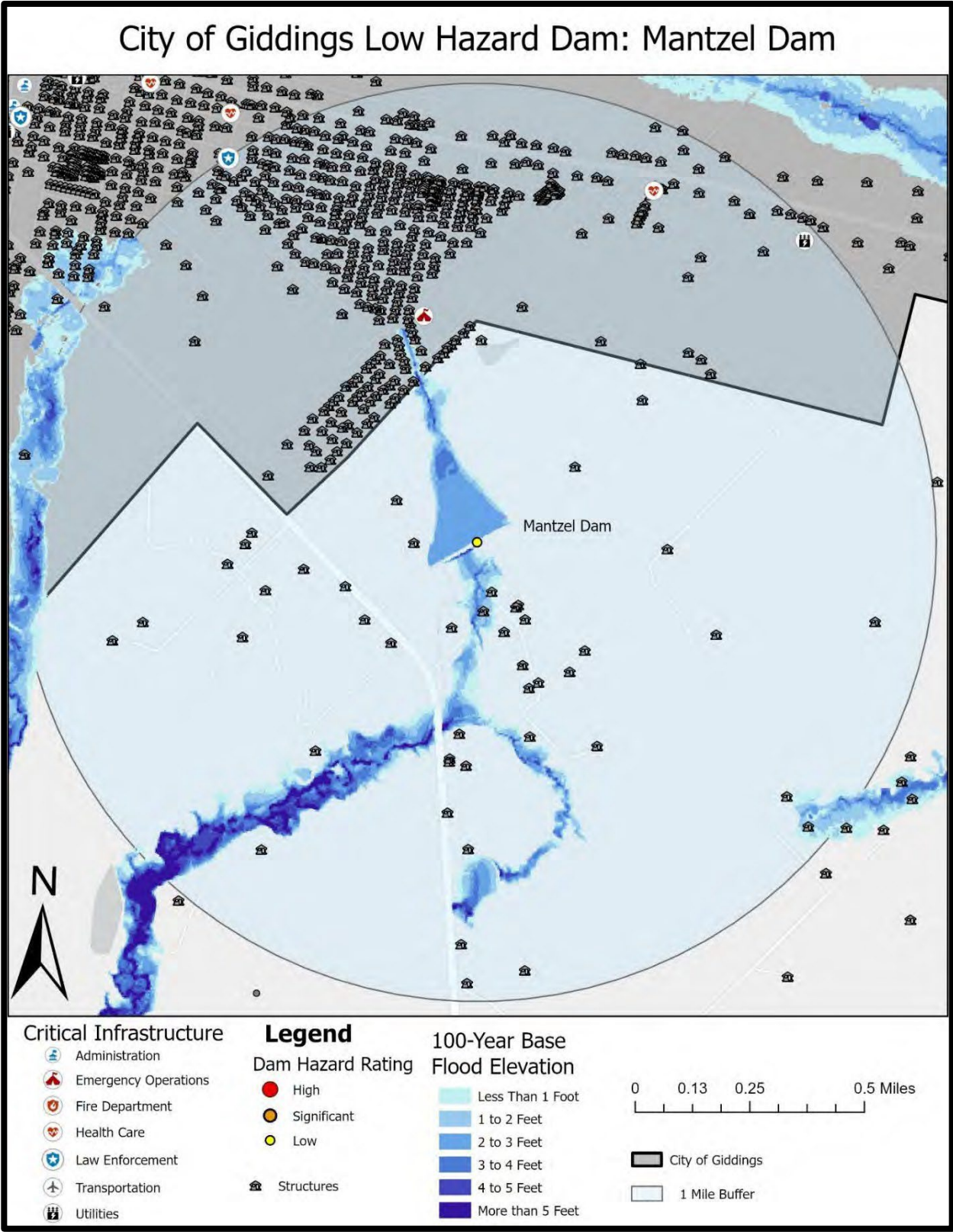


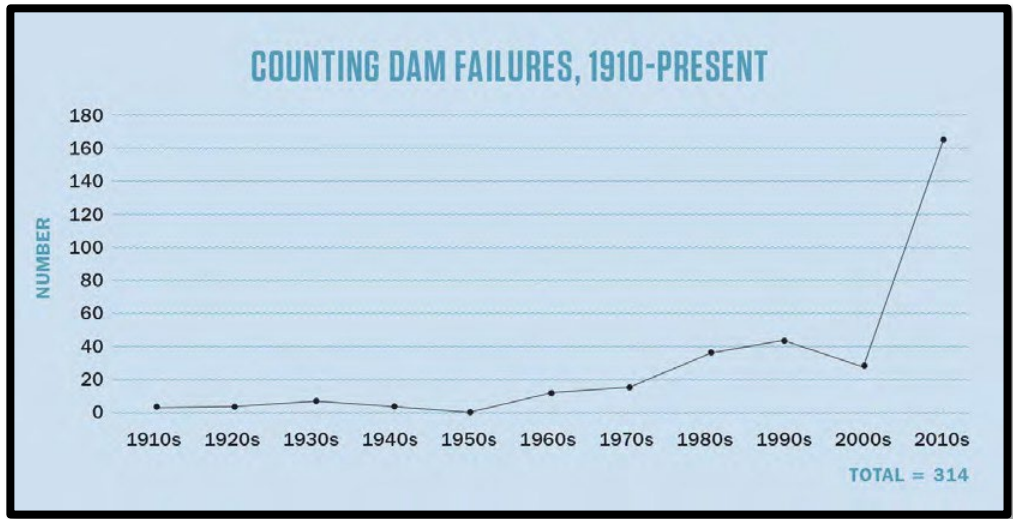
Figure 15-6: City of Giddings Low Hazard Dam Map: Mantzel Dam



Historical Occurrences

Texas dams earn a “D” grade from the American Society of Civil Engineers. Of the approximately 300 dam failures in Texas since 1910, half have occurred in the last nine years.

Figure 15-5: Texas Dam Failures, 1910-2019



Source: Texas Observer

A federal study found that from 1960- 1998, dam failures accounted for 300 fatalities that occurred nationally, and more than 85 percent were caused by dams less than 50 feet in height. In Texas, almost half of all dams are considered too small to regulate, and they are exempt from inspections and oversight. Based on an investigation by the Texas Observer, “This investigation found that the vast majority of failures in Texas involve dams that impound less than 1,000 acre-feet. Small dams are typically owned by individuals, improvements.” While smaller dams may be less likely to be repaired due to financial homeowners’ associations, and cash-strapped counties that can’t afford expensive constraints, the consequences of failure are determined by hazard classification. The important lesson from this article is that dam size is not equivalent to dam safety, and it’s important not to assume that smaller dams pose no danger. As done when choosing which dams were fully profiled in this plan, always look at the hazard classification, the dam condition, and the surrounding floodplain to understand the risk that a dam may pose to your community.

Significant Events

There have been no significant dam failure events in the Lee County planning area.

Probability of Future Events

According to historical records, from 1999-2024, the Lee County planning area has experienced zero (0) dam failures. The probability of a dam failure event occurring in the planning area is Unlikely, with a dam failure event probable in the next 10 years.

Frequency of Occurrence
Highly likely: Event probable in the next year
Likely: Event probable in the next 3 years.
Occasional: Event possible in the next 5 years.
Unlikely: Event possible in the next 10 years.

Vulnerability and Impact

All areas that are directly downstream of one of the high and significant dams in the planning area are vulnerable to a breach. The impact of dam failure on a significant portion of the unincorporated Lee County planning area is **“High”**. The city of Giddings receives a “Low” dam failure impact rating. The City of Lexington receives an impact rating of **“No Potential Impact”** due to the lack of dams within one mile of city boundaries. Giddings ISD, Lexington ISD, and Dime Box ISD receive an impact rating of **“No Potential Impact”** due to the lack of facilities downstream of any dam inundation areas. The extent of the impact is dependent on the severity of the dam failure, the size of the storage area, the dam height, rain/flood conditions, and a host of other factors. Twenty-six of the twenty-nine dams in the planning area are considered low-hazard dams based on their size, but as discussed in this section, low-hazard dam failures have caused documented loss of life and significant economic impact in the past. If a dam failure is extensive, a large amount of water would enter the downstream waterways, forcing them out of their banks. There may be significant environmental effects, resulting in flooding that could disperse debris and hazardous materials downstream, which can damage local ecosystems. If the event is severe, debris carried downstream can block traffic flow, cause power outages, disrupt local utilities, such as water and wastewater, and could result in critical facility shutdowns. The one high-hazard dam relevant to the planning area could have a high impact on the downstream community of Lee County, its infrastructure, riverine systems, and even downstream dams. Areas directly downstream would need to be immediately evacuated in the event of failure or if failure were imminent.

SECTION 16: EXPANSIVE SOILS

Description

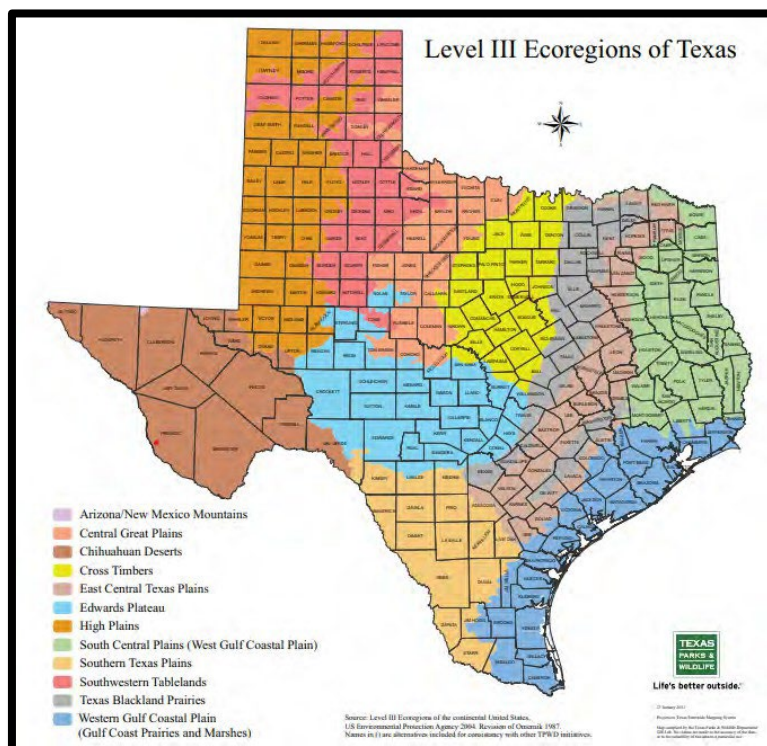
Expansive soils have high amounts of clay minerals alongside soil and soft rocks. The clay in the soil changes volume drastically when exposed to wet or dry conditions, swelling with water and shrinking with dryness. The change in moisture causes the soil to expand, shifting buildings, structures, and even large tree roots, causing damage. One academic study of expansive soils found that expansive soils can apply as much as 5,500 pounds of pressure per square foot of soil to a structure's foundation (Rogers et al.,1985). North central Texas is known for a high mix of soils, with loamy and clayey soils predominant in the area. Damage to buildings includes shifting foundations and cracks in walls and floors. Damage can range from minor to structurally unsafe in buildings. Roads may be affected by soil expansion, causing cracks and possibly even potholes.

Dry and drought conditions cause the shrinking of clay-heavy soil. The reduction in volume can affect support to buildings and other structures and also create fissures in the soil. Fissures in the soil cause a deep penetration of water when rain or extra moisture occurs. These fissures can further uneven soil expansion and shrinkage as the water and moisture allow for deeper penetration. Uneven expansion creates further instability in buildings and roads.

Location

The planning area is located in just one major land resource area, the East Central Texas Plain. It has sandy loam soils with more clayey bottomlands. Large areas of the East Central Texas Plains drain easily with a clay subsurface, preventing water infiltration.

Figure 16-1: Texas Ecoregions by County



Extent

Expansive soils can impact any building or road in an area with high amounts of clay. The US Department of Agriculture (USDA) measures the degree of risk as “Very limited”, “Somewhat Limited”, and “Not Limited” based on soil studies. These ratings are determined by the soil properties and how they affect the capacity to support a load without movement. This is vital data for the construction of buildings, as it helps understand the impacts of shrinking and expanding soils. These ratings are explained in Table 16-1 below.

Table 16-1: USDA Soil Ratings for Construction of Dwellings on Concrete Slabs

Rating	Description	Percent of Lee County	Percent of Lexington	Percent of Giddings
Not Limited	The soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Shrink-swell score less than .06.	13%	0%	0%
Somewhat Limited	The soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Shrink-swell score less than 1.0.	56.3%	99.9%	44.0%
Very Limited	The soil has one or more unfavorable features for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected. Shrink-swell score of 1.0	30.7%	.01%	55.9%

Lee County is 56.3% “Somewhat Limited,” and 30.7% of the area is under “Very Limited”. This totals 87% of the County at risk of expansive soils. The City of Lexington is 99.9% somewhat limited, and .01% Very Limited. The City of Giddings is 55.9% Very Limited, 44% Somewhat Limited, and 0.1% Not Rated.

Lexington ISD, Giddings ISD, and Dime Box ISD could not be analyzed individually due to limitations of the Web Soil Survey tool. Lexington ISD and Giddings ISD both have a very similar risk profile to their respective cities.

The USDA rating maps for all jurisdictions are visualized in Figures 16-2 through 16-4 on the following pages below.

Figure 16-2: Lee County Map of Soil Ratings for Construction of Dwellings on Concrete Slabs

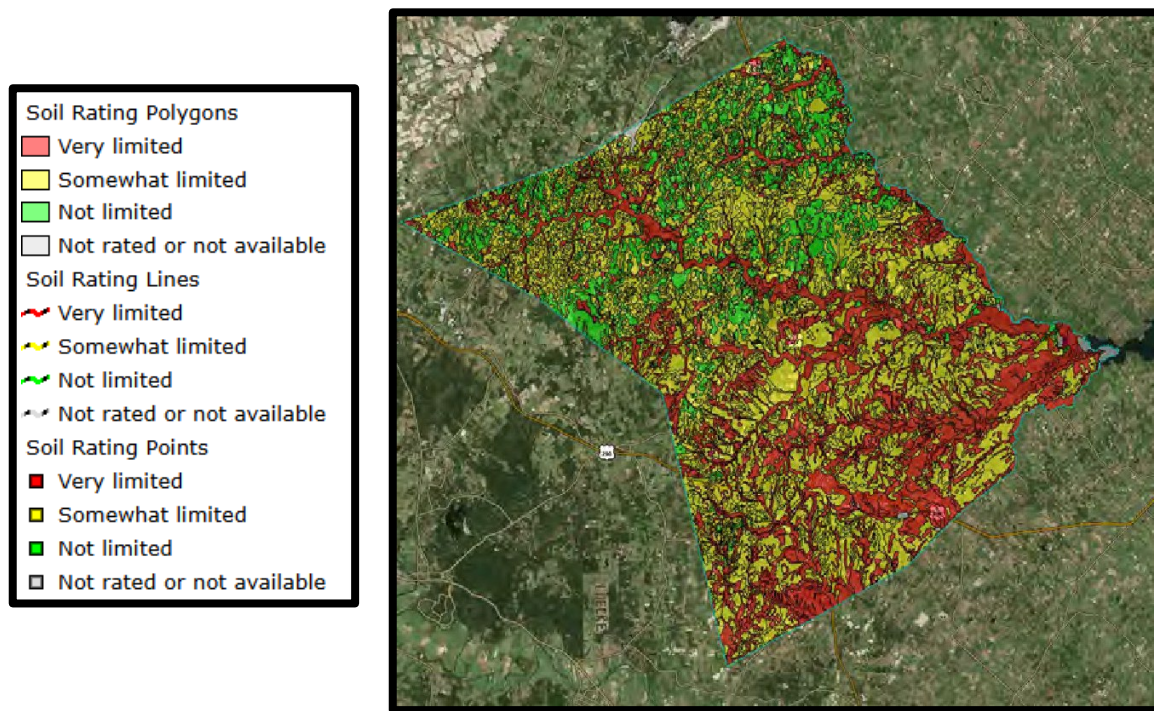


Figure 16-3: Giddings Soil Ratings for Construction of Dwellings on Concrete Slabs



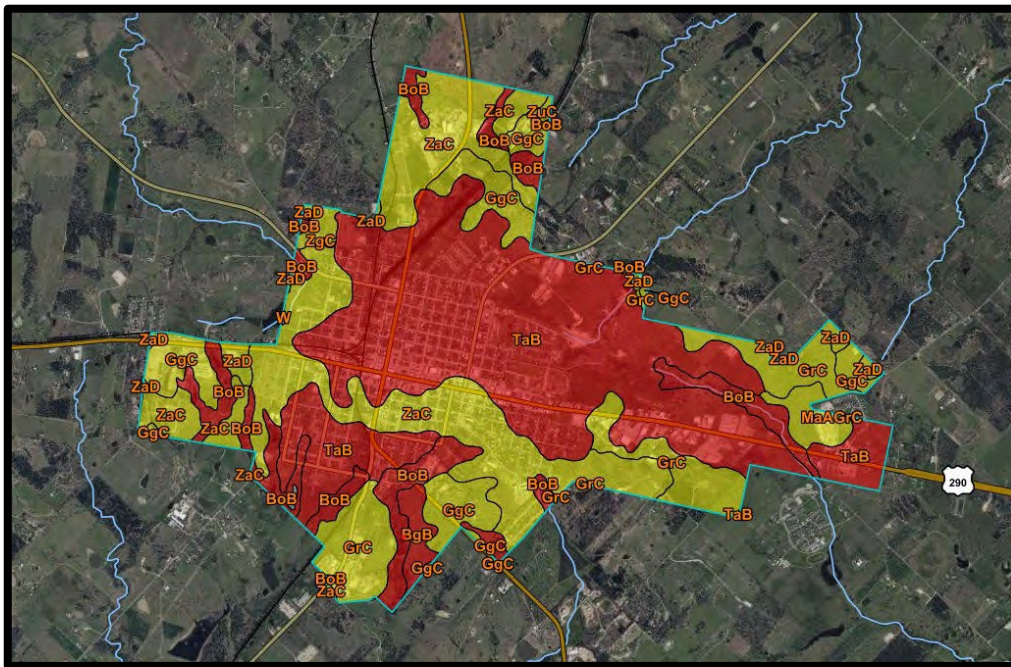


Figure 16-4: Lexington Soil Ratings for Construction of Dwellings on Concrete Slabs

Lee County and participating jurisdictions have no reported history of death, injury, or crop and property damage. However, the County and all participating jurisdictions are at risk of soil expansion. Soil expansion impacts buildings the most, so there may be unreported damage to houses or buildings. On personal property, recording this damage may be difficult. However, on public and government property, these damages can be reported more easily. The County will work to document this damage as it arises.

Significant Events

There are no reported significant soil expansion events in the county and participating jurisdictions.

Probability of Future Events

Lee County has no historical events of expansive soils; however, many of the impacts of expansive soils are subtle and occur over time. In addition, many homes may have experienced shifting or damaged foundations, but these have never been reported to FEMA or other sources. Residents of Lee County and the jurisdictions have likely incurred expenses for house repairs due to expansive soils. Expansive soils may also cause damage to major infrastructure like thoroughfares; however, normal wear and tear on roads often mask these concerns. While it is unlikely that a discrete major event will happen in the next decade, expansive soils swell and shrink sometimes dramatically throughout the course of a year, especially with fluctuations between extreme droughts and intense rainy seasons. The frequency of occurrence for expansive soils is Highly Likely.

Frequency of Occurrence
Highly likely: Event probable in the next year.
Likely: Event probable in the next 3 years.
Occasional: Event possible in the next 5 years.
Unlikely: Event possible in the next 10 years.

Vulnerability and Impact

As 87% of the county and participating jurisdictions are under somewhat or very limited soil ratings, many of the County's buildings are vulnerable to expansive soils. All residential buildings, critical facilities, and public buildings are at risk of damage from expansive soil, particularly buildings without a slab concrete foundation. Homes and buildings built before 1960 are more likely to be pier-and-beam construction. Pier-and-beam foundations are more likely to see the impact of expansive soils, as the walls start to crack, and the floors become uneven.



Each jurisdiction has a significant number of homes built before 1960, increasing the probability of expansive soils causing property damage to residents. The City of Giddings has 26.3% of houses built before 1960, making it the leader in possible housing and building damages from expansive soils. The City of Giddings has a slightly younger average housing age, at 19.8% built before 1960. Damaged houses can cause unnecessary financial strain on low-income households and risk the safety of the residents if they are unable to repair the damage.

Table 16-2: Houses built before 1960 by Jurisdiction (Source: 2023 ACS data)

Jurisdiction	Total Housing Units	Housing built before 1960 (%)
Lee County	7924	1239 (15.6%)
City of Lexington	773	153 (19.8%)
City of Giddings	2079	547 (26.3%)

Roadways and major arterial roads are unlikely to experience noticeable impacts from expansive soils, as many roads experience normal wear and tear and require regular maintenance. Expansive soils are a concern for economic stability. Wear and tear on homes, roadways, and public facilities causes excessive financial burden on residents in the County and the jurisdictions and puts additional stress on taxes to help pay for public improvements.

Lexington ISD has multiple campuses. Lexington Elementary campus was built or significantly improved in 2006. Lexington Middle and High School were built in 1980 Dime Box ISD campus was built from 1980 to 1995. Giddings ISD also has multiple campuses: the Middle School and High School buildings were built in 2009, with some high school buildings being built in 1990. Giddings Elementary School was built in 1995. Generally, construction solutions for expansive soils became more widespread in the 1970s, indicating campus structures may be more resilient than other although specifics of construction practices of the campus buildings were not available. The Texas Education Agency did not require that new or renovated facilities meet local building codes or IBC standards until May 1st, 2004.

SECTION 17: EARTHQUAKES

Description

An earthquake is the shaking of the surface of the Earth resulting from the sudden release of energy created by a movement along fault lines in the Earth's crust. Earthquakes can range in size from those that are so weak that they cannot be felt to those violent enough to throw people and destroy whole cities. Most earthquake-related property damage and deaths are caused by the failure and collapse of structures due to ground shaking. The level of damage that results from an earthquake depends on the extent and duration of the shaking. Earthquakes produce three types of energy waves as described in Figure 17-1 below.

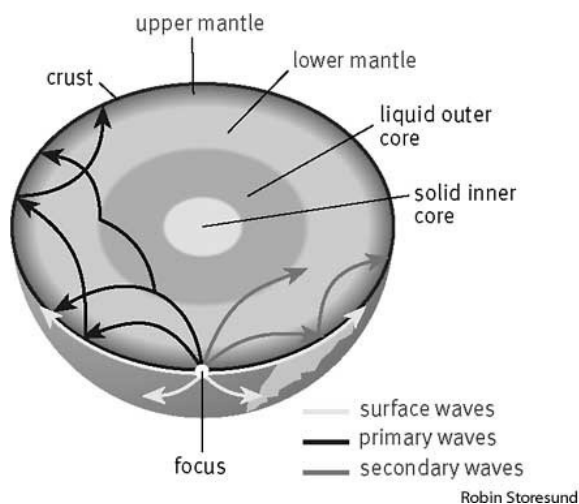


Figure 17-1: Earthquake Wave Types

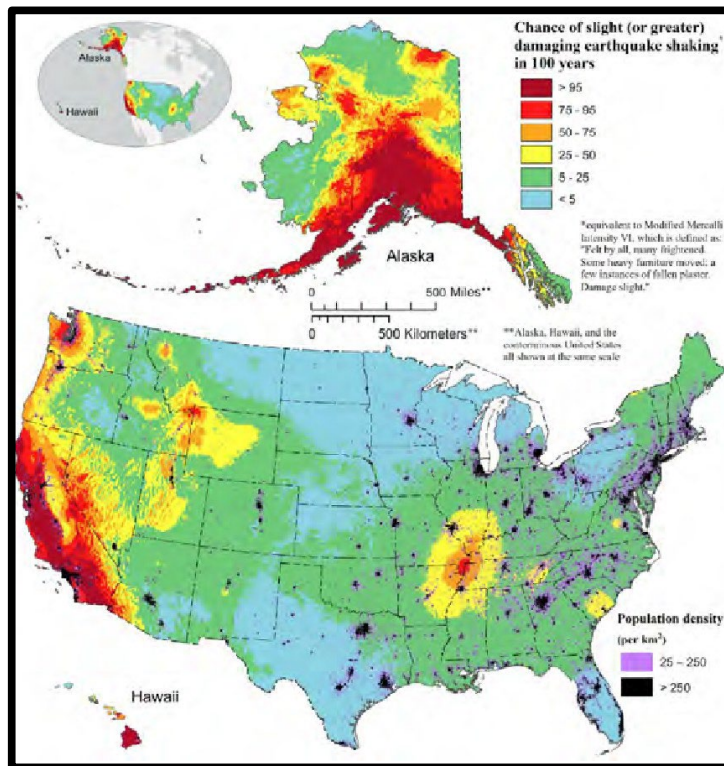
Primary (P) waves have a push-pull type of vibration. Secondary (S) waves have a side-to-side type of vibration. Both P and S waves travel deep into the Earth, reflecting off the surfaces of its various layers. S-waves cannot travel through the liquid outer core. Surface (L) waves—named after the nineteenth-century British mathematician A.E.H. Love—travel along Earth's surface, causing most of the damage of an earthquake.

Location

Locations in West Texas and the Panhandle experience the highest frequency of earthquakes in the state.

The map illustrates the generally low risk of earthquakes in Texas, with most of the state having less than a 5% probability of having an earthquake event with slight or greater damaging shaking over the next 100 years. The planning area encompassed by Lee County shares the same probability of a 5% likelihood of an earthquake over 100 years. Slight or greater damaging earthquake shaking corresponds to a VI or greater on the Modified Mercalli Intensity Scale (Table 17-2).

Figure 17-2: Chance of Mercalli Intensity VI or Higher In the Next 100 Years



Extent

The magnitude or extent of an earthquake is measured on the Richter Scale. An earthquake's magnitude is determined by the amount of ground motion measured on a seismograph. This measurement is then corrected to compensate for the distance from the epicenter. The scale is a logarithmic or a 'power of ten' scale. For example, if a magnitude 4.8 earthquake caused a ground motion of 1 inch at a particular location, a 5.8 would cause ground motion of 10 inches at the same epicenter. Earthquakes above 7 on the Richter scale are considered severe. Table 17-1 provides examples of the effects of earthquakes at different magnitudes. Based on historical evidence, a 2.8 magnitude earthquake is the highest that can be expected in the planning area, given that it is the highest magnitude earthquake within a 50km radius of the center of Lee County.

Table 17-1: Earthquake Magnitude and Corresponding Effects – Richter Scale

Magnitude	Earthquake Effects
Less than 2.5	Usually not felt, but can be recorded by a seismograph
2.5 to 5.4	Often felt, but only causes minor damage.
5.5 to 6.0	Slight damage to buildings and other structures
6.1 to 6.9	May cause a lot of damage in very populated areas
7.0 to 7.9	Major earthquake. Serious damage
Greater than 8.0	Great earthquake. It can destroy communities near the epicenter.

Most of the damage done by an earthquake typically occurs in the areas nearest the epicenter, which have the highest intensities. Each earthquake occurrence only has one magnitude rating, but different locations experience different surface intensities since damage will usually become less severe as one moves away from the epicenter.

The Modified Mercalli Intensity (MMI) scale is used by scientists to describe the extent of an earthquake felt in different locations. The MMI uses Roman numerals to avoid confusion with the Richter Scale and is numbered between 1 and 12. Table 17-2 below provides descriptions of the MMI levels.

Table 17-2: Modified Mercalli Intensity (MMI) scale

MMI	What people feel, or what damage occurs.
I	Not felt except by a very few people under special conditions. Detected mostly by instruments.
II	Felt by a few people, especially those on the upper floors of buildings. Suspended objects may swing.
III	Felt noticeably indoors. Standing automobiles may rock slightly.
IV	Felt by many people indoors, by a few outdoors. At night, some people are awakened. Dishes, windows, and doors rattle.
V	Felt by nearly everyone. Many people are awakened. Some dishes and windows are broken. Unstable objects are overturned.
VI	Felt by everyone. Many people become frightened and run outdoors. Some heavy furniture is moved. Some plaster falls.
VII	Most people are alarmed and run outside. Damage is negligible in buildings of good construction, considerable in buildings of poor construction.
VIII	Damage is slight in specially designed structures, considerable in ordinary buildings, and great in poorly built structures. Heavy furniture is overturned.
IX	Damage is considerable in specially designed buildings. Buildings shift from their foundations and partly collapse. Underground pipes are broken.
X	Some well-built wooden structures are destroyed. Most masonry structures are destroyed. The ground is badly cracked. Considerable landslides occur on steep slopes.
XI	Few, if any, masonry structures remain standing. Rails are bent. Broad fissures appear in the ground.
XII	Virtually total destruction. Waves are seen on the ground surface. Objects are thrown into the air.

Source: USGS - <https://pubs.usgs.gov/gip/earthq4/severitygip.html>

Historical Occurrences

Based on the United States Geological Survey's (USGS) Earthquake Catalog of events, from 1923 through 2023, the Lee County planning area has not experienced any earthquakes.

Table 17-3 below provides details for each earthquake around the planning area with date, locational, and specific magnitude information. There have been no seismic events of sufficient size recorded in the planning area; however, there was one event to the south in Fayette County, and one event to the Northeast in Milam County.

Table 17-3: Historic Earthquake Occurrences within 50 km of Lee County

Date	Location	Magnitude
09/15/2007	11 km East-Northeast of Milano, TX (Milam County)	2.7
04/02/2024	2 km Southeast of Round Top, TX (Fayette County)	2.8

Source: <https://earthquake.usgs.gov/earthquakes>

The USGS earthquake map, Figure 17-3, shows the location and magnitude of the earthquakes that have occurred in and around the Lee County planning area.

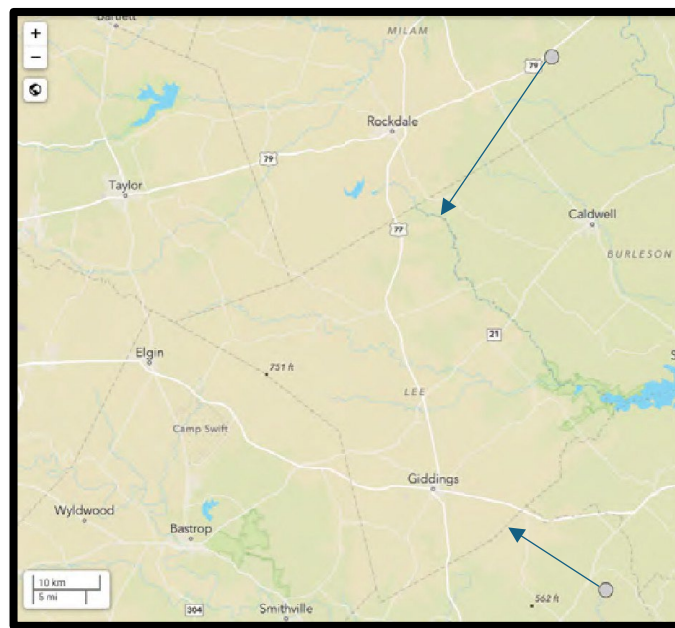


Figure 17-3: USGS Earthquake Map with Location and Magnitude

Source: <https://earthquake.usgs.gov/earthquakes>

Significant Events

September 15th, 2007 – Milam County

Just after 11:00 PM on September 15, 2007, a magnitude 2.7 earthquake had its epicenter 11 kilometers North of Milano and a depth of 30 kilometers.

April 2nd, 2024 – Fayette County

Just after 2:00 AM on April 2nd, 2024, a magnitude 2.8 earthquake had its epicenter 2 kilometers Southeast of Round Top at a depth of 5 kilometers.

Probability of Future Events

Based on the USGS estimates in the seismic hazard risk map provided at the beginning of this section, the planning area has less than a 5% chance of experiencing an earthquake with slightly damaging shaking over the next 100 years. Over the 100-year period of USGS data, there have been no occurrences of earthquakes in the Lee County planning area. Based on the most recent data, the probability of an earthquake occurring somewhere in the planning area in the next year is unlikely.

Frequency of Occurrence	
Highly likely:	Event probable in next year.
Likely:	Event probable in next 3 years.
Occasional:	Event possible in next 5 years.
Unlikely:	Event possible in next 10 years.

Vulnerability and Impact

Historical earthquake impacts for the area are 0 for the number of deaths, injuries, property damage, and crop damage. This does not mean that there haven’t been any impacts due to earthquakes in the planning area, only that there have not been any impacts recorded. All structures, assets, and populations within Lee County, including participating jurisdictions, are vulnerable to the impacts of earthquakes.

Aside from buildings, roads, and bridges, underground assets like utilities can also be severely affected by earthquakes, depending on their magnitude and epicenter. Subterranean utilities that can be impacted by earthquakes include underground sanitary sewer collection systems, which may rupture or back up; drinking water distribution pipes that can become contaminated if pressure gaps occur, allowing untreated groundwater to enter; and gas and underground power lines that can also be damaged, generating hazardous conditions.

SECTION 18: MITIGATION STRATEGY

Lee County's overall strategy for future disasters is to reduce and eliminate the risk of loss of life, safety, and property damage from the disasters that may affect the planning area. The Lee County leaders support efforts that reduce negative impacts on residents' daily life, their well-being, and safety. The success of this strategy relies on creating mitigation goals and actions, and creating an action plan for implementation. These build the framework to identify, prioritize, and implement key actions that reduce risk from hazards.

Goals should describe the long-term outcomes that the communities want to achieve. The objectives may be broad, but more measurable and connect the goals to clear actions. Actions are specific activities or improvements that the local communities and government will take to reduce disaster risks. These items are described in more detail and prioritized before they are implemented. This provides a roadmap for localities to follow through on the highest risks in the community and help prioritize funds to complete critical activities.

These are all compiled and listed in the action plan, which clearly outlines the priority projects and activities necessary to reduce the risk of life, safety, or property damage. An action plan provides an overall reference guide for the next 5 years, or when the next Hazard Mitigation Plan update will occur. Regular reviews of the plan are vital to staying on track.



The Texas State Hazard Mitigation Plan (SHMP) provides the State's overall strategy for disaster mitigation, risk reduction, and resource allocation. The SHMP was updated in 2023 to account for changes in FEMA's Hazard Mitigation Plans and the growing impact of disasters in Texas. The Core Team decided to align with the SHMP's goals, vision, and objectives to support disaster mitigation statewide.

The efficacy of a State Hazard Mitigation Plan relies on coordinating many organizations and all levels of government, public, and private sectors. Full mitigation starts with data collection, identifying and defining hazards that may affect an area at the city, county, and state levels. This data then assists the individual, who is responsible for making risk management decisions regarding personal, family, and home safety. Local governments can support individuals by improving communication systems and infrastructure so that individuals have access to necessary utilities or evacuation routes as necessary. The work completed locally informs citizens and officials on appropriate strategies and policies to reduce risk in their communities. The state must also work to identify hazards and understand the collective vulnerability and risk these hazards present to Texas communities to craft effective strategies, public policy, and programs that support local government in risk management. Ultimately, the state's success at implementing an effective hazard mitigation program that reduces the long-term risk for natural hazards in Texas depends on the success of local government, as this is where the impacts of hazards are most acutely experienced. Therefore, helping local governments achieve success with their mitigation strategies is the primary focus of the Texas Hazard Mitigation Program.

The State Hazard Mitigation Plan of 2023 identifies the following goals for the plan:

- Minimize the suffering, including loss of life and injuries, and damages to property, environment, economy, and infrastructure, which result from natural hazard events.
- Create a stable environment for business and investment in Texas through proactive and integrated hazard mitigation.
- Support Texas communities in making themselves safer from hazards.
- Maximize grant and technical assistance by ensuring aid is provided to communities that need it most.

Under each goal, the plan defines these further with concrete objectives on how to achieve the goals

❖ **Goal 1: Safeguard Lee County residents, infrastructure, and natural resources from the impacts of floods, wildfires, and extreme weather events.**

- Objective 1.1: Mitigate flood and erosion impacts to protect property and the environment.
- Objective 1.2: Strengthen public safety through enhanced hazard warning and preparedness systems.
- Objective 1.3: Ensure resilience of critical infrastructure against hazard disruptions.
- Objective 1.4: Enhance dam and flood control measures to reduce community risks.

- ❖ **Goal 2: Create a stable environment for business and investment in Lee County through integrated hazard mitigation.**
 - Objective 2.1: Promote mitigation actions that support economic growth and protect key industries.
 - Objective 2.2: Enhance coordination with state and local agencies for mitigation implementation.
 - Objective 2.3: Strengthen infrastructure to reduce economic losses from hazards.
- ❖ **Goal 3: Support Lee County communities in becoming safer and more resilient to hazards.**
 - Objective 3.1: Provide technical assistance and data-driven tools to local stakeholders.
 - Objective 3.2: Promote local resiliency through education and grant training.
 - Objective 3.3: Build inclusive mitigation plans for underserved and vulnerable populations.
 - Objective 3.4: Integrate mitigation into local planning and regulatory frameworks.
 - Objective 3.5: Monitor and assess hazard vulnerabilities to prioritize mitigation efforts.
- ❖ **Goal 4: Maximize grant and technical assistance to support at-risk communities in Lee County.**
 - Objective 4.1: Secure external funding to implement high-priority mitigation projects.
 - Objective 4.2: Enhance outreach to underserved and socially vulnerable groups.
 - Objective 4.3: Build local capacity through partnerships and volunteer programs.
 - Objective 4.4: Prioritize cost-effective mitigation actions for maximum impact.
- ❖ **Goal 5: Promote sustainable growth and development in Lee County.**
 - Objective 5.1: Incorporate hazard mitigation into long-range planning and development.
 - Objective 5.2: Promote sustainable land use to reduce hazard risks.
 - Objective 5.3: Enforce regulations to prevent development in high-risk areas.
- ❖ **Goal 6: Build local capacity to reduce vulnerability to hazards.**
 - Objective 6.1: Foster partnerships to enhance mitigation efforts.
 - Objective 6.2: Develop volunteer and community programs for disaster preparedness.
 - Objective 6.3: Codify mitigation processes in emergency management protocols.

With this strategy in mind, the Core Team and localities developed a set of actions that will best suit the goals and objectives outlined in the State of Texas Hazard Mitigation Plan and this update of the Lee County Hazard Mitigation Plan.

SECTION 19: MITIGATION ACTIONS

The mitigation actions developed by the Core Team, Jurisdictional sub-teams, and community stakeholders are presented in this section for Lee County and all participating jurisdictions. Core Team members and Jurisdictional sub-team members met for two virtual mitigation workshops to develop mitigation actions for each of the natural hazards described in the Plan, Sections 5-17.

This began with a review of mitigation actions from the prior Lee County Hazard Mitigation Plan to assess whether they had been completed and, if not, whether they were still relevant. The Action items with an “Ongoing” label in the New Action column are those that have been carried over from the previous plan. New actions were developed with unique insight from planning team members, community and regional plans, capital improvement plans, and mitigation ideas developed by FEMA and the Texas Department of Emergency Management (TDEM).

Based on Core Team input, the following action items from the previous Plan were labeled as completed or have been canceled. Action items included in the previous plan update that are still ongoing are included in the current mitigation action tables. Additionally, action items where no progress was made, but Core Team members indicated they would want to implement in the future, were listed as New.

Table 19-1: Completed or Canceled Mitigation Actions

Lee County		
Mitigation Action	Status	Additional Info
Purchase NOAA All-Hazard Radios and disperse them to residents.	Complete	NA
Reroute CR 302 to avoid the Low Water Crossing Reroute the existing roadway to a shorter path that will prevent isolation of the affected population.	Complete	NA
Upgrade drainage structure on CR 455 at Indian Camp Branch Replace existing culverts with larger culverts and raise roadway to prevent overtopping and isolation of the affected population and to reduce damage to the location.	Complete	NA

Improve notifications to residents of high water and road closures Purchase high-water and road closed signs.	Complete	NA
Improve Notification of Burn Ban Purchase Burn Ban signs.	Complete	NA
Floodplain property buyouts Conduct voluntary buyouts of homes with repetitive loss in floodplain areas of Lee County and turn the land into deed-restricted open space.	Complete	Only 1 property accepted the buyout offered.
City of Lexington		
Update Building Codes The City currently has the 2012 IBC and will update to the 2015 IBC.	Complete	The City of Lexington updated its building codes to IBC 2018.
City of Giddings		
Update Building Codes The City currently has the 2009 IBC and will update to the 2012 IBC.	Complete	The City of Giddings has updated its building codes up to IBC 2018
Purchase NOAA All-Hazard Radios Purchase NOAA All-Hazard Radios and distribute to residents.	Cancelled	NA
Water Conservation Measures The city will research the options of drilling new water wells and/or implementing water restrictions to maintain public water in the city.	Completed	NA

The Core Planning team reviewed the remaining actions, presenting them to their respective departments and stakeholders to get feedback and develop them further. The goals listed in the Hazard Mitigation Plan in Section 18 were used as guidance while considering factors such as existing and future growth, hazard risk assessments, individual community priorities, critical facilities, and unique community vulnerabilities.

Each Action item is associated with a type in the following table, with the corresponding color for the action background shown below.

Educational Outreach	Structural Projects	Natural System Enhancements	Local Plans and Regulations
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Mitigation action types include Local plans and regulations, Structural projects, Natural systems protection, and Education programs. Additional information provided for each mitigation action includes the jurisdictional department responsible for implementation, estimated cost, potential funding sources, timeline for implementation, and benefit to the community based on the cost and resources to implement the action.

An action that is ranked as “High” indicates that it will be implemented as soon as funding is made available from both local budgets and through grants. A “Medium” action may not be implemented right away, depending on the cost and how well or how many community members are served. A “Low” action is one whose benefit is hard to quantify in relation to the cost. However, it is still considered of value to the community and is to be implemented when funds and resources are available.

Mitigation Action Plan

The Mitigation Action Plan is a method to prioritize mitigation actions and assign departmental responsibility, ensuring a higher rate of successful action implementation and administration. Each jurisdiction has multiple authorities to implement the mitigation strategy, including, but also limited to, local planning and zoning, public works efforts, emergency management, tax authority, building codes and ordinances, and legislative and managerial departments.

All the new and old mitigation actions in this section were prioritized primarily based on FEMA’s Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLE-E) criteria. These criteria are considered necessary for each action's successful and enduring implementation. Each participating jurisdiction in the Plan had an opportunity to discuss and consider each of the criteria as they related to each action and rate them from 1 to 5. The total scores from the STAPLE-E exercises were then used to assign an overall priority to each mitigation action for each of the participating jurisdictions. In addition to the STAPLE-E exercise, jurisdictions analyzed each action in terms of which department or agency will be responsible for the administration of the action, action timeline, potential funding sources, and the overall costs, measuring whether the potential benefit to be gained from the action outweighs the costs associated with it.

Lee County Mitigation Actions

Mitigation Action #1 Status: Ongoing	Integrate Mitigation into Local Planning
Description and Objective	Incorporating risk assessment and hazard mitigation principles into comprehensive planning efforts. Incorporating hazard mitigation into broader growth management (i.e., Smart Growth) initiatives. Incorporating a hazard risk assessment into the local development and subdivision review process.
Hazards Addressed	Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Weather
Priority	High
Cost Estimate	\$10,000
Possible Funding Sources	Operating Budget, Contingency Fund, Grant Funding
Responsible Department	Office of Emergency Management
Time to Complete	12 Months

Mitigation Action #2 Status: New	Harden critical infrastructure & public buildings against severe weather events.
Description and Objective	Enhance the resilience of critical infrastructure, emergency services, and public buildings to withstand severe weather events, including extreme storms and high winds. Make sure that Lee County's communication and power infrastructure is properly shielded and protected from lightning and electromagnetic events.
Hazards Addressed	Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Winter Weather
Priority	High
Cost Estimate	\$500,000
Possible Funding Sources	Operating Budget, HMGP, SHSP
Responsible Department	Office of Emergency Management,
Time to Complete	48 Months

Mitigation Action #3 Status: New	Outdoor Warning Sirens.
Description and Objective	Improve Lee County's emergency notification system by installing or upgrading outdoor warning sirens with centralized electronic controls, enabling precise, hazard-specific alerts to the public during emergencies such as tornadoes, severe storms, hazardous material incidents, or other life-threatening events.
Hazards Addressed	Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Winter Weather
Priority	High
Cost Estimate	HMGP, EMGP, SHSP
Possible Funding Sources	\$250,000 - \$375,000
Responsible Department	OEM
Time to Complete	36 Months

Mitigation Action #4 Status: Ongoing	Improve Household Disaster Preparedness
Description and Objective	Encouraging property owners to purchase hazard insurance not as an alternative to mitigation, but rather to add financial protection if damage does occur. Encouraging residents to prepare by stocking up on the necessary items and planning for how family members should respond during a disaster.
Hazards Addressed	Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Winter Weather
Priority	High
Cost Estimate	\$50,000
Possible Funding Sources	County Funds
Responsible Department	OEM
Time to Complete	24 Months

Mitigation Action #5 Status: Ongoing	Monitor Drought Conditions
Description and Objective	Identify drought indicators, such as precipitation, temperature, surface water levels, soil moisture, etc. Establish a regular schedule to monitor and report conditions on at least a monthly basis.
Hazards Addressed	Drought
Priority	High
Cost Estimate	< \$10,000
Possible Funding Sources	Operating Budget, Contingency Fund, Grant Funding, TWDB
Responsible Department	OEM
Time to Complete	60 Months

Mitigation Action # 6 Status: Ongoing	Upgrade drainage structures on Post Oak Dr. at Unnamed Tributary to Middle Yegua Creek.
Description and Objective	Replace existing corrugated metal pipe with either a larger multiple box culvert structure or a bridge, depending on findings of an H&H study, to prevent overtopping and isolation of the affected population and to reduce damage to the location.
Hazards Addressed	Flood
Priority	High
Cost Estimate	\$100,000
Possible Funding Sources	Operating Budget, HMGP, CDBG
Responsible Department	Roads and Bridges
Time to Complete	36 Months

Mitigation Action #7 Status: Ongoing	Use the Application of Calcium Soil Stabilizers in Road Construction.
Description and Objective	Specify the use of calcium soil stabilizers as part of the County Engineer's protocol for pavement subgrade work on county roads. This will make a durable permanent roadway layer and minimize damage from expansive soil issues.
Hazards Addressed	Expansive Soils
Priority	High
Cost Estimate	< \$10,000
Possible Funding Sources	General Budget
Responsible Department	Roads and Bridges
Time to Complete	24 Months

Mitigation Action #8 Status: Ongoing	Upgrade the drainage structure on CR 400 at 30.401982, -96.836636.
Description and Objective	Replace existing culverts with larger culverts and raise the roadway to prevent overtopping and isolation of the affected population and to reduce damage to the location.
Hazards Addressed	Flood
Priority	High
Cost Estimate	Operating Budget, Grant Fund
Possible Funding Sources	\$100,000
Responsible Department	Roads and Bridges
Time to Complete	36 Months

Mitigation Action #9 Status: Ongoing	Upgrade Drainage Structure on CR 226 at Cummins Creek
Description and Objective	Replace the existing bridge with a larger bridge and raise the roadway to prevent overtopping and isolation of the affected population and to reduce damage to the low water crossing.
Hazards Addressed	Flood
Priority	High
Cost Estimate	\$250,000
Possible Funding Sources	Operating Budget, Grant Funds
Responsible Department	Roads and Bridges
Time to Complete	36 Months

Mitigation Action #10 Status: Ongoing	Hazard Education for Homeowners
Description and Objective	Develop and implement a multi-hazard public awareness program. Educate homeowners on how to mitigate their homes from these hazards on the county website and public forums. Supplement digital educational efforts with traditional mailers and flyers in public spaces.
Hazards Addressed	Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Winter Weather
Priority	Medium
Cost Estimate	< \$10,000
Possible Funding Sources	Operating Budget, Grant Fund, Contingency Fund
Responsible Department	Emergency Management
Time to Complete	60 Months

Mitigation Action #11 Status: Ongoing	Drainage System and Flood Control Structures
Description and Objective	Prevent scour of culverts and support bracing underneath low-lying bridges by cleaning debris and inspecting culverts and bridges.
Hazards Addressed	Flood
Priority	Medium
Cost Estimate	< 100,000
Possible Funding Sources	Operating Budget, Contingency Fund, Grant Fund
Responsible Department	Road and Bridges
Time to Complete	36 Months

Mitigation Action #12 Status: New	WUI Mitigation Phase 1: Conduct a WUI and Rural Risk Assessment.
Description and Objective	Identify high-risk zones for wildfires and emergency access challenges to guide mitigation planning for Lee County's WUI and rural areas.
Hazards Addressed	Wildfire
Priority	Medium
Cost Estimate	\$75,000
Possible Funding Sources	Operating Budget, Grants, CWPP/CWDG
Responsible Department	OEM, TA&M FS, County GIS
Time to Complete	48 Months

Mitigation Action #13 Status: Ongoing	Assist Vulnerable Population During Extreme Temperatures
Description and Objective	Organize outreach to vulnerable populations, including establishing and promoting accessible heating or cooling centers in the community. Create a database to track those individuals at high risk of death, such as the elderly, the homeless, and others.
Hazards Addressed	Extreme Heat, Winter Weather
Priority	Low
Cost Estimate	\$10,000
Possible Funding Sources	Operating Budget, Contingency Fund, Grant Funding
Responsible Department	OEM
Time to Complete	48 Months

Mitigation Action #14 Status: Ongoing	Incorporating Flood Mitigation in Local Planning
Description and Objective	Develop a new floodplain management plan. Adopt a post-disaster recovery ordinance.
Hazards Addressed	Flood
Priority	Medium
Cost Estimate	\$100,000
Possible Funding Sources	Operating Budget, Contingency Fund, Grant Funds
Responsible Department	OEM
Time to Complete	36 Months

Mitigation Action #15 Status: New	Multi-Hazard Evacuation Route Assessment & Improvement Plan.
Description and Objective	Improve the safety, efficiency, and resilience of all evacuation routes in Lee County to address hazards such as tropical weather evacuations, wildfires, hazardous materials (HazMat) incidents, and emergency response needs. This requires coordinating with road and property owners to evaluate solutions for major road bottlenecks and increasing signage for public awareness.
Hazards Addressed	Dam/Levee Failure, Earthquake, Flood, Hail, Hurricane/ Tropical Storms, Lightning, Tornado, Wildfire, Wind, Winter Weather
Priority	Medium
Cost Estimate	\$500,000+
Possible Funding Sources	Operating Budget, Contingency Fund, Grant Fund
Responsible Department	OEM, TxDOT
Time to Complete	48 Months

Mitigation Action #16 Status: New	Fixed and Mobile Generators for Critical Facilities and Emergency Response.
Description and Objective	Ensure continuous power supply to critical infrastructure, emergency shelters, water systems, and public safety operations during disasters by installing fixed backup generators and procuring mobile generator units for flexible deployment throughout Lee County.
Hazards Addressed	Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Winter Weather
Priority	Medium
Cost Estimate	\$250,000 - \$500,000
Possible Funding Sources	Operating Budget, Grant Fund
Responsible Department	OEM
Time to Complete	36 Months

Mitigation Action #17 Status: New	Sandless Sandbags for Rapid Flood Protection.
Description and Objective	Enhance Lee County's emergency response and flood protection capabilities by procuring sandless sandbags that provide quick, effective barriers against rising water, especially in targeted, vulnerable locations such as doorways, garages, and window wells. These self-activating, water-absorbing barriers provide a lightweight, easy-to-deploy alternative to traditional sandbags, improving response times for both emergency personnel and residents.
Hazards Addressed	Flood
Priority	Medium
Cost Estimate	\$50,000
Possible Funding Sources	Operating Budget, Grant Funds
Responsible Department	Roads and Bridges
Time to Complete	24 Months

Mitigation Action #18: New (No previous progress)	Improve Flood Risk Assessment
Description and Objective	Incorporating the procedures for tracking high-water marks following a flood into emergency response plans. Using GIS to map areas that are at risk of flooding, develop and maintain a database to track community exposure to flood risk.
Hazards Addressed	Flood
Priority	Medium
Cost Estimate	\$10,000
Possible Funding Sources	Operating Fund, Contingency Fund, Grants
Responsible Department	Emergency Management
Time to Complete	36 Months

Mitigation Action #19 Status: New	WUI Mitigation Phase 2: Implement Wildland-Urban Interface & Rural Fire Risk Reduction Program
Description and Objective	Promote Fire-Resistant Building Materials & Defensible Space through developer and property owner education and awareness campaigns. Implement fuel reduction projects identified in phase 1.
Hazards Addressed	Wildfire
Priority	Medium
Cost Estimate	\$300,000
Possible Funding Sources	Operating Budget, CWPP, CWDG,
Responsible Department	OEM, TA&M FS
Time to Complete	48 Months

Mitigation Action #20 Status: Ongoing	Flooding and Drainage Projects Phase 1: Conduct a study to prioritize projects to address numerous flood-prone locations within Lee County.
Description and Objective	Numerous locations within the county experience flash floods. A study is needed to prioritize the project locations and determine the best design plan for each location.
Hazards Addressed	Flood
Priority	Low
Cost Estimate	\$100,000+
Possible Funding Sources	Operating Budget, Grant Funds
Responsible Department	Roads and Bridges
Time to Complete	36 Months

Mitigation Action #21 Status: New	Flooding and Drainage Projects Phase 2: Drainage Projects and Systems Improvements and Implementations
Description and Objective	Reduce flood risk, protect infrastructure and landscapes, and enhance public safety by improving and expanding drainage systems throughout Lee County. Effective drainage helps prevent structure flooding, road closures, erosion, waterborne disease, and potential loss of human and animal life.
Hazards Addressed	Flood
Priority	Medium
Cost Estimate	\$500,000
Possible Funding Sources	Operating Budget, Grant Fund
Responsible Department	Roads and Bridges
Time to Complete	36 Months

Mitigation Action #22 Status: New	Engineered Soil (Turf Reinforcement Mats) for Erosion Control and Water Quality
Description and Objective	Reduce erosion, improve water quality, and enhance the resilience of streambanks, drainage channels, and other vulnerable areas in Lee County by installing engineered soil systems with Turf Reinforcement Mats (TRMs). These systems provide long-term stabilization while supporting environmental health and promoting natural water infiltration.
Hazards Addressed	Flood
Priority	Low
Cost Estimate	\$165,000
Possible Funding Sources	HMGP, EPA 319, NRCS, EQIP, Local Funds
Responsible Department	Road and Bridge
Time to Complete	48 Months

Mitigation Action #23 Status: New	Indoor Weather Stations for Localized Hazard Awareness.
Description and Objective	Improve situational awareness and community resilience during severe weather events by distributing non-Wi-Fi indoor weather stations that provide real-time local forecasts and environmental data, especially valuable for rural areas or small communities that may lose power or communications during emergencies.
Hazards Addressed	Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Winter Weather
Priority	Low
Cost Estimate	\$15,000
Possible Funding Sources	Operating Budget, Grant Funds
Responsible Department	OEM
Time to Complete	24 Months

Mitigation Action #24 Status: Ongoing	Assess Vulnerability to Severe Wind
Description and Objective	Develop a database to track community vulnerability to severe wind. Create a severe wind scenario to estimate potential loss of life and injuries, the types of potential damage, and existing vulnerabilities within the community to develop severe wind mitigation priorities.
Hazards Addressed	Hurricane/Tropical Storms, Tornado, Wind
Priority	Low
Cost Estimate	\$10,000
Possible Funding Sources	Operating Budget, Contingency Fund, Grant Fund
Responsible Department	OEM
Time to Complete	48 Months

Mitigation Action #25 Status: New	Expand Warming & Cooling Centers and Shelter Capacity
Description and Objective	Increase the capacity and accessibility of warming centers in Lee County to provide safe refuge during extreme cold events, reduce the risk of hypothermia, and cold-related health emergencies. Develop public awareness campaigns on warming center locations and availability.
Hazards Addressed	Severe Winter Weather, Extreme Heat
Priority	Low
Cost Estimate	\$250,000
Possible Funding Sources	Operating Budget, Grant Funds, FEMA HMGP, CDBG, Local partnerships
Responsible Department	OEM
Time to Complete	36 Months

Mitigation Action #26 Status: Ongoing	Lee County Courthouse
Description and Objective	Improve/repair the structural integrity of the Lee County Courthouse to mitigate future damage.
Hazards Addressed	Flood
Priority	Low
Cost Estimate	\$500,000+
Possible Funding Sources	Operating Budget, Grant Funds
Responsible Department	Judge's Office
Time to Complete	36 Months

Mitigation Action #27 Status: Ongoing	Use Fire-Resistant Construction Techniques
Description and Objective	Use fire-resistant and non-combustible materials in remodels, upgrades, and new construction to mitigate wildfires engulfing homes and buildings with a focus on builder and developer engagement.
Hazards Addressed	Wildfire
Priority	Low
Cost Estimate	\$10,000
Possible Funding Sources	Operating Budget, Contingency Fund, Grant Funding
Responsible Department	OEM
Time to Complete	36 Months

Mitigation Action #28 Status: Ongoing	Design and implement drainage system improvements to the Cummins Creek Watershed SCS Site 1 Dam.
Description and Objective	Conduct an H&H study and a Master Drainage Plan for design improvements to reduce the impact of flooding upstream of the dam.
Hazards Addressed	Flood
Priority	Low
Cost Estimate	\$100,000+
Possible Funding Sources	Operating Budgets, Grant Funds
Responsible Department	Road and Bridge
Time to Complete	36 Months

Mitigation Action #29 Status: New	Dam Data Deficiencies
Description and Objective	Collaborate with public and private dam owners in unincorporated Lee County to address the lack of accurate and or accessible inundation maps showing both the area of inundation and floodwater depth.
Hazards Addressed	Dam/Levee Failure
Priority	Medium
Cost Estimate	\$20,000
Possible Funding Sources	Operating Budgets, Grant Funds
Responsible Department	Road and Bridges
Time to Complete	36 Months

City of Lexington Mitigation Actions

Mitigation Action #1 Status: Ongoing	Monitor Drought Conditions
Description and Objective	Identify drought indicators, such as precipitation, temperature, surface water levels, soil moisture, etc. Establish a regular schedule to monitor and report conditions on at least a monthly basis. There is a monitoring well that the city of Lexington, in partnership with the TWDB, uses to monitor drought conditions.
Hazards Addressed	Drought
Priority	Low
Cost Estimate	\$10,000
Possible Funding Sources	TWDB, HMGP
Responsible Department	City of Lexington Mayor's Office
Time to Complete	36 Months

Mitigation Action #2 Status: New	Drainage Systems and Flood Control Structures Phase 2
Description and Objective	In addition to the regular cleaning of debris and inspecting culverts and bridges, the city will construct major drainage improvements consisting of repairing and improving storm sewers, drainage lines, and culverts across three project areas.
Hazards Addressed	Flood
Priority	High
Cost Estimate	\$200,000
Possible Funding Sources	FEMA HMGP, FEMA FMA
Responsible Department	City of Lexington Mayor's Office, Emergency Management
Time to Complete	24 Months

Mitigation Action #3: Status: Ongoing	Assess Vulnerability to Severe Wind
Description and Objective	Develop a database to track community vulnerability to severe wind. Creating a severe wind scenario to estimate potential loss of life and injuries, the types of potential damage, and existing vulnerabilities within the community to develop severe wind mitigation priorities. The IBC 2018 edition requires new construction to be designed to be resistant to between 115-125 MPH winds for the Lee County area, but the risk to existing structures and critical infrastructure still needs to be evaluated.
Hazards Addressed	Hurricane/Tropical Storms, Tornadoes, Thunderstorm Winds
Priority	Medium
Cost Estimate	\$10,000
Possible Funding Sources	FEMA HMGP, Local Staff Time
Responsible Department	City of Lexington Emergency Management
Time to Complete	48 Months

Mitigation Action #4 Status: New	Purchase NOAA All-Hazard Radios
Description and Objective	Purchase 6 NOAA All-Hazard Radios for the fire department, police department, and city hall.
Hazards Addressed	Drought, Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Storms
Priority	Medium
Cost Estimate	\$2000
Possible Funding Sources	Local Funds, HMGP
Responsible Department	City of Lexington Emergency Management
Time to Complete	36 Months

Mitigation Action #5 Status: New	Hazard Education and Risk Awareness to Homeowners
Description and Objective	Educate homeowners on how to mitigate their homes from these hazards. Post educational information on the city's website and as stuffers with utility bills.
Hazards Addressed	Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Winter Weather
Priority	High
Cost Estimate	\$10,000
Possible Funding Sources	Local Funds, FEMA HMGP
Responsible Department	City of Lexington Mayor's Office and Emergency Management
Time to Complete	12 Months

Mitigation Action #6 Status: New	Floodplain Administration for NFIP Compliance
Description and Objective	Adopt a flood damage prevention ordinance that includes clauses that address bringing substantially damaged and improved properties into ordinance compliance. The city will also identify a staff member responsible for floodplain permit administration.
Hazards Addressed	Floods, NFIP
Priority	High
Cost Estimate	\$10,000
Possible Funding Sources	FEMA HMGP, Local Funding
Responsible Department	City of Lexington Development Services
Time to Complete	36 Months

Mitigation Action #7 Status: New	Water Conservation Design
Description and Objective	Amend the International Plumbing Code 2018 Requirements to incorporate stricter low-flow fixture standards for water conservation. Consider the EPA Water Sense criteria and certified products to address water conservation.
Hazards Addressed	Drought
Priority	Development Services
Cost Estimate	\$10,000
Possible Funding Sources	Local Funding
Responsible Department	City of Lexington Public Works, Development Services, Mayor's Office
Time to Complete	36 Months

Mitigation Action #8 Status: New	New Water Well
Description and Objective	Build Water Well #8 to ensure water supply access.
Hazards Addressed	Drought
Priority	High
Cost Estimate	\$1,750,000
Possible Funding Sources	CDBG Mitigation Funds
Responsible Department	City of Lexington Mayor's Office, Public Works
Time to Complete	24 Months

Mitigation Action #9 Status: New	Elevated Water Storage Tank
Description and Objective	Build an elevated water tank within city limits to ensure an adequate water supply and pressure.
Hazards Addressed	Drought, Flood, Wildfire
Priority	High
Cost Estimate	\$1,450,000
Possible Funding Sources	CDBG Mitigation Funds
Responsible Department	City of Lexington Mayor's Office, Public Works
Time to Complete	24 Months

Mitigation Action #10 Status: New	Emergency Generator
Description and Objective	Install an Emergency Generator at the City Hall and Police Department complex.
Hazards Addressed	Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Weather
Priority	High
Cost Estimate	\$100,000
Possible Funding Sources	FEMA HMGP
Responsible Department	City of Lexington Mayor's Office, Public Works
Time to Complete	36 Months

Mitigation Action #11 Status: New	Lightning Warning System
Description and Objective	Install an advanced Lightning Warning System to notify residents, especially those in outdoor public spaces, of weather conditions with a high likelihood of lightning.
Hazards Addressed	Lightning
Priority	Low
Cost Estimate	\$25,000 plus \$1000 monthly upkeep costs
Possible Funding Sources	FEMA HMGP
Responsible Department	City of Lexington Mayor's Office, Parks Department
Time to Complete	48 Months

Mitigation Action #12 Status: New	Vegetation Clearance
Description and Objective	Along Right-of-Ways in city limits, ensure that vegetation is cleared to ensure power lines are unimpacted by strong winds and reduce the potential for wildfire ignition.
Hazards Addressed	Hurricanes, Tropical Storms & Depressions, Wildfires, Thunderstorm Winds, Severe Winter Storms
Priority	Medium
Cost Estimate	\$50,000
Possible Funding Sources	Local Funds, FEMA HMGP
Responsible Department	City of Lexington Public Works
Time to Complete	24 Months

City of Giddings Mitigation Actions

Mitigation Action #1 Status: New (No Previous Progress)	Upgrade Underground Water Lines
Description and Objective	Seek funding, create a prioritized infrastructure improvement plan, and construct the water, wastewater, and street improvements.
Hazards Addressed	Drought, Floods, Severe Winter Storms
Priority	Medium
Cost Estimate	\$100,000
Possible Funding Sources	Annual Budget
Responsible Department	Public Works
Time to Complete	48 Months

Mitigation Action #2 Status: Ongoing	Outdoor Warning Siren
Description and Objective	Apply for and receive grant funding for outdoor warning sirens.
Hazards Addressed	Dam/Levee Failure, Hailstorm, Thunderstorm Winds, Tornadoes, Extreme Heat
Priority	High
Cost Estimate	\$100,000
Possible Funding Sources	Annual Budget
Responsible Department	Police Department
Time to Complete	36 Months

Mitigation Action #3 Status: New	Hazard Education for Homeowners
Description and Objective	Educate homeowners on how to mitigate their homes from these hazards. Post educational information on the city's website and as stuffers with utility bills.
Hazards Addressed	Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Storms
Priority	High
Cost Estimate	\$10,000 per hazard
Possible Funding Sources	City Funds
Responsible Department	Emergency Management
Time to Complete	36 Months

Mitigation Action #4 Status: Ongoing	Purchase and Install Emergency Generators
Description and Objective	Install a generator at the water well, the Giddings water plant, and the Giddings Police Department.
Hazards Addressed	Dam/Levee Failure, Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Storm
Priority	High
Cost Estimate	\$300,000
Possible Funding Sources	HMGP, City Funds
Responsible Department	City of Giddings's Department of Public Works
Time to Complete	48 Months

Mitigation Action #5 Status: New	Flood Mitigation on South Polk Street.
Description and Objective	Install new culverts and elevate the street at the intersection of Polk Street and US 77 S.
Hazards Addressed	Flood, Dam/Levee Failure
Priority	High
Cost Estimate	\$200,000
Possible Funding Sources	FEMA HMGP, CDBG
Responsible Department	Public Works
Time to Complete	36 Months

Mitigation Action #6 Status: Ongoing	Dam Data Deficiencies
Description and Objective	Collaborate with public and private dam owners in unincorporated Lee County that impact the City of Giddings to address the lack of accurate and or accessible inundation maps showing both the area of inundation and floodwater depth.
Hazards Addressed	Dam/Levee Failure
Priority	Medium
Cost Estimate	\$20,000
Possible Funding Sources	Operating Budgets, Grant Funds
Responsible Department	Road and Bridges
Time to Complete	36 Months

Mitigation Action # 7 Status: New	Citywide Curb and Gutter Improvements
Description and Objective	Repair and install curbs and gutters along streets citywide to ensure proper stormwater management. Start with 1 Mile of curb and gutter replacement.
Hazards Addressed	Floods, Hurricanes, Tropical Storms & Depressions
Priority	Medium
Cost Estimate	\$250,000
Possible Funding Sources	CDBG, Local Funding
Responsible Department	Public Works
Time to Complete	48 Months

Mitigation Action #8 Status: New	Resilient Comprehensive Plan and Ordinance Update
Description and Objective	Develop a Resilient Comprehensive Plan for the City of Giddings and update the City of Giddings' Building Codes and Zoning Ordinance to ensure that new development and substantially improved structures are updated to be resilient to all hazards faced by the city.
Hazards Addressed	Floods, Wildfires, Severe Winter Storms, Thunderstorm Winds, Drought, Hail, Hurricanes, Tropical Storms & Depressions, Extreme Heat, Expansive Soils
Priority	High
Cost Estimate	\$300,000
Possible Funding Sources	CDBG-GLO-RCP
Responsible Department	City Admin, Code Enforcement
Time to Complete	36 Months

Mitigation Action # 9 Status: New	Park Drainage Improvements
Description and Objective	At Veterans Park and Simmang Park, develop site drainage plans and implement identified improvements. Currently, both parks have significant flooding problems.
Hazards Addressed	Floods
Priority	Medium
Cost Estimate	\$75,000
Possible Funding Sources	CDBG, HMP
Responsible Department	City of Giddings Parks Department
Time to Complete	48 Months

Mitigation Action # 10 Status: New	Establish an Emergency Shelter
Description and Objective	Identify an existing structure for retrofitting or identify a new location for the construction of an all-hazards emergency shelter, which can also serve as a heating and cooling shelter if necessary.
Hazards Addressed	Dam/Levee Failure, Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Storms
Priority	Medium
Cost Estimate	\$3,000,000
Possible Funding Sources	FEMA HMGP Community Saferoom Program (25% Cost Share), CDBG
Responsible Department	City of Giddings's Mayor's Office
Time to Complete	60 Months

Mitigation Action #11 Status: New	Reverse 911 Enrollment and Community Awareness Campaign
Description and Objective	Enroll in a Reverse 911 Emergency Warning System and launch a public media campaign to ensure that residents of Giddings are informed about how they can receive emergency warnings and notifications.
Hazards Addressed	Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Storms
Priority	High
Cost Estimate	\$25,000
Possible Funding Sources	Local Funds, Grants
Responsible Department	City of Giddings
Time to Complete	24 Months

Mitigation Action #12 Status: New	Develop a phased Capital Improvement Program for Giddings VFD Equipment for Fire Suppression and Fuel Reduction
Description and Objective	Develop a comprehensive needs assessment for Giddings VFD and a Capital Improvement Plan for all necessary vehicles, tools, and major PPE needs.
Hazards Addressed	Wildfire
Priority	Medium
Cost Estimate	\$25,000
Possible Funding Sources	Assistance to Firefighters Grant, CWDG
Responsible Department	Giddings VFD, City of Giddings Mayor's Office
Time to Complete	24 Months

Mitigation Action #13 Status: New	Northern Giddings Fuel Break
Description and Objective	Create a Fuel Break along Industrial Park Rd. and in the area along Hickory Creek to protect the northern edge of the City of Giddings. This project would also help restore the riparian buffer along the creek to a healthier state.
Hazards Addressed	Wildfire, Flooding
Priority	Medium
Cost Estimate	\$75,000
Possible Funding Sources	HMGP, CWDG
Responsible Department	Giddings VFD
Time to Complete	48 Months

Giddings ISD

Mitigation Action #1 Status: New	Warning Sirens
Description and Objective	Install a warning siren system, specifically with an advanced-notice lightning warning siren and alert.
Hazards Addressed	Lightning, Hurricanes, Tropical Storms & Depressions
Priority	Medium
Cost Estimate	\$50,000
Possible Funding Sources	HMGP, CDBG
Responsible Department	Superintendent's Office
Time to Complete	24 Months

Mitigation Action #2 Status: New	Emergency Storm/Tornado Shelter
Description and Objective	Identify an existing structure to retrofit or a location to construct a new building to create an all-hazards emergency shelter.
Hazards Addressed	Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Storms
Priority	Low
Cost Estimate	\$3,000,000
Possible Funding Sources	HMGP
Responsible Department	Superintendent's Office
Time to Complete	60 Months

Mitigation Action #3 Status: New	Industrial Wet-Dry Vacuum
Description and Objective	Purchase an industrial wet-dry vacuum to reduce the long-term impact of floodwaters on ISD property.
Hazards Addressed	Floods
Priority	Low
Cost Estimate	\$5,000
Possible Funding Sources	HMGP, Local Funds
Responsible Department	Superintendent's Office
Time to Complete	24 Months

Mitigation Action #4 Status: New	Emergency Generators
Description and Objective	Ensure that critical buildings on ISD campuses remain powered and functional through purchasing and installing emergency generators.
Hazards Addressed	Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Thunderstorm Wind, Severe Winter Storms
Priority	High
Cost Estimate	\$250,000
Possible Funding Sources	HMGP, Local Funds
Responsible Department	Superintendent's Office
Time to Complete	48 Months

Mitigation Action #5 Status: New	Hazard Education
Description and Objective	Provide age-appropriate lessons to students about the disasters that their community faces and how to prepare themselves, their family, and their homes.
Hazards Addressed	Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Thunderstorm Wind, Severe Winter Storms, Expansive Soils, Drought
Priority	High
Cost Estimate	\$25,000
Possible Funding Sources	Local, HMGP
Responsible Department	Superintendent's Office
Time to Complete	36 Months

Mitigation Action #6 Status: New	Drainage Study, Mapping, and Project Identification
Description and Objective	Conduct a comprehensive pluvial (surface water) drainage study for the school campus to evaluate rainfall-runoff behavior, identify low-lying areas, assess storm drain capacity, and determine causes of recurring ponding and localized flooding.
Hazards Addressed	Floods - Data Deficiency
Priority	Medium
Cost Estimate	\$80,000
Possible Funding Sources	Local, HMGP
Responsible Department	Superintendent's Office
Time to Complete	48 Months

Lexington ISD

Mitigation Action #1 Status: New	Warning Sirens
Description and Objective	Install a warning siren system, specifically with an advanced-notice lightning warning siren and alert.
Hazards Addressed	Lightning, Hurricanes, Tropical Storms & Depressions
Priority	Medium
Cost Estimate	\$50,000
Possible Funding Sources	HMGP, CDBG
Responsible Department	Superintendent's Office
Time to Complete	24 Months

Mitigation Action #2 Status: New	Emergency Storm/Tornado Shelter
Description and Objective	Identify an existing structure to retrofit or a location to construct a new building to create an all-hazards emergency shelter.
Hazards Addressed	Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Storms
Priority	Low
Cost Estimate	\$3,000,000
Possible Funding Sources	HMGP
Responsible Department	Superintendent's Office
Time to Complete	60 Months

Mitigation Action #3 Status: New	NOAA All-Hazards Radio
Description and Objective	Purchase four NOAA All-Hazards Radios to provide LISD leadership has adequate information.
Hazards Addressed	Floods, Hurricanes, Hail, Extreme Heat, Drought, Severe Winter Storms, Wildfires, Lightning, Tornadoes, Earthquake
Priority	Low
Cost Estimate	\$500
Possible Funding Sources	HMGP, Local Funds
Responsible Department	Superintendent's Office
Time to Complete	24 Months

Mitigation Action #4 Status: New	Emergency Generators
Description and Objective	Ensure that critical buildings on ISD campuses remain powered and functional through purchasing and installing emergency generators.
Hazards Addressed	Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Thunderstorm Wind, Severe Winter Storms
Priority	High
Cost Estimate	\$250,000
Possible Funding Sources	HMGP, Local Funds
Responsible Department	Superintendent's Office
Time to Complete	48 Months

Mitigation Action #5 Status: New	Hazard Education
Description and Objective	Provide age-appropriate lessons to students about the disasters that their community faces and how to prepare themselves, their family, and their homes.
Hazards Addressed	Dam/Levee Failure, Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Thunderstorm Wind, Severe Winter Storms, Expansive Soils, Drought
Priority	High
Cost Estimate	\$25,000
Possible Funding Sources	Local, HMGP
Responsible Department	Superintendent's Office
Time to Complete	36 Months

Mitigation Action #6 Status: New	Drainage Study and Project Identification
Description and Objective	Conduct a comprehensive pluvial (surface water) drainage study for the school campus to evaluate rainfall-runoff behavior, identify low-lying areas, assess storm drain capacity, and determine causes of recurring ponding and localized flooding.
Hazards Addressed	Floods - Data Deficiency
Priority	Medium
Cost Estimate	\$80,000
Possible Funding Sources	Local, HMGP
Responsible Department	Superintendent's Office
Time to Complete	48 Months

Dime Box ISD

Mitigation Action #1 Status: New	Emergency Generators
Description and Objective	Purchase two mobile generators for two primary locations that will serve as sheltering locations for Eastern Lee County.
Hazards Addressed	Earthquake, Extreme Heat, Flood, Hail, Wind Lightning, Tornado, Wildfire, Severe Winter Storms, Hurricane
Priority	Medium
Cost Estimate	\$50,000
Possible Funding Sources	HMGP, CDBG
Responsible Department	Superintendent's Office
Time to Complete	24 Months

Mitigation Action #2 Status: New	Emergency Storm/Tornado Shelter
Description and Objective	Retrofit the Cafeteria/Science building or the Big Gym to serve as an emergency shelter in Dime Box ISD
Hazards Addressed	Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, Severe Winter Storms
Priority	Medium
Cost Estimate	\$5,000,000
Possible Funding Sources	HMGP
Responsible Department	Superintendent's Office
Time to Complete	60 Months

Mitigation Action #3 Status: New	Utility Elevation and Shielding
Description and Objective	Elevate the HVAC Units outside of the Cafeteria and the Big Gym. Ensure that all HVAC Units and any roof-mounted utilities are shielded from projectiles.
Hazards Addressed	Floods, Hurricanes, Tropical Storms & Depressions, Hail
Priority	Low
Cost Estimate	\$30,000
Possible Funding Sources	HMGP, Local Funds
Responsible Department	Superintendent's Office
Time to Complete	24 Months

Mitigation Action #4 Status: New	Drainage Improvements for Shallow Flooding
Description and Objective	Address flooding in three locations on campus through drainage studies and any identified expansion of stormwater management infrastructure
Hazards Addressed	Flooding, Hurricanes, Tropical Storms, Tropical Depressions
Priority	High
Cost Estimate	\$250,000
Possible Funding Sources	HMGP, Local Funds
Responsible Department	Superintendent's Office
Time to Complete	48 Months

Mitigation Action #5 Status: New	Hazard Education
Description and Objective	Provide age-appropriate lessons to students about the disasters that their community faces and how to prepare themselves, their family, and their homes.
Hazards Addressed	Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Thunderstorm Wind, Severe Winter Storms, Expansive Soils, Drought
Priority	High
Cost Estimate	\$25,000
Possible Funding Sources	Local, HMGP
Responsible Department	Superintendent's Office
Time to Complete	36 Months

Mitigation Action #6 Status: New	Drainage Study and Project Identification
Description and Objective	Conduct a comprehensive pluvial (surface water) drainage study for the school campus to evaluate rainfall-runoff behavior, identify low-lying areas, assess storm drain capacity, and determine causes of recurring ponding and localized flooding.
Hazards Addressed	Floods - Data Deficiency
Priority	Medium
Cost Estimate	\$80,000
Possible Funding Sources	Local, HMGP
Responsible Department	Superintendent's Office
Time to Complete	48 Months

SECTION 20: PLAN MAINTENANCE

This section describes how Lee County, including participating jurisdictions, will implement the Plan and continue to evaluate and enhance it over time. As indicated in the previous section, each action has been assigned to a specific department within the jurisdiction. To ensure that the Plan remains current and relevant, the following Plan maintenance procedures will be addressed:

- 1. Ensure the mitigation strategy remains current and that actions are implemented according to the timeline.
- 2. Develop an ongoing mitigation program throughout the community for each participating jurisdiction and work together at the county level to update and review the Plan.
- 3. Integrate short and long-term mitigation objectives into community officials’ daily roles and responsibilities.
- 4. Continue public involvement and maintain momentum with education programs and materials, routine publication of accomplishments, and briefings to decision-makers of the Plan’s progress.

Table 20-1: Team Members Responsible for Plan Maintenance

Jurisdiction/Entity	Title
Lee County	County Judge & Emergency Management Coordinator
City of Lexington	Mayor & City Secretary
City of Giddings	Mayor & City Manager
Lexington ISD	Superintendent
Giddings ISD	Superintendent
Dime Box ISD	Superintendent

Incorporation

Following approval and adoption of the Plan, Lee County and participating jurisdictions will implement actions they have developed and prioritized in the Plan based on funding availability and continuing public input. A timeline is provided with each action and is used to assess whether actions are being completed on time based on the date of Plan adoption. Potential funding sources are also listed for each action below in this Section. Additional funding sources can include federal disaster declarations and other non-federal grant sources.

Local funding: This is funding that the community can allocate in the budget process, and with other local funding mechanisms such as impact fees and drainage utility fees. This

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funding can be used entirely for specific hazard mitigation activities and projects or can be used as a match to leverage federal and state funding.

CWDG: The Community Wildfire Defense Grant Program, or CWDG, is intended to help at-risk local communities and tribes plan for and reduce the risk of wildfire. This program, which the Bipartisan Infrastructure Law authorized, prioritizes at-risk communities in an area identified as having high or very high wildfire hazard potential, that are low-income, or have been impacted by a severe disaster that affects the risk of wildfire. More details on these three priorities are in the Notices of Funding Opportunity (NOFOs) below. The program provides funding for communities for two primary purposes:

- Develop and revise Community Wildfire Protection Plans (CWPP).
- Implement projects described in a Community Wildfire Protection Plan less than ten years old.

The CWDG Grant Program also helps communities in the wildland-urban interface (WUI) implement the three goals of the National Cohesive Wildland Fire Management Strategy.

HMGP: The purpose of Hazard Mitigation Grant Programs is to help communities implement hazard mitigation measures following a Presidential Major Disaster Declaration in the areas of the state, tribe, or territory requested by the Governor or Tribal Executive. The key purpose of this grant program is to enact mitigation measures that reduce the risk of loss of life and property from future disasters.

CDBG: The Community Development Block Grant (CDBG) focuses on developing livable communities by providing affordable housing and suitable living environments for principally low-to-moderate income residents. The program helps communities fund infrastructure projects that help with water, sewer, generators, or key road improvements. These funds may supplement utility development that helps mitigate hazards.

Methods of Incorporating the Plan

The Core Team members will conduct a review of the plans and policies in place at least annually. The review and analysis will guide any updates and incorporate new actions into the plan as appropriate. The plans and policies that require review include emergency operations or management plans, capital improvement plans, comprehensive land use and future growth plans, transportation plans, annual budgeting, and any building codes that guide and control development in a way that will contribute to the goals of this Plan to reduce long-term risk to life and property from all hazards.

A list of regulatory and planning capabilities currently available to the jurisdictions can be found in Appendix A. In the process of integrating the mitigation actions into new and existing planning mechanisms, the participating jurisdictions will do the following:

Grant Applications	Hazard mitigation grant funding will be sought to fund eligible action items as the funding is awarded. If a need for additional action items is presented, an amendment will be necessary to include the action in the plan.
Annual Budget Review	The Plan and mitigation actions will be reviewed annually to determine any funding needs to be included during the budget process, and will involve various departments and team members who participated in the planning process. Local funds that match requirements for grants will be considered by the appropriate departments, such as engineering, planning, code enforcement, and others, to achieve the mitigation action based on the timeline. The ISDs of Lee County will incorporate their mitigation actions into their Capital Improvement budgets.
Floodplain Management Plans and Watershed Studies	These types of plans include preventative and corrective actions to address the flood hazard. The county and cities can review this plan while updating their flood damage prevention ordinances
Regulatory Plans and Future Growth Plans	Lee County and jurisdictions have additional studies and regulatory plans in place that require occasional updating. This Plan will be consulted when County and City departments review or revise their current regulatory planning mechanisms and growth plans, such as land development and building codes, comprehensive plans, and capital improvement plans. The City of Lexington is currently working on a Resilient Comprehensive Plan, which it is aligning with this update of the Lee County Hazard Mitigation Plan. The City of Giddings is going to start the planning process of a Resilient Comprehensive Plan as well, which it will align with this update of the Lee County Hazard Mitigation Plan.

In the past 5 years, there have been no clear instances of the hazard mitigation plan being incorporated or integrated into any county or city processes; there are however, many projects that require formal integration of the hazard mitigation plan into their plans and regulations over the next five years.

Periodic annual tracking of the Plan is required to ensure that the mitigation actions are implemented over the 5-year cycle and that the Plan is kept current based on the latest information about hazards and their impacts. The team members designated by department and jurisdiction in Table 20-1 are responsible for monitoring, evaluating, and updating the Plan for their participating jurisdiction. The Core Team will meet on an annual basis or when other plans are being developed, reviewed, or updated. In addition to annual monitoring, the Plan will be similarly reviewed immediately after extreme weather events, including, but not limited to, state and federally declared disasters.

Monitoring

The Plan will be monitored in its entirety, using multiple methods including but not limited to:

- Public participation
- Plan evaluation methods
- Administration of identified mitigation actions
- Incorporating planning mechanisms

The parties responsible for the monitoring of mitigation action progress are the same community members listed in Table 20-1. All jurisdictions will monitor progress on their individual Plan Progress Update Logs in Appendix F. These logs will serve as a basis for progress reports for the annual core team meetings. The report will also document the steps to be followed to develop action items into a policy or project that has not yet been completed, and how the Plan has been incorporated into other planning mechanisms.

Evaluation

As part of the annual tracking of the Plan, Core Planning Team members will evaluate changes in risk and hazard data associated with the planning area to determine if there are any needed changes to mitigation action timelines, prioritization, or if any action needs to be amended, added, or deleted. This is an opportunity to detect if there are any new obstacles to the implementation of actions, such as funding, political, legal, or coordination within departments, such as changes in departmental programs and goals that may affect mitigation priorities.

The Plan evaluation is also an opportunity to review the effectiveness of public participation and outreach efforts and to update or expand upon those efforts. The effectiveness of public participation can be measured by surveys, the number of website hits, the number of people in attendance, and the number of materials printed. The annual evaluation process is necessary to make any necessary amendments to the Plan to keep the Plan relevant and most effective in mitigating the identified hazards in the Plan. Team meetings for evaluating the Plan will include a sign-in sheet to record attendance and a brief report that identifies any changes to the Plan or the local jurisdiction's implementation process needed for continued success.

Updating

The designated Core Planning Team members from each community evaluating the Plan will prepare annual reports that will be used to keep the Plan updated and will keep them on file. Major changes to mitigation actions, the overall direction of the Plan, or the policies contained within the Plan are subject to formal adoption by each city, and the amendment will be submitted to TDEM. To determine whether to recommend approval or denial of a Plan amendment request, the County and each city will consider the following factors:

- Changes in information, data, or assumptions from those on which the Plan was based.

- New issues or needs that were not adequately addressed in the Plan.
- Errors or omissions made in the identification of issues or needs during the preparation of the Plan.

This annual Plan Maintenance process enables Lee County and participating jurisdictions to keep their Hazard Mitigation Plan relevant based on the latest information, capabilities, needs, and community input. The process also provides an opportunity to ensure that mitigation actions meet the goals in this Plan and that they are implemented in the manner they were intended. This is a valuable opportunity to identify mitigation actions in the annual report that were not successful and to recommend the removal of those that are no longer needed.

Five-Year Review and Update

The Plan will be thoroughly reviewed by Planning Team members at the end of three years from the approval date to determine whether there have been any significant changes in the County that may require updating, amending, or deleting parts of the Plan. It is wise to begin considering Plan updates in advance of the five-year deadline due to the timelines for grant funding, Plan reviews, and to ensure eligibility. Oftentimes, the timelines for grant and planning cycles can take more than a year to apply and receive funding.

The 5-year Plan review allows for evaluating successful and unsuccessful mitigation actions, documenting avoided losses, and considering factors affecting the Plan. Necessary revisions will be summarized and integrated into the existing Plan or reserved for the 5-year Plan update. The revised or new Plan will be submitted to TDEM and FEMA for final review and approval.

Continued Public Involvement

Input from the stakeholders and the public was an integral part of the preparation of this Plan and will remain integral while the Plan is reviewed, revised, and updated. This Plan will be posted on the County and city websites and made available at key locations where the public will be invited to review and provide feedback via e-mail. All public participation will be available for a minimum of two weeks, or as outlined by FEMA requirements. Core Planning Team members are tasked with notifying stakeholders and community members when the annual review of the Plan is undertaken.

The Core Team may also develop a voluntary citizen/stakeholder advisory group comprised of members from throughout the planning area to provide feedback on an annual basis. The public and stakeholders must maintain a vested interest in the Plan to keep the Plan relevant as it relates to the broader community's sustained health, safety, and welfare. Media such as websites, social media, local newspapers, and radio stations will be used to notify the public of any maintenance or periodic review activities taking place.

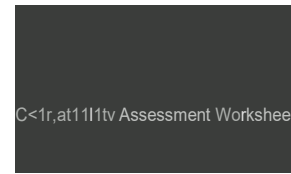
Public participation is critical to creating a Plan that is enduring and one that has meaning to the community. The direct involvement of local officials and the public has been and will continue to be sought during the development, implementation, and maintenance phases of this Lee County Hazard Mitigation Plan Update.

APPENDIX A: COMMUNITY CAPABILITIES

Planning and regulatory capabilities are identified as the most impactful to how a municipality or utility can plan and develop in a way that is disaster resilient. The most critical capabilities related to planning and development, such as Capital Improvement Programs, subdivision ordinances, comprehensive plans, transportation plans, and zoning codes, are mostly in place for the cities of Lexington and Giddings. They both have recently updated building codes, and both regularly enforce subdivision and zoning ordinances. As is typical of smaller communities, many critical municipal functions and roles are carried out by people who are required to wear “many hats” as part of their job description. This strategy can be cost-effective for cash-strapped municipalities, but it often leads to roles being carried out by those who may be experts in one area or field and not necessarily the secondary and tertiary roles they are needed for. This also leads to the requirement to contract with outside consultants who may be experts in specific areas but do not always have the local knowledge and background that can be critical to success. Both Giddings and Lexington lack an official full-time planner and contract out these services, while also being supported by strong local leadership and community engagement. Lexington is currently lacking a Floodplain Administrator and an adopted Flood Damage Prevention Ordinance. A mitigation action has been added, showing Lexington’s commitment to meeting NFIP requirements and protecting citizens from flooding.

In addition to supplementing existing planning capacities through contracting, studies also need to be conducted to thoroughly identify gaps in capabilities and make comparisons to communities of similar size and economy. The communities throughout the planning area currently utilize engineering and grant writing consultants who are meeting these capability needs. Fiscal mechanisms to fund growth also need to be explored throughout the planning area, such as drainage utility fees and impact fees. Lastly, educational programs and literature related to hazard mitigation should be strengthened within all municipalities, which includes close coordination with the local school districts.

The school districts of Lee County can enhance their existing capabilities through strategic planning and investments in the mitigation projects identified within this plan. Partnering with local governments and non-profit organizations to enhance access to local experts is a good next step to increase capabilities without straining existing budgets.



Capability Assessment Worksheet

Jurisdiction: Lee County

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. Complete one worksheet for each jurisdiction.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, code, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction has in place.

Plans	Yes/No Year	Does the plan address hazards?
		Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N6	
Capital Improvements Plan	ND	
Economic Development Plan	Nn	
Local Emergency Operations Plan	Yts	
Continuity of Operations Plan	Nb	
Transportation Plan	Yes	
Stormwater Management Plan	0	
Community Wildfire Protection Plan	Wo	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		

Lee County Hazard Mitigation Plan 2025

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Building Code, Permitting, and Inspections	Yes/No	Are codes adequately enforced?
Building Code		Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score:
Fire department ISO rating	Yes	Rating: 1
Site plan review requirements	No	

Land Use Planning and Ordinances	Yes/No	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	No		
Subdivision ordinance	Yes	yes to both	
Floodplain ordinance	Yes	yes to both	
Natural hazard specific ordinance (stonrnwater, steep slope, wildfire)	No		
Flood insurance rate maps	Yes		
Acquisition of land for open space and public recreation uses	No		
Other			

How can these capabilities be expanded and improved to reduce risk?



Administrative and Technical

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.

Administration	Yes/No	Describe capability
		Is coordination effective?
Planning Commission	No	
Mitigation Planning Committee		es
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	No	
Mutual aid agreements	Yes	yes
Staff	Yes/No FT/PT ¹	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	No	
Floodplain Administrator Floodplain Administrator		only 1 Q.f.SOY
Emergency Manager		I
Community Planner		
Civil Engineer	Yes	on contract basis
GIS Coordinator	✓	ef->Orl
Other		

¹ Full-time (FT) or part-time (PT) position

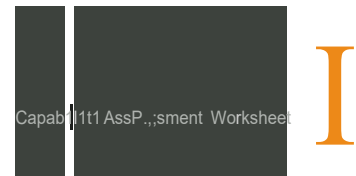
Lee County Hazard Mitigation Plan 2025

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Capability Assessment Worksheet

Technical	Yes/No	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	Yes	yes, everbridge / reverse 911
Hazard data and information	No	
Grant writing	Yes	yes
Hazus analysis	No	
Other		

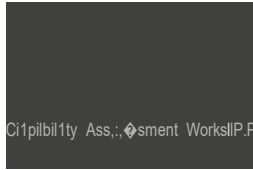
How can these capabilities be expanded and improved to reduce risk?



Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resource	Has the funding resource been used in past and for what type of activities?	Could the resource be used to fund future mitigation actions?
Capital improvements project funding	No	
Authority to levy taxes for specific purposes	ND	
Fees for water, sewer, gas, or electric services	No	
Impact fees for new development	No	we do hcu/e n{utm,-o.J ttp\0\i<.:o-, fpp
Storm water utility fee	No	
Incur debt through general obligation bonds and/or special tax bonds		Il t171.1ft
Incur debt through private activities	ND	
Community Development Block Grant	Yts	
Other federal funding programs	Yis	-\iv ? G\,Rv\,t""\ ?\''
State funding programs	Yes	? \fff\9\ \<"Cud:'S ? \ ?
Other		J v
How can these capabilities be expanded and improved to reduce risk?		



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Education and Outreach

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	
Ongoing public education or Information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	N?	
Natural disaster or safety related school programs	Xo	
StormReady certification	No	
Firewise Communities certification	N6	
Public-private partnership initiatives addressing disaster-related Issues	?	^'tr_S(_?A:fl\.?J.io Q{YI-,GL?s) (QJ_ -+r) 11Hnv h U-J., -l-,4> (•O11vi--k A -
Other		0
How can these capabilities be expanded and improved to reduce risk?		



Lee County Mitigation Action Plan Update Community Capabilities Table

	Capabilities									
        	Comprehensive Plan									The planning and regulatory mechanisms that guide growth and development and emergency plans
	Economic Development Plan									
	Transportation Plans									
	Emergency Operation Plans		X	X	X					
	Continuity of Operations Plan									
	Stormwater Management Plan									
	Zoning ordinances									
	Building Codes (follow fire codes)									
	Subdivision Ordinance (Court Order)									
Floodplain Ordinance (Court Order)										
       	Engineers									This refers to staff, skills, and tools a community has. So provide staff numbers and any credentials or certificate trainings in reference to hazard mitigation
	Planners									
	GIS Analysts									
	Building inspectors									
	Emergency managers									
	Grant writers									
	Chief Building Official									
	Floodplain Administrator									
   	CDBG									The resources that a jurisdiction has access to or is eligible to use to fund mitigation efforts
	Capital Improvement Program		X	X	X					
	Stormwater utility fees									
	Development impact fees									
   	School programs		X	X	X					The programs and methods already in place that could be used to implement mitigation activities
	Firewise communities									
	Storm Ready communities									
	Hazard awareness campaigns									
	Public Information Officer									
	Community newsletter									

Capability Assessment Worksheet

Jurisdiction: _____

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. Complete one worksheet for each jurisdiction.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction has in place.

Plans	Yes/No Year	Does the plan address hazards?			
		Does the plan Identify projects to include in the mitigation strategy?			
		Can the plan be used to Implement mitigation actions?			
Comprehensive/Master Plan	YES	0	NO	NO	
Capital Improvements Plan	NO				
Economic Development Plan	YES				
Local Emergency Operations Plan	YES	YES	YES	YES	
Continuity of Operations Plan	NO				
Transportation Plan	NO				
Stormwater Management Plan	YES	NO	NO	YES	
Community Wildfire Protection Plan	YES	Emergency Management Plan			
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N/A				

Worksheet 4.1

Capability Assessment Worksheet

Building Code, Permitting, and Inspections	Yes/No	Are codes adequately enforced?
Building Code:	YES	Version/Year: 2018 ICC Code Book
Building Code Effectiveness Grading Schedule (BCEGS) Score	YES	Score: 4
Fire department ISO rating	YES	Rating: 4
Site plan review requirements	YES	In House

Land Use Planning and Ordinances	Yes/No	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance	YES	Enforced Daily
Subdivision ordinance		Enforced Daily
Floodplain ordinance	YES	Enforced Daily
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	NO	
Flood insurance rate maps	YES	
Acquisition of land for open space and public recreation uses	YES	Giddings Parks System
Other		

How can these capabilities be expanded and improved to reduce risk?



Administrative and Technical

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.

Administration	Yes/No	Describe capability
Planning Commission	YES	YES
Mitigation Planning Committee	NO	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	YES	
Mutual aid agreements	YES	
Staff		
	Yes/No FT/PT	☐ staffing adequate to enforce regulations? ☐ Is staff trained on hazards and mitigation? ☐ Is coordination between agencies and staff effective?
Chief Building Official	YES	YES YES NO
Floodplain Administrator	YES	YES YES NO
Emergency Manager	YES	YES YES NO
Community Planner	NO	
Civil Engineer	YES	Contracted
GIS Coordinator	NO	
Other		

1 ☐ Full-time (Ft) or part time (PT) position

Worksheet 4.1

Capability Assessment Worksheet

Technical	Yes/No	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	YES	YES
Hazard data and information	YES	
Grant writing	NO	
Hazus analysis	0	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Worksheet 4.1

Capital Hazard Assessment Worksheet



Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resource	I NO	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	NO	
Authority to levy taxes for specific purposes	NO	
Fees for water, sewer, gas, or electric services	YES	
Impact fees for new development	NO	
Storm water utility fee	NO	
Incur debt through general obligation bonds and/or special tax bonds	YES	
Incur debt through private activities	NO	
Community Development Block Grant	YES	
other federal funding programs	N/A	
State funding programs	YES	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Worksheet 4.1

Capability Assessment Worksheet

Education and Outreach

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	0	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	YES	
Natural disaster or safety related school programs	NO	
StormReady certification	NO	
Firewise Communities certification	NO	
Public-private partnership initiatives addressing disaster-related issues	NO	
Other		
How can these capabilities be expanded and improved to reduce risk?		



Capability Assessment Worksheet

Jurisdiction: City of Lexington

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. Complete one worksheet for each jurisdiction.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction has in place.

Plans	Yes/No Year	Does the plan address hazards?
		Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Y	
Capital Improvements Plan	N	
Economic Development Plan	N	
Local Emergency Operations Plan	Y	
Continuity of Operations Plan	Y	
Transportation Plan	N	
Stormwater Management Plan	N	
Community Wildfire Protection Plan	N	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	

Capability Assessment Worksheet

Building Code, Permitting, and Inspections	Yes/No	Are codes adequately enforced?
Building Code	Y	Version/Year: ICC - 2018, 2017 electrical
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating	Y	Rating:
Site plan review requirements	Y	
Land Use Planning and Ordinances	Yes/No	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance	Y	
Subdivision ordinance	Y	
Floodplain ordinance	N Y	Lee Co.
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	N	
Acquisition of land for open space and public recreation uses	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Administrative and Technical

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.

Administration	Yes/No	Describe capability Is coordination effective?
Planning Commission	Y	Council
Mitigation Planning Committee	Y	Council, County
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	
Mutual aid agreements	Y	
Staff	Yes/No FT/PT ¹	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	Y	Y
Floodplain Administrator	N	
Emergency Manager	Y	Y
Community Planner	Y	Council: EDC - Yes
Civil Engineer	Y	Y
GIS Coordinator	Y	Y
Other		

1 Full-time (FT) or part-time (PT) position

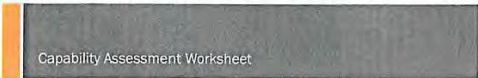
Capability Assessment Worksheet

Technical	Yes/No	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	y	y
Hazard data and information	N	
Grant writing	y	
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resource	Access/ Eligibility (Yes/No)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	Y	
Other federal funding programs	Y	
State funding programs	Y	
Other		
How can these capabilities be expanded and improved to reduce risk?		

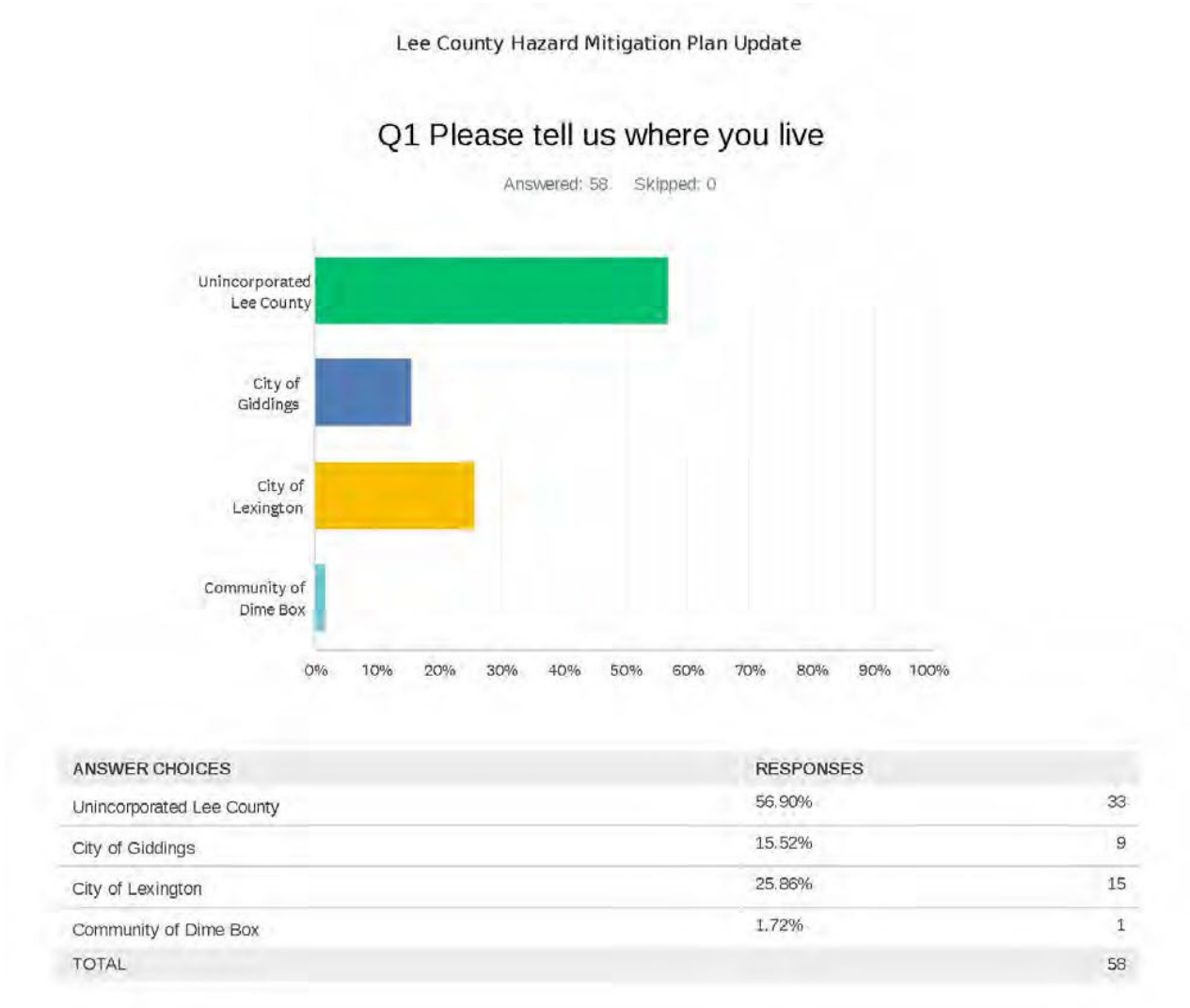


Education and Outreach

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

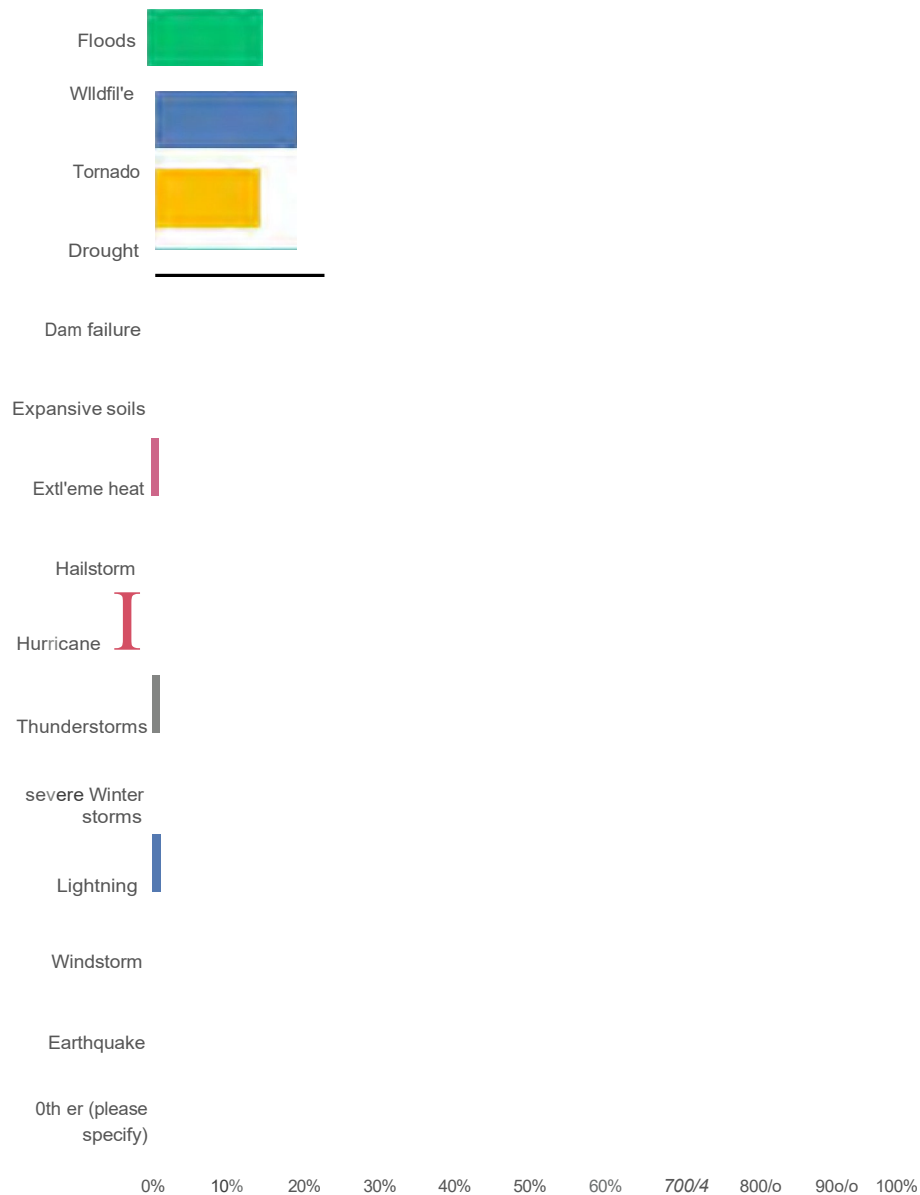
Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	N	
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

APPENDIX B: SURVEY



Q2 Please select the hazard you think is the highest threat to you, your business and/or your community. (Please check only one)

Answered: 58 Skipped: 0



Lee County Hazard Mitigation Plan 2025

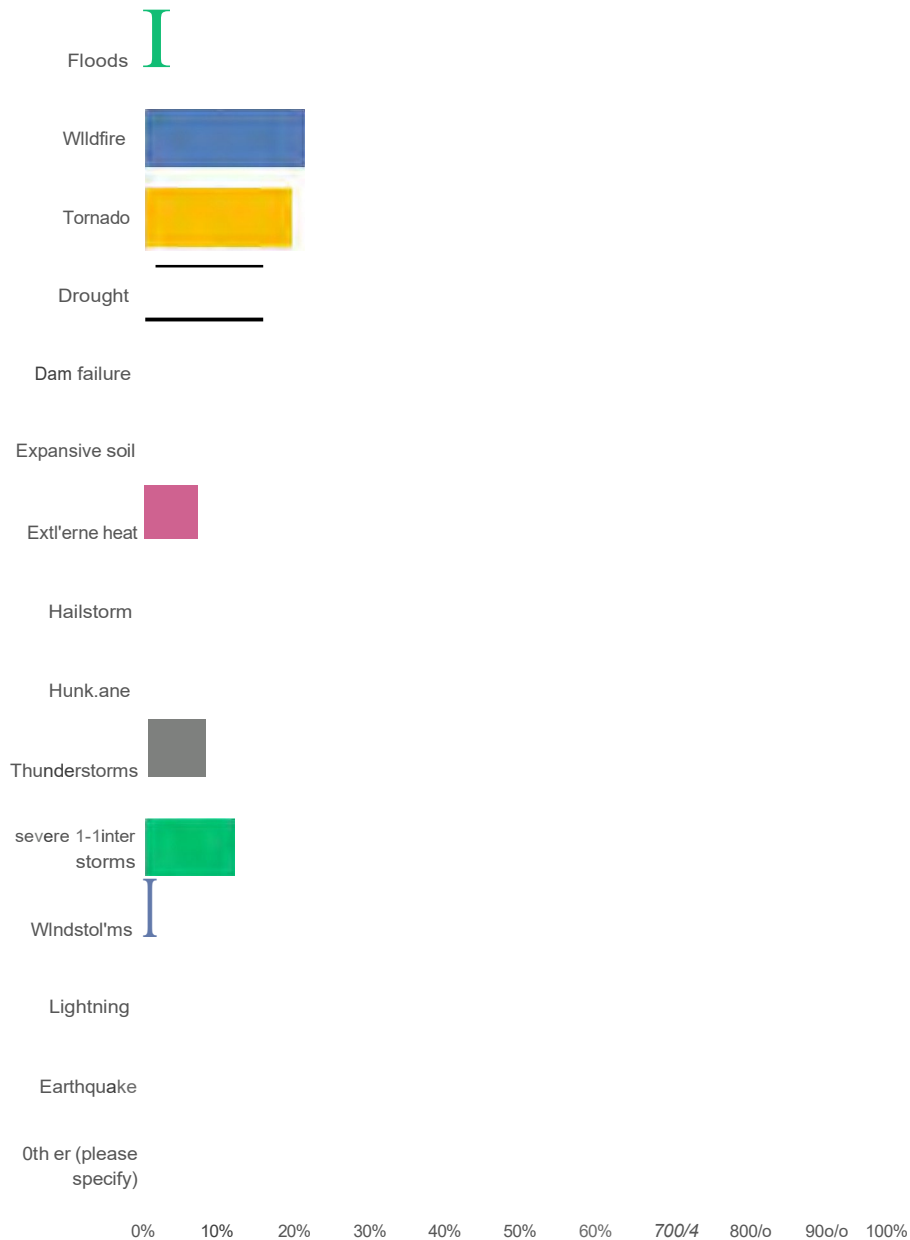
Lee County Hazard Mitigation Plan Update

ANSWER CHOICES	RESPONSES	
Floods	15.52%	9
Wildfire	18.97%	11
Tornado	13.79%	8
Drought	22.41%	13
Dam failure	0.00%	0
Expansive soils	0.00%	0
Extreme heat	5.17%	3
Hailstorm	0.00%	0
Hurricane	3.45%	2
Thunderstorms	5.17%	3
severe winter storms	5.17%	3
Lightning	5.17%	3
Windstorm	3.45%	2
Earthquake	0.00%	0
Other (please specify)	1.72%	1
TOTAL		58

Lee County Hazard Mitigation Plan Update

Q3 Please select the hazard you think is the second highest threat to you, your business and/or your community. (Please check only one)

Answered: 57 Skipped: 1



Lee County Hazard Mitigation Plan 2025

Lee County Hazard Mitigation Plan Update

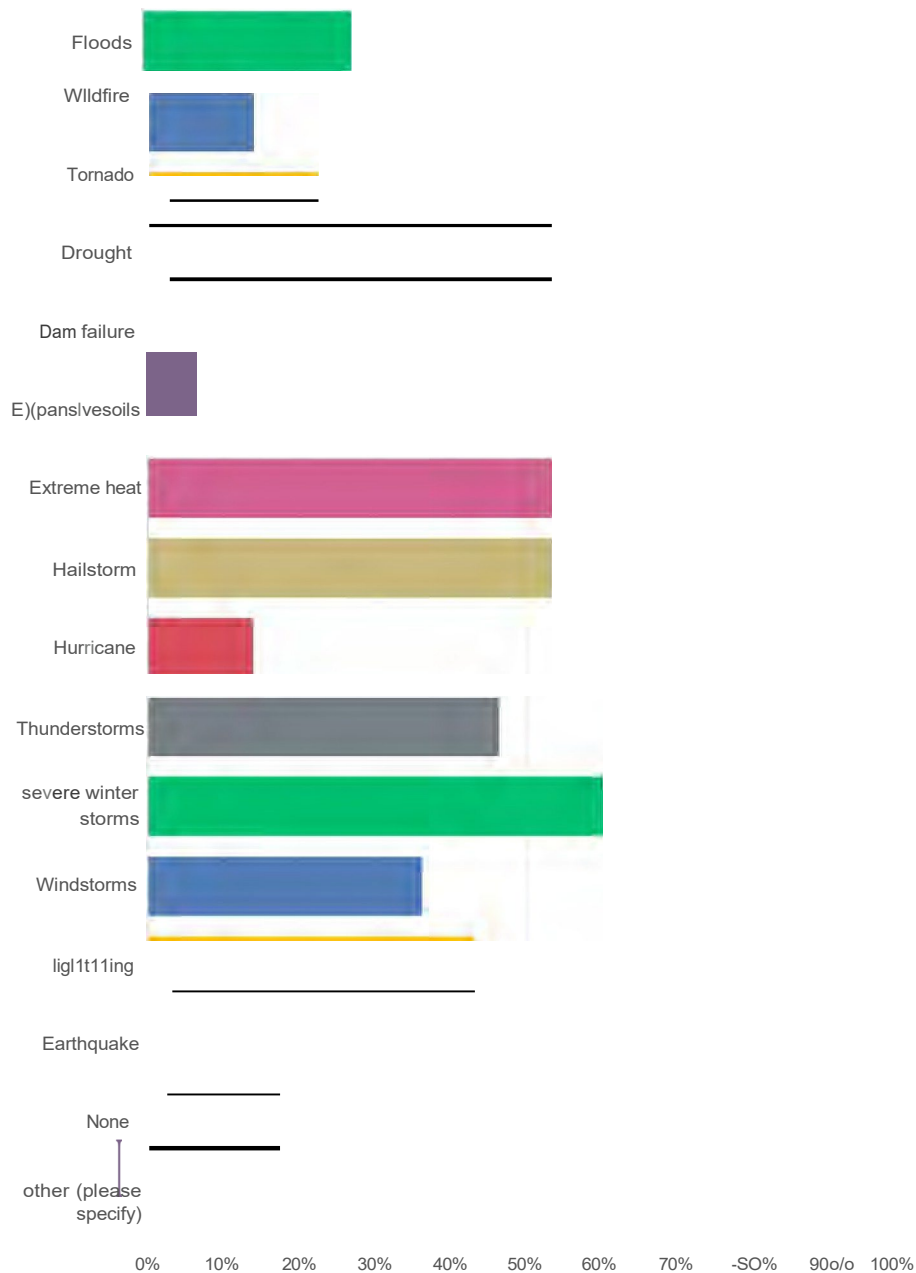
ANSWER CHOICES

RESPONSES

Floods	3.51%	2
Wildfire	21.05%	12
Tornado	19.30%	11
Drought	15.79%	9
Dam failure	0.00%	0
Expansive soil	0.00%	0
Extreme heat	7.02%	4
Hailstorm	10.53%	6
Hurricane	0.00%	0
Thunderstorms	7.02%	4
severe winter storms	12.28%	7
Windstorms	1.75%	1
Lightning	0.00%	0
Earthquake	0.00%	0
Other (please specify)	1.75%	1
TOTAL		57

Q4 While living here in Lee County, have you experienced a disaster? (please check all that apply)

Answered: 58 Skipped: 0



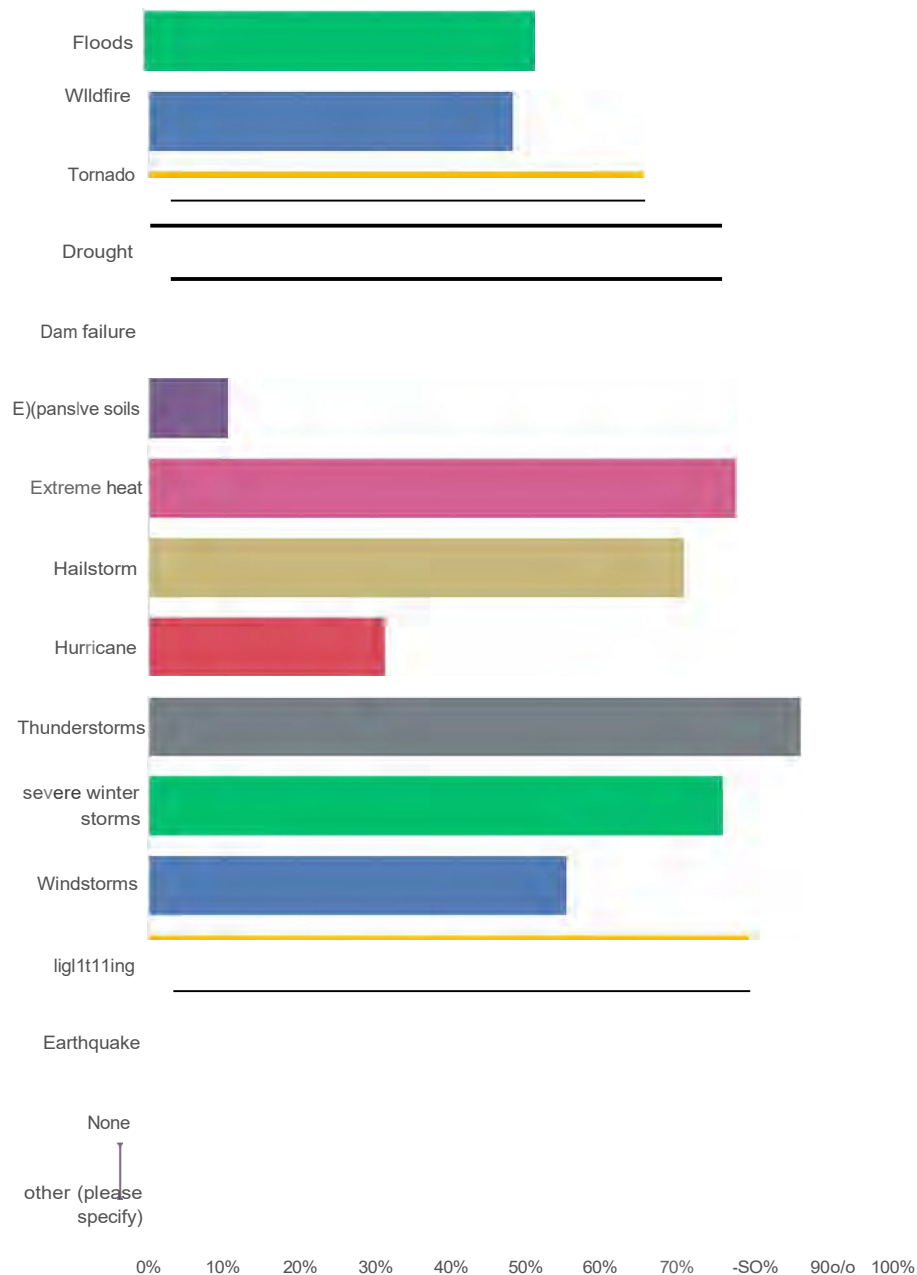
Lee County Hazard Mitigation Plan 2025

Lee County Hazard Mitigation Plan Update

ANSWER CHOICES	RESPONSES	
Floods	27.59%	16
Wildfire	13.79%	8
Tornado	22.41%	13
Drought	53.45%	31
Dam failure	0.00%,,	0
Expansive soils	6.90%	4
Extreme heat	53.45%	31
Hailstorm	53.45%	31
Hurricane	13.79%	8
Thunderstorms	46.55%	27
severe winter storms	60.34%	35
Windstorms	36.21%	21
Lightning	43.10%	25
Earthquake	0.00%	0
None	17.24%	10
Other (please specify)	1.72%	1
Total Respondents: 58		

Q5 Which of the following are likely to occur in your area at least once in your lifetime? (please check all that apply)

Answered: 58 Skipped: 0



Lee County Hazard Mitigation Plan 2025

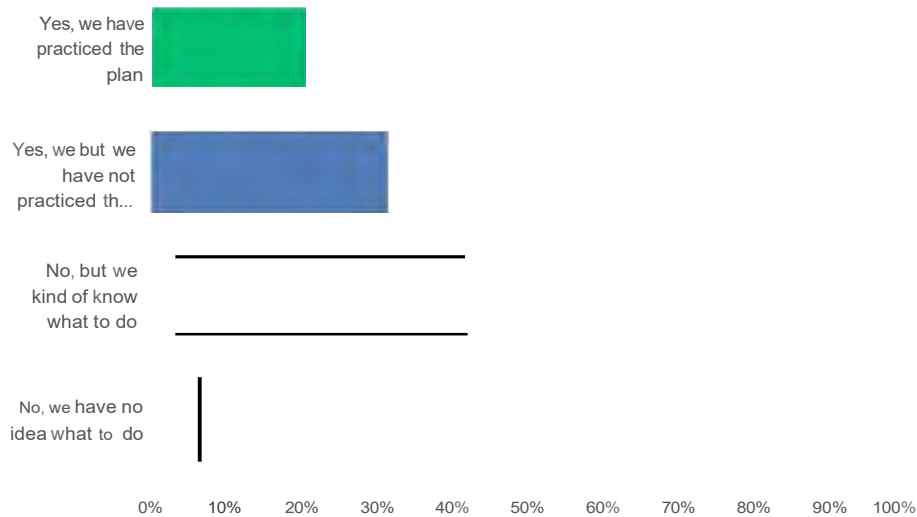
Lee County Hazard Mitigation Plan Update

ANSWER CHOICES	RESPONSES	
Floods	51,72%	30
Wildfire	48,28%	28
Tornado	65,52%	38
Drought	75,86%	44
Dam failure		0
Expansive soils	10,34%	6
Extreme heat	77,59%	45
Hailstorm	70,69%	41
Hurricane	31,03%	18
Thunderstorms	86,21%	50
severe winter storms	75,86%	44
Windstorms	55,17%	32
Lightning	79,31%	46
Earthquake	1,72%	1
None	0,00%	0
other (please specify)	1,72%	1
Total Respondents: 58		

Lee County Hazard Mitigation Plan Update

Q6 My household has a plan in the event of a disaster such as a flood, tornado, etc.

Answered: 58 Skipped: 0

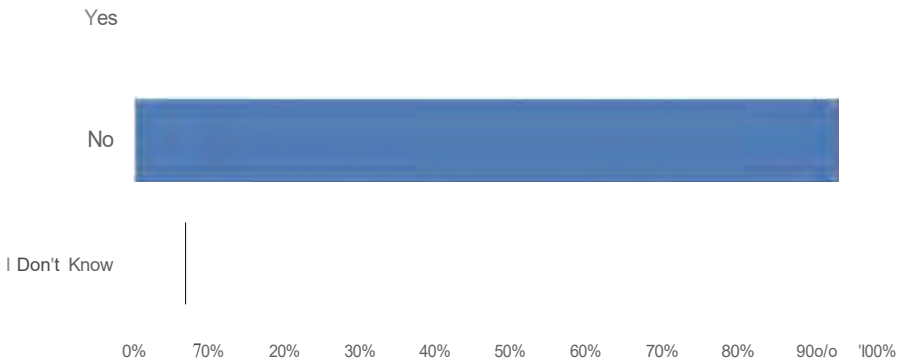


ANSWER CHOICES	RESPONSES	
Yes, we have practiced the plan	20.69%	12
Yes, we but we have not practiced the plan	31.03%	18
No, but we kind of know what to do	41.38%	24
No, we have no idea what to do	6.90%	4
TOTAL		58

Lee County Hazard Mitigation Plan Update

Q7 Is your home located in a floodplain?

Answered: 58 Skipped: 0



ANSWER CHOICES

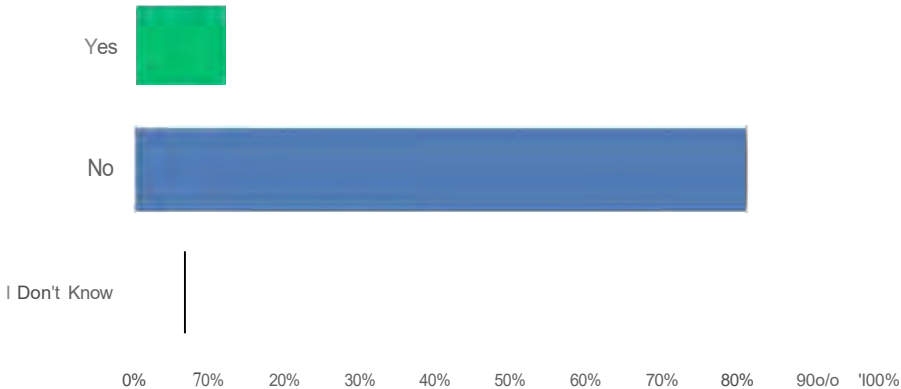
Yes	
No	
I Don't Know	
TOTAL	

RESPONSES

0.00%	0
93.10%	54
6.90%	4
	58

QS Do you have flood insurance?

Ans!M!recl: 58 Skipped: o



ANSWER CHOICES

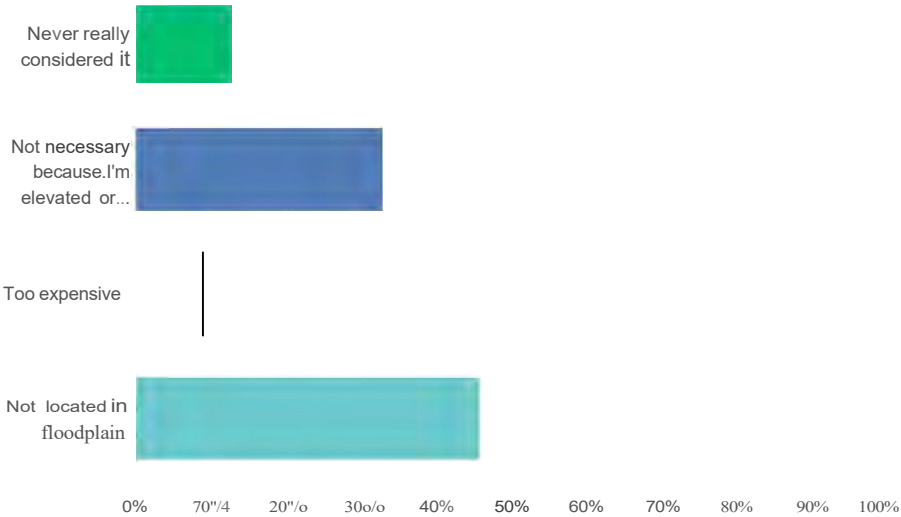
Yes	
No	
I Don't Know	
TOTAL	

RESPONSES

12.07%	7
81.03%	47
6.90%	4
	58

Q9 If you do not have flood insurance, why not?

Answered: 55 Skipped: 3

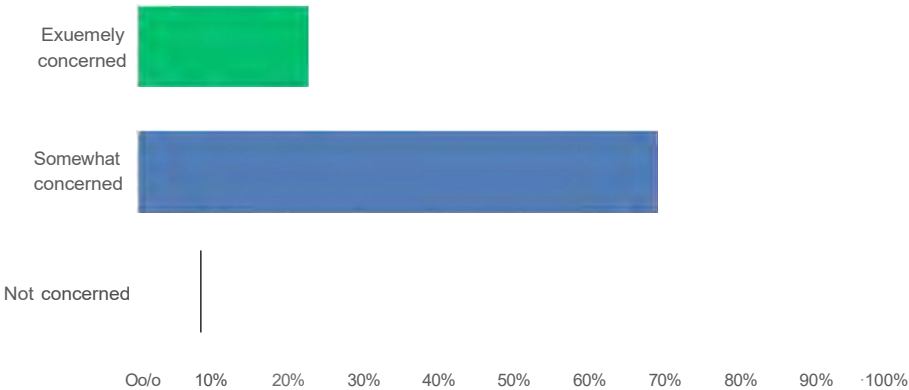


ANSWER CHOICES	RESPONSES	
Never really considered it	12.73%	7
Not necessary because I'm elevated or otherwise protected	32.73%	18
Too expensive	9.09%	5
Not located in floodplain	45.45%	25
TOTAL		55

Lee County Hazard Mrtigation Plan Update

Q10 How concerned are you about the possibility of you or your community being impacted by a disaster?

Ans1111!!/ed: 58 Skipped: 0

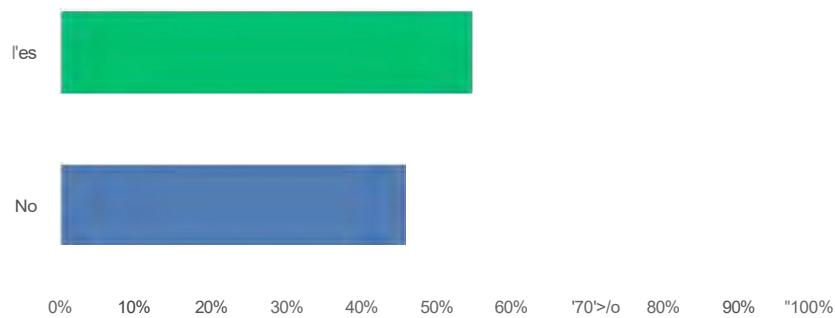


ANSWER CHOICES	RESPONSES	
Extremely concerned	22.41%	13
someWhat concerned	68.97%	40
Not concerned	8.62%	5
TOTAL		58

Lee County Hazard Mitigation Plan Update

Q11 Have you taken any actions to make your home, business and/or community more resistant to hazards?

Answered: 57 Skipped: 1



ANSWER CHOICES

Yes

No

TOTAL

RESPONSES

54.39% (31)

45.61% (26)

31

26

57

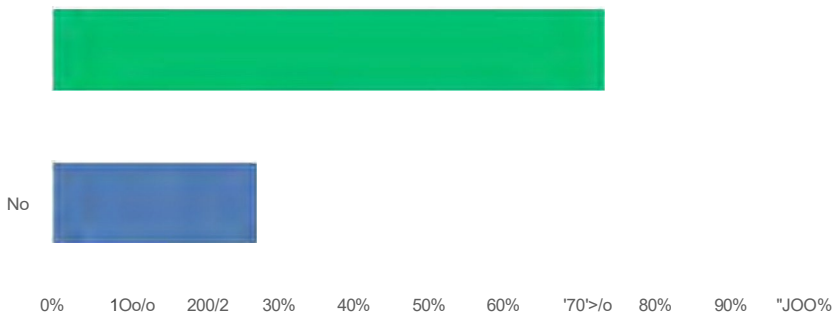
Lee County Hazard Mitigation Plan Update

Q12 If "Yes", please described the action you have taken:

Answered: 33 Skipped: 25

Q13 Are you interested in making your home, business and/or community more resistant to hazards?

Answered: 56 Skipped: 2

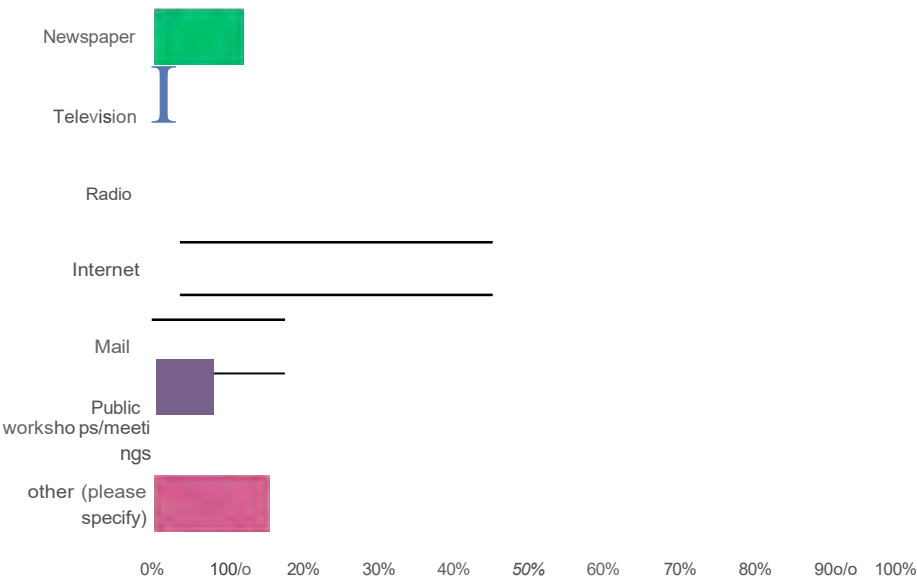


ANSWER CHOICES		RESPONSES	
Yes		73.21% 41/56	41
No		26.79% 15/56	15
TOTAL			56

Lee County Hazard Mitigation Plan Update

Q14 What is the most effective way for you to receive information about how to make your home, business and/or community more resistant to hazards?

Answered: 58 Skipped: 0



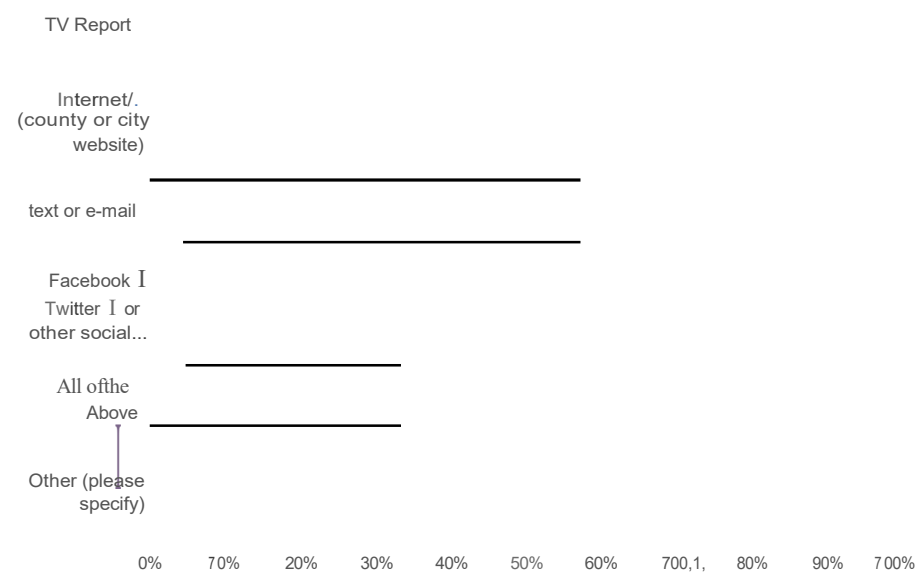
ANSWER CHOICES

RESPONSES

Newspaper	12.07%	7
Television	3.45%	2
Radio	1.72%	1
Internet	44.83%	26
Mail	17.24%	10
Public workshops/meetings	5.17%	3
other (please specify)	15.52%	9
TOTAL		58

Q15 Which of the following would be the best way to alert you and your household to an imminent disaster?

Answered: 58 Skipped: 0

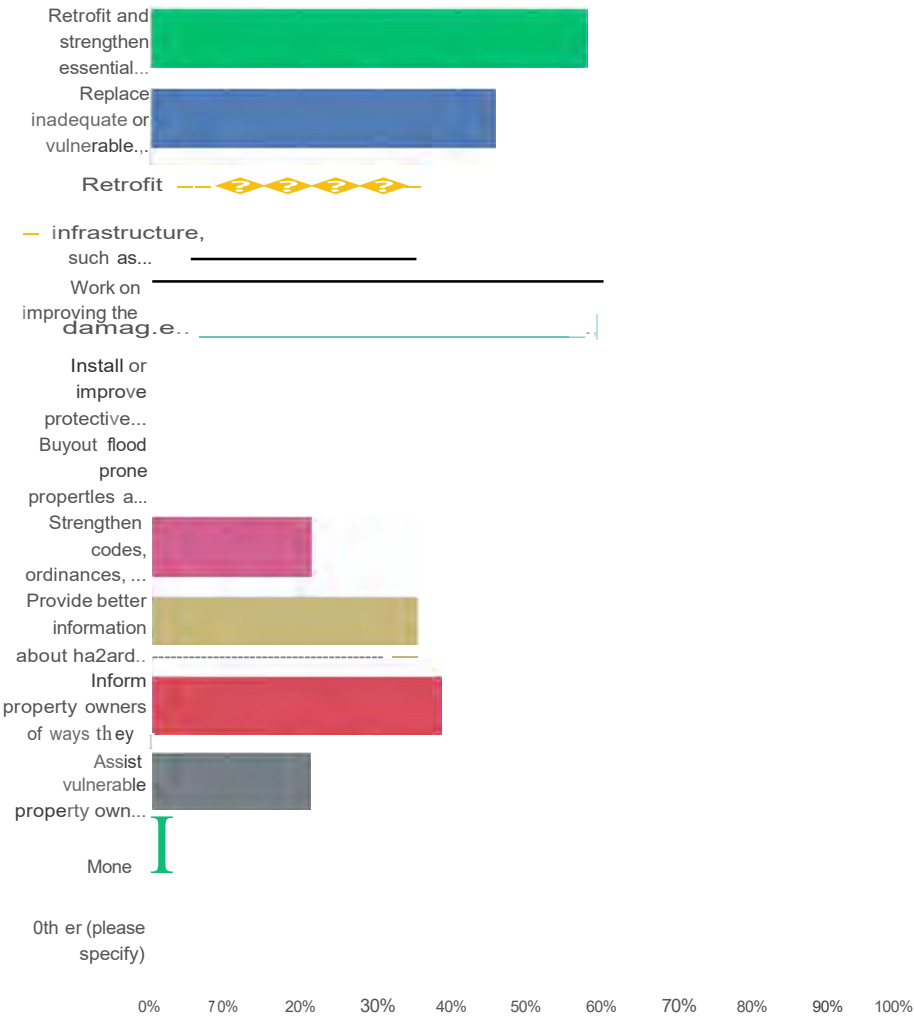


ANSWER CHOICES	RESPONSES	
TV Report	0.00%	0
Internet / (county or city website)	5.17%	3
text or e-mail	56.90%	33
Facebook / Twitter / OR other social media	3.45%	2
All of the Above	32.76%	19
Other (please specify)	1.72%	1
TOTAL		58

Lee County Hazard Mitigation Plan Update

Q16 Which of the following mitigation activities do you believe your local government should employ to reduce or eliminate the risk of future hazard damages in your neighborhood and/or community. (Please check all that apply)

Answers: 57 Skipped: 1



Lee County Hazard Mitigation Plan 2025

Lee County Hazard Mitigation Plan Update

ANSWER CHOICES

RESPONSES

Retrofit and strengthen essential facilities such as police, fire, emergency medical services, hospitals, schools, etc.	57.89%	33
Replace inadequate or vulnerable bridges and roads,	45.61%	26
Retrofit infrastructure, such as elevating roadways and improving drainage systems.	35.09%	20
Work on improving the damage resistance of utilities (electricity, communications, water/ wastewater facilities, etc.).	59.65%	34
Install or improve protective structures, such as floodwalls and levees or individual/community safe rooms.	5.26%	3
Buyout flood prone properties and maintain as open-space.	8.77%	5
strengthen codes, ordinances, and plans to require higher hazard risk management standards.	21.05%	12
Provide better information about hazard risk and high-hazard areas.	35.09%	20
Inform property owners of ways they can mitigate damage to their properties,	38.60%	22
Assist vulnerable property owners with securing funding to mitigate impacts to their property(s).	21.05%	12
None	3.51%	2
other (please specify)	8.77%	5
Total Respondents: 57		

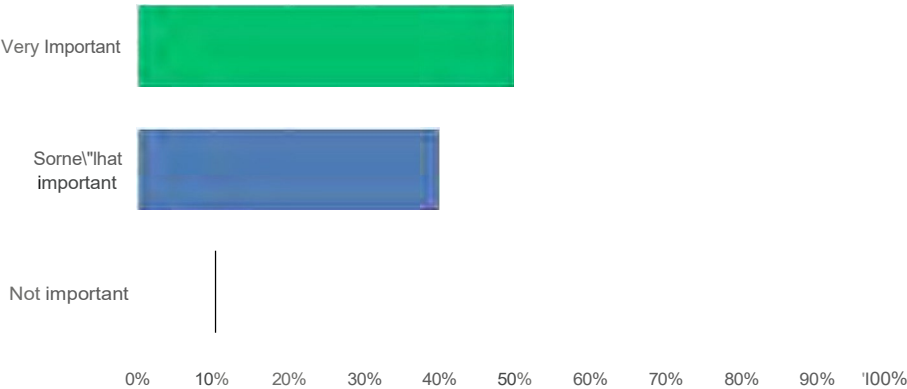
Q1 7 Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?

AI1SIM:red: 28 Skipper! SO

Lee County Hazard Mitigation Plan Update

Q18 Prevention of Hazards is any administrative or regulatory action that influences the way land is developed and buildings are built. Some examples include planning and zoning, building codes, open space prevention, and flood plain regulation. Please rank how important you believe it is for your community to pursue the prevention of hazards .

Answered: 58 Skipped: 0



ANSWER CHOICES

- very Important
- somewhat important
- Not important
- TOTAL

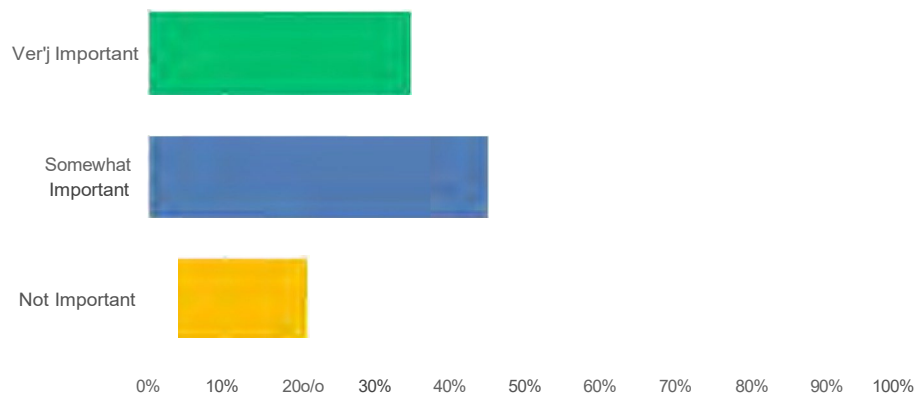
RESPONSES

50.00%	29
39.66%	23
10.34%	6
	58

Lee County Hazard Mitigation Plan Update

Q19 Reducing community risks from hazards can also include property protection. This involves actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevations, structural retrofits and storm shutters. How important is it to you that your community should pursue property protection?

Unanswered: 58 Skipped: 0



ANSWER CHOICES

Very Important
somewhat Important
Not Important
TOTAL

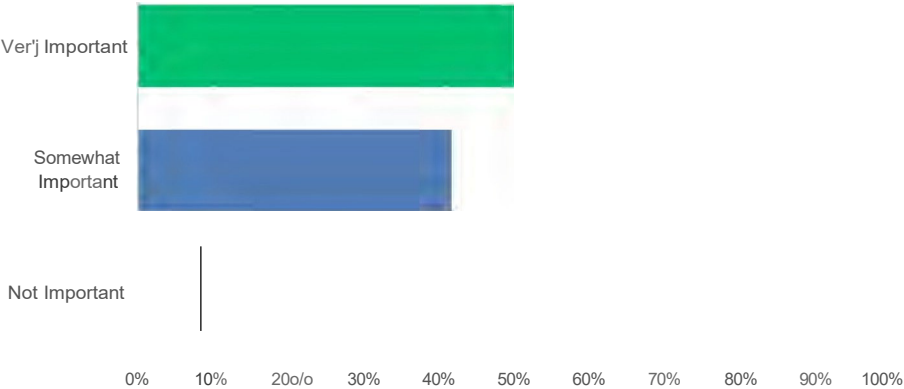
RESPONSES

34.48%	20
44.83%	26
20.69%	12
	58

Lee County Hazard Mitigation Plan Update

Q20 Reducing community risks from hazards can also include natural resource protection. This kind of protection is in addition to minimizing hazard losses, preserve or restoring the functions of natural systems. Some examples include flood plain protection, habitat preservation, slope stabilization, riparian buffers and forest management. Do you believe this is important for your community to pursue? Please rank below.

Answered: 58 Skipped: 0



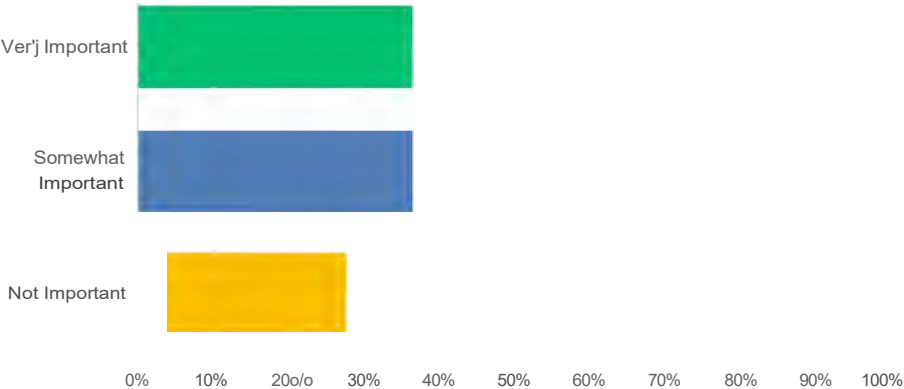
ANSWER CHOICES		RESPONSES	
Very Important		50.00%	29
somew1at Important		41.38%	24
Not Important		8.62%	5
TOTAL			58

Lee County Hazard Mrtigation Plan Update

Q21 Structural Projects can also help to reduce hazards. These actions are intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, seawalls, detention/retention basins, channel modifications, retaining walls and storm sewers. Do you believe this is important for your community to pursue?

Please rank below.

Answered: 58 Skipped: 0

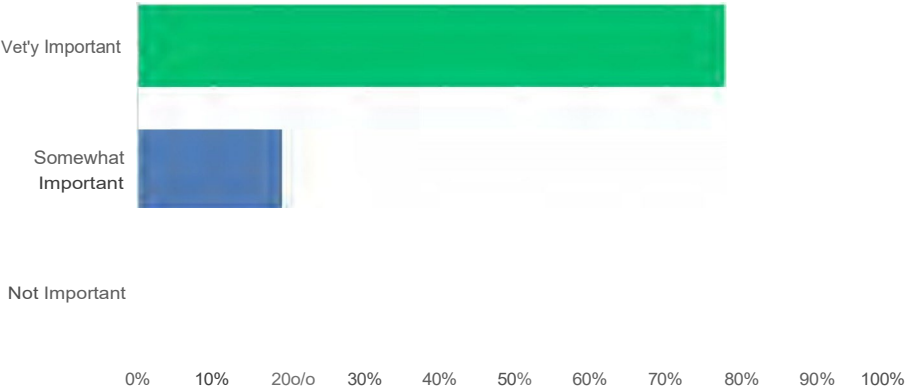


ANSWER CHOICES	RESPONSES	
Very Important	36.21%	21
somew1at Important	36.21%	21
Not Important	27.59%	16
TOTAL		58

Lee County Hazard Mitigation Plan Update

Q22 Emergency Services are actions that protect people and property during and immediately after a hazard event . Some examples include warning systems, evacuation planning, emergency planning, emergency response training and protection of critical emergency facilities/system. Do you believe this is important for your community to pursue? Please rank below.

Answered: 58 Skipped: 0



ANSWER CHOICES

Very Important
somewhat Important
Not Important
TOTAL

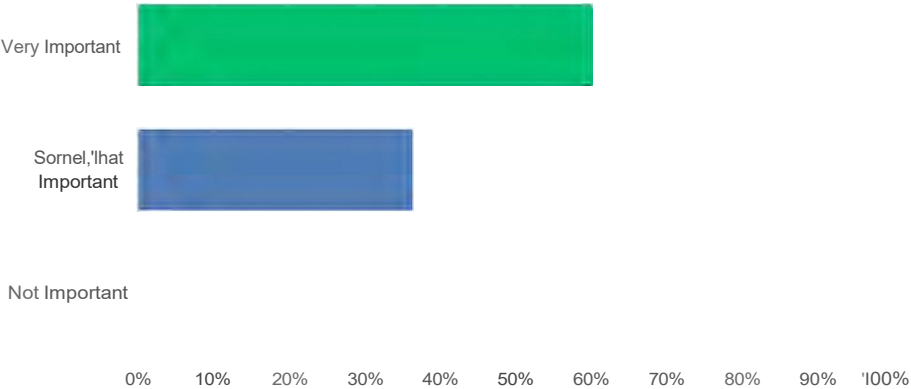
RESPONSES

77.59% 45
18.97% 11
3.45% 2
58

Lee County Hazard Mitigation Plan Update

Q23 Public Education and Awareness are actions to inform citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials and demonstration events. Do you believe this is important for your community to pursue? Please rank below.

Answered: 58 Skipped: 0



ANSWER CHOICES

- very Important
- somewhat Important
- Not Important
- TOTAL

RESPONSES

60,34%	35
36,21%	21
3.45%	2
	58

Lee County Hazard Mitigation Plan 2025

Lee County Hazard Mitigation Plan Update

Q24 If you would like to be notified of upcoming public meetings for the Lee County Hazard Mitigation Plan Update, please leave your name and email below. Thank you for your time! Name:

AttsV\l:l:red: 22 Skipper!· 36

Lee County Hazard Mitigation Plan Update

Q25 e-mail:

Al"Is♦ted. 23 SKlppea; 35

City of Lexington STAPLEE Worksheet

Jurisdiction: City of Lexington												
The project was evaluated based on STAPLEE criteria on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1 = Does not satisfy, 3 = Moderately satisfies, 5 = Strongly satisfies)												
Action Number	Mitigation Action	Socially Acceptable	Technically Feasible	Administratively Possible	Politically Acceptable	Legal	Ecologically Sound	Environmentally Sound	BONUS: Addresses Multiple Hazards (5pts)	BONUS: Complements another entity's efforts (5pts)	Total Score	
1	Monitor Drought Conditions Identify drought indicators, such as precipitation, temperature, surface water levels, soil moisture, etc. Establish a regular schedule for rainfall and report conditions on at least a monthly basis. Hire GIS personnel, well-lit flood history of Lexington with NOAA to create master drought condition.	5	5	5	5	5	5	5			26	
2	Drainage Systems and Flood Control Structures Review sewer to curbs and support tracing infrastructure flow line under by diagrams and inspecting culverts and bridges.	5	5	5	5	5	5	5			35	
3	Assess Vulnerability to Severe Wind Develop a plan to assess the vulnerability to severe wind. Conduct severe wind storm's analysis or commission of kind, evaluate the types of structural damage and existing vulnerabilities within the community to identify severe wind mitigation priorities.	5	5	5	5	5	5	5			36	
4	Purchase NOAA All Hazard Radio Purchase NOAA All Hazard Radio for the fire department, police department, and city hall.	5	5	5	5	5	5	5			36	
5	Hazard Education and Risk Awareness to Homeowners Educate homeowners on how to mitigate their homes from hurricanes, flood and earthquake. Information on city's website and studies with utility etc.	5	5	5	5	5	5	5	5		40	
6	Floodplain Administration Adopt a flood damage prevention ordinance, minimum 5 year minimum to start due to floodplain cannot get retraction.	5	5	5	5	5	5	5			40	
7	Water Conservation Design Award International Plumbing Code 2018. Rebuild sets of 100,000 gallons more strict low-flow fixtures standards for water conservation.	5	5	5	5	5	5	5			40	
8	Water Wells ID Submit report within 90 days of the first (1) inspection under access.	5	5	5	5	5	5	5			40	
9	Elevated Water Tank Build a water tower with 12 volumes water storage capabilities.	5	5	5	5	5	5	5			40	
10	Flood Emergency Response at City Hall and Police Department	5	5	5	5	5	5	5			40	
11	Install Leak Detection Warning System for Ignoring Inspection	5	5	5	5	5	5	5			28	
12	Annual ROW Maintenance	5	5	5	5	5	5	5			40	

City of Giddings STAPLEE Worksheet

City of Giddings STAPLEE											
The projects should be evaluated based on this STAPLEE criteria below on a scale of 1 to 5 indicating the extent to which each action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)		Socially Acceptable	Technically Feasible	Administratively Possible	Politically Acceptable	Legal	Economically Sound	Environmentally Sound	BONUS: Addresses Multiple Hazards (5pts)	BONUS: Complements another entity's efforts (5pts)	Total Score
2	Upgrade Underground Water Lines Phase 2: Implement and construct the water, wastewater, and street improvements based on the established and funded infrastructure improvement plan.	3	5	5	3	5	5	5	5	5	41
4	Outdoor Warning Siren Phase 1: Apply for and receive grant funding for outdoor warning sirens.	5	5	5	5	5	5	5	5		40
5	Hazard Education for Homeowners Educate homeowners on how to mitigate their homes from these hazards. Post educational information on city's website and as trailers with utility bills.	5	5	5	5	5	5	5	5		40
6	Purchase and Install Emergency Generators Install a generator at the water well, Giddings water plant, and the Giddings Police Department.	5	5	5	5	5	5	5	5	5	45
7	Flood Mitigation on South Polk Street. Install new culverts and elevating the street at the intersection of Polk St and US 77 S.	5	5	5	5	5	5	5			35
8	Curb and Gutter Improvements - City Wide	5	5	5	5	5	3	5			33
9	Develop a Resilient Comprehensive Plan for the City of Giddings. Update Building Codes and Zoning Ordinances to ensure future development is more resilient.	5	5	5	5	5	5	5	5		40
10	Drainage Improvement at Veterans and Simms Park	5	5	5	5	5	5	5			35
11	Establish an Emergency Shelter - Potentially at a GISD school	5	5	5	5	5	3	5	5		38
12	Sign Up for a Reverse 911 Warning System and Promote/Educate Citizens on enrollment in R911	5	5	5	5	5	5	5	5		40
13	TDA CDBG New Fire Truck - Pumper, CIP for Firetruck Equipment Vehicle Updates	5	5	5	5	5	5	5		5	40
14	Fuel Break along Creeks along Industrial Park Road, North side of town	5	5	3	5	5	5	5		5	38
15	Develop an alternative access route to Southwest Giddings by creating an overpass at the transition from Belleville - Buleson, W Galveston Street	5	3	5	5	5	3	5	5	5	41

Giddings ISD STAPLEE Worksheet

ISD		The projects should be evaluated based on the STAPLEE criteria below on a scale of 1 to 5 indicating the extent to which each action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)									
	The projects should be evaluated based on the STAPLEE criteria below on a scale of 1 to 5 indicating the extent to which each action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)	Socially Acceptable	Technically Feasible	Administratively Possible	Politically Acceptable	Legal	Economically Sound	Environmentally Sound	BONUS: Addresses Multiple Hazards (5pts)	BONUS: Complements another entity's efforts (5pts)	Total Score
1	Warning Sirens	5	4	4	5	5	5	5	5		38
2	Emergency Storm/Tornado Shelter	5	4	5	5	5	3	3	5		35
3	Industrial Wet-Dry Vacuum	5	5	5	5	5	5	5			35
4	Emergency Generators	5	4	5	5	5	3	3	5		35
5	Hazard Education										40

Lexington ISD STAPLEE Worksheet

LEXINGTON ISD		The projects should be evaluated based on the STAPLEE criteria below on a scale of 1 to 5 indicating the extent to which each action (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)								
Action Number	Mitigation Action	Socially Acceptable	Technically Feasible	Administratively Possible	Politically Acceptable	Legal	Economically Sound	Environment ally Sound	BONUS: Addresses Multiple Hazards (5pts)	Total Score
1	Emergency Warning Sirens	5	4	4	5	5	5	5	5	38
2	Emergency Storm & Tornado Shelter	5	4	4	5	5	5	5	5	38
3	NOAA All-Hazard Radios	5	5	4	5	5	5	5	5	39
4	Emergency Generators	5	4	4	5	5	5	4	5	37
5	Hazard Education	5	5	4	4	5	5	4	5	37

Dime Box ISD STAPLEE Worksheet

[illegible]

APPENDIX D: CRITICAL FACILITIES

The City of Giddings has 23 critical facilities: 10 healthcare facilities, 2 Emergency Operations Facilities, 2 Administrative Facilities, 1 Fire Department, 1 Law Enforcement Facility, 1 Transportation Facility, and 6 Utility Facilities

Giddings ISD has 4 Schools, each with its own set of buildings. Giddings High School, Giddings Middle School, and Giddings Intermediate School are all at the same address, with Giddings Elementary School on the opposite side of town. The Giddings ISD Bus Barn, 3 Main Fields and 5 Gyms, and 2 Cafeterias are at the tri-school campus. Giddings Elementary School has its own separate gym and cafeteria.

Lee County has 5 Administrative Facilities, 3 Emergency Operations Facilities, 8 Fire Departments, 1 Law Enforcement Facility, 1 Transportation Facility, and 4 Utility Facilities.

The City of Lexington has 2 Healthcare Facilities, 3 Utility Facilities, 3 Administrative Facilities, 1 Law Enforcement Facility, and 1 Fire Department.

Lexington ISD has three school campuses: Lexington High School, Lexington Middle School, and Lexington Elementary School.

Dime Box ISD has one central campus for all grades with a few outbuildings.

Note: One structure may serve as multiple critical facilities or have multiple critical functions.

APPENDIX E: ENGAGEMENT DOCUMENTATION

Lee County NHMP Press Release



For more information, contact:

Patty Swords, Project Manager

Langford Community Management Services, Inc.

Patty@lcmsinc.com; 979-480-4949

Lee County Wins Grant to Help Protect Citizens and Property from Natural Disasters

Lee County has been awarded a grant from the Texas General Land Office's Local Hazard Mitigation Plans Program to update the County's Hazard Mitigation Plan. County Judge Frank Malinak explained that the multi-jurisdictional plan will allow local communities to participate in developing plans to reduce long-term risks from hazards and natural disasters.

The County, the Cities of Giddings, Lexington, and Dime Box, school districts, and emergency response agencies will be directly involved, as well as law enforcement and other key stakeholders.

According to FEMA, "Mitigation planning is an investment in the community's future safety and sustainability. Its critical importance includes *protecting public safety* and *preventing loss of life*, reducing harm to existing and future development, and it aids the prevention of damage to a community's unique economic, culture, and environmental assets." The possible effects of a natural disaster could become entwined in every aspect of the community with devastating economic, social, and environmental consequences.

Judge Malinak shared that the final step involves FEMA approval, which then makes the County and local jurisdictions eligible for appropriate disaster mitigation funding.

The County has hired Langford Community Management Services (LCMS) to guide the planning process for FEMA approval. According to Judy Langford, company president, "The hazard mitigation focus for FEMA is to look at a broad set of threats and how those pair with community vulnerabilities. We will consider everything from flood events to hurricanes, tropical storms, severe storms, tornados, hail, lightning, drought, wildfire, extreme heat, and winter storms."

A Core Planning Team will develop mitigation strategies unique to each community by reviewing community capabilities, conducting risk assessments, and identifying mitigation goals and actions. A community survey will be posted online to determine residents' top concerns. The survey will be accessible at public facilities such as libraries, city halls, and the County Courthouse. Two public meetings will be held during the planning process to allow for sufficient public input and comments. The first public meeting will be held in Lexington on Wednesday, September 16,

from 6 p.m. to 8 p.m. at the Lexington ISD Multi Event Center (MEC). The second public meeting will be held in Giddings on Wednesday, September 23, from 6 p.m. to 8 p.m. at the Giddings High School library.

Once jurisdictions adopt the FEMA-approved plan, procedures and protocols will be in place to help ensure citizens' safety, reduce the risk of property damage, and make communities eligible to apply for disaster recovery funding when necessary.

Judge Malinak said he hopes residents become engaged in planning and consider what their households would do in a wildfire, tornado, or other emergency. "This is an opportunity for good, open, honest dialogue," said Judge Malinak. "Maybe it sparks conversation within a household, neighborhood, or business park. Planning for natural disasters at home and work is crucial to safety."

Lee County Emergency Management Coordinator Jason Snelgrove is the local team leader for this initiative. He can be reached at emc@co.lee.tx.us.

Core Team Meeting – Kick-Off Meeting Sign-In Sheet

Thank you for Coming

Please Sign In

LEE CO. - Core 1
November 1, 2023
Lee County Sheriff's Ofc-EOC
11/1/2023

[illegible]

Lee County Kickoff Meeting



Lee County Public Input Request

PUBLIC INPUT REQUEST

Lee County and the Cities of Giddings and Lexington seek feedback as they review and update the Hazard Mitigation Plan. Public input will help the local planning teams identify and analyze potential natural hazards including flooding and drought affecting residents, and recommend possible actions to reduce their impact throughout the County.

A Community Open House will be held in Lexington on **Wednesday, October 16**, from 6 pm – 8 pm at the LISD Multi Event Center. A second Open House will be held in Giddings on Wednesday, October 23, from 6 pm – 8 pm at the GISD High School library.



An online survey is available to the public at <https://www.surveymonkey.com/r/8BBQD73> or use the QR code provided. The planning and grant consultants will be present to facilitate the meeting and answer questions.

Under the Disaster Mitigation Act of 2000, the Federal Emergency Management Agency (FEMA) requires communities to develop a mitigation plan to minimize or eliminate the long-term risk to human life and property from known hazards. **Communities with a FEMA-approved plan are eligible for specific grant funding under the Hazard Mitigation Assistance (HMA) Program and your feedback will help ensure that a plan is developed that will best prepare the area and its residents for future hazards.**



Lee County Public Meeting #1

Lee County Public Meeting #2



Lee County Hazards and Risks Discussion – 6/11/2024



Lee County NHMP Public Engagement Flyer



Lee County

Hazard Mitigation Plan 2025 Update

“By failing to prepare, you are preparing to fail.”

- Benjamin Franklin

The Lee County Office of Emergency Management is leading the county-wide Hazard Mitigation Plan (HMP) update process to examine future natural hazards that could risk life and property. **The update is required to be eligible for future mitigation grants and help communities be prepared.**

WHAT?	HMPs are prepared and adopted by counties and jurisdictions with the primary purpose of identifying, assessing, and reducing the long-term risks from natural hazard events.
WHY?	Comprehensive, long-term planning will help Lee County and the participating jurisdictions prepare for disasters before they happen to reduce the impact when a disaster occurs.
WHO?	FEMA regulations require public participation in HMP development . Support the plan by attending a public meeting, taking the public survey (at the link/QR code below), and checking the website for updates: www.co.lee.tx.us/page/lee.Emergency .

Live or work in Lee County?
Take our survey!
USE THE QR CODE HERE, or this link:
<https://www.surveymonkey.com/r/8BBQD73>



FAQs —

What are the benefits of hazard mitigation?

- Identifying actions for risk reduction that are agreed upon by stakeholders and the public.
- Focusing resources on the greatest risks and vulnerabilities.
- Building partnerships by involving citizens, organizations, and businesses.
- Increasing education and awareness of threats and hazards, as well as their risks.
- Communicating priorities to state and federal officials.
- Aligning risk reduction with other community objectives.

What will the plan address?

The primary hazards of concern in the county include dam/levee failure, drought, erosion, expansive soils, extreme temperature, flood, hailstorm, land subsidence, lightning, tornado, wildfire, wind, and winter storms.

The study will focus on existing buildings and potential future development, infrastructure, and lifelines that might be impacted. Lifelines include but are not limited to municipal buildings and infrastructure such as power-generation facilities, water utilities, roadways, railroads and communication systems

Where can I see the 2025 plan?

Sections of the draft plan will be available for download, review, and comment on our website at www.co.lee.tx.us/page/lee.Emergency.

For more information about this process, please contact:

County Judge Frank Malinak, frank.Malinak@co.lee.tx.us
Lee County Office of Emergency Services:



Lee County Full Draft Public Review Notice

Emergency Management

Notice for Public Review of 2025 Lee County Hazard Mitigation
Plan Update

Current Lee County Hazard Mitigation Plan

Public Notice: Review of the 2025 Lee County Hazard Mitigation Plan Update

Lee County, in collaboration with the City of Lexington, the City of Giddings, Lexington ISD, Dime Box ISD, and Giddings ISD, has completed a draft of the [2025 Lee County Multi-Jurisdictional Hazard Mitigation Plan Update](#).

We invite the public to review the draft and provide feedback. Your input is valuable in helping us build a safer and more resilient community.

To submit comments or suggestions, please contact:
Gabe Ural at Gabe@lcmsinc.com

APPENDIX F: PROGRESS LOGS

[illegible]

Plan Progress Update Log – City of Lexington

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

APPENDIX G: LETTERS OF ADOPTION

